Odin

Generated by Doxygen 1.8.13

Thu Aug 10 2017 19:13:39

Contents

1 Data Structure Documentation

1.1 ace_cube_t Struct Reference

Data Fields

- pset cube
- int num_literals
- double static_prob

1.1.1 Detailed Description

Definition at line 69 of file ace.cpp.

1.1.2 Field Documentation

1.1.2.1 cube

```
pset cube
```

Definition at line 70 of file ace.cpp.

1.1.2.2 num_literals

```
int num_literals
```

Definition at line 71 of file ace.cpp.

1.1.2.3 static_prob

```
double static_prob
```

Definition at line 72 of file ace.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/ace.cpp

1.2 adder_signals Struct Reference

`#include <adders.h>`

Data Fields

- signal_list_t * a
- signal_list_t * b
- signal_list_t * cin
- signal_list_t * cout
- signal_list_t * sumout

1.2.1 Detailed Description

Definition at line 38 of file adders.h.

1.2.2 Field Documentation

1.2.2.1 a

`signal_list_t* a`

Definition at line 39 of file adders.h.

1.2.2.2 b

`signal_list_t* b`

Definition at line 40 of file adders.h.

1.2.2.3 cin

`signal_list_t* cin`

Definition at line 41 of file adders.h.

1.2.2.4 cout

```
signal_list_t* cout
```

Definition at line 42 of file adders.h.

1.2.2.5 sumout

```
signal_list_t* sumout
```

Definition at line 43 of file adders.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/adders.h

1.3 dp_ram_signals Struct Reference

```
#include <memories.h>
```

Data Fields

- signal_list_t * addr1
- signal_list_t * addr2
- signal_list_t * data1
- signal_list_t * data2
- signal_list_t * out1
- signal_list_t * out2
- npin_t * we1
- npin_t * we2
- npin_t * clk

1.3.1 Detailed Description

Definition at line 61 of file memories.h.

1.3.2 Field Documentation

1.3.2.1 addr1

```
signal_list_t* addr1
```

Definition at line 62 of file memories.h.

1.3.2.2 addr2

```
signal_list_t* addr2
```

Definition at line 63 of file memories.h.

1.3.2.3 clk

```
npin_t* clk
```

Definition at line 70 of file memories.h.

1.3.2.4 data1

```
signal_list_t* data1
```

Definition at line 64 of file memories.h.

1.3.2.5 data2

```
signal_list_t* data2
```

Definition at line 65 of file memories.h.

1.3.2.6 out1

```
signal_list_t* out1
```

Definition at line 66 of file memories.h.

1.3.2.7 out2

```
signal_list_t* out2
```

Definition at line 67 of file memories.h.

1.3.2.8 we1

```
npin_t* we1
```

Definition at line 68 of file memories.h.

1.3.2.9 we2

```
npin_t* we2
```

Definition at line 69 of file memories.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.h

1.4 exp_node Struct Reference

```
#include <ast_elaborate.h>
```

Data Fields

- struct {
  short operation
  int data
  std::string variable
  } type
- int id
- int flag
- int priority
- struct exp_node * next
- struct exp_node * pre

1.4.1 Detailed Description

Definition at line 41 of file ast_elaborate.h.

1.4.2 Field Documentation

1.4.2.1 data

```
int data
```

Definition at line 46 of file ast_elaborate.h.

1.4.2.2 flag

```
int flag
```

Definition at line 51 of file ast_elaborate.h.

1.4.2.3 id

```
int id
```

Definition at line 50 of file ast_elaborate.h.

1.4.2.4 next

```
struct exp_node* next
```

Definition at line 53 of file ast_elaborate.h.

1.4.2.5 operation

```
short operation
```

Definition at line 45 of file ast_elaborate.h.

1.4.2.6 pre

```
struct exp_node* pre
```

Definition at line 54 of file ast_elaborate.h.

1.4.2.7 priority

```
int priority
```

Definition at line 52 of file ast_elaborate.h.

1.4.2.8 type

```
struct { ...  } type
```

1.4.2.9 variable

```
std::string variable
```

Definition at line 47 of file ast_elaborate.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/ast_elaborate.h

1.5 hard_block_model Struct Reference

Data Fields

- char * name
- hard_block_pins * inputs
- hard_block_pins * outputs
- hard_block_ports * input_ports
- hard_block_ports * output_ports

1.5.1 Detailed Description

Definition at line 73 of file read_blif.cpp.

1.5.2 Field Documentation

1.5.2.1 input_ports

```
hard_block_ports* input_ports
```

Definition at line 79 of file read_blif.cpp.

1.5.2.2 inputs

```
hard_block_pins* inputs
```

Definition at line 76 of file read_blif.cpp.

1.5.2.3 name

```
char* name
```

Definition at line 74 of file read_blif.cpp.

1.5.2.4 output_ports

```
hard_block_ports* output_ports
```

Definition at line 80 of file read_blif.cpp.

1.5.2.5 outputs

```
hard_block_pins* outputs
```

Definition at line 77 of file read_blif.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.cpp

1.6 hard_block_models Struct Reference

Data Fields

- hard_block_model ** models
- int count
- hashtable_t * index

1.6.1 Detailed Description

Definition at line 84 of file read_blif.cpp.

1.6.2 Field Documentation

1.6.2.1 count

```
int count
```

Definition at line 86 of file read_blif.cpp.

1.6.2.2 index

```
hashtable_t* index
```

Definition at line 88 of file read_blif.cpp.

1.6.2.3 models

```
hard_block_model** models
```

Definition at line 85 of file read_blif.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.cpp

1.7 hard_block_pins Struct Reference

Data Fields

- int count
- char ** names
- hashtable_t * index

1.7.1 Detailed Description

Definition at line 55 of file read_blif.cpp.

1.7.2 Field Documentation

1.7.2.1 count

```
int count
```

Definition at line 56 of file read_blif.cpp.

1.7.2.2 index

```
hashtable_t* index
```

Definition at line 59 of file read_blif.cpp.

1.7.2.3 names

```
char** names
```

Definition at line 57 of file read_blif.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.cpp

1.8 hard_block_ports Struct Reference

Data Fields

- char * signature
- int count
- int * sizes
- char ** names
- hashtable_t * index

1.8.1 Detailed Description

Definition at line 63 of file read_blif.cpp.

1.8.2 Field Documentation

1.8.2.1 count

```
int count
```

Definition at line 65 of file read_blif.cpp.

1.8.2.2 index

```
hashtable_t* index
```

Definition at line 69 of file read_blif.cpp.

1.8.2.3 names

```
char** names
```

Definition at line 67 of file read_blif.cpp.

1.8.2.4 signature

```
char* signature
```

Definition at line 64 of file read_blif.cpp.

1.8.2.5 sizes

```
int* sizes
```

Definition at line 66 of file read_blif.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.cpp

1.9 hashtable_node_t_t Struct Reference

`#include <hashtable.h>`

Data Fields

- size_t key_length
- void * key
- void * item
- hashtable_node_t * next

1.9.1 Detailed Description

Definition at line 55 of file hashtable.h.

1.9.2 Field Documentation

1.9.2.1 item

```
void* item
```

Definition at line 59 of file hashtable.h.

1.9.2.2 key

```
void* key
```

Definition at line 58 of file hashtable.h.

1.9.2.3 key_length

```
size_t key_length
```

Definition at line 57 of file hashtable.h.

1.9.2.4 next

```
hashtable_node_t* next
```

Definition at line 60 of file hashtable.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/hashtable.h

1.10 hashtable_t_t Struct Reference

```
#include <hashtable.h>
```

Data Fields

- int count
- int store_size
- hashtable_node_t ** store
- void(* add)(hashtable_t *h, const void *key, size_t key_length, void *item)
- void *(* remove)(hashtable_t *h, const void *key, size_t key_length)
- void *(* get)(hashtable_t *h, const void *key, size_t key_length)
- void **(* get_all)(hashtable_t *h)
- int(* is_empty)(hashtable_t *h)
- void(* destroy)(hashtable_t *h)
- void(* destroy_free_items)(hashtable_t *h)

1.10.1 Detailed Description

Definition at line 33 of file hashtable.h.

1.10.2 Field Documentation

1.10.2.1 add

```
void(* add) (hashtable_t *h, const void *key, size_t key_length, void *item)
```

Definition at line 40 of file hashtable.h.

1.10.2.2 count

```
int count
```

Definition at line 35 of file hashtable.h.

1.10.2.3 destroy

```
void(* destroy) (hashtable_t *h)
```

Definition at line 50 of file hashtable.h.

1.10.2.4 destroy_free_items

```
void(* destroy_free_items) (hashtable_t *h)
```

Definition at line 52 of file hashtable.h.

1.10.2.5 get

```
void*(* get) (hashtable_t *h, const void *key, size_t key_length)
```

Definition at line 44 of file hashtable.h.

1.10.2.6 get_all

```
void**(* get_all) (hashtable_t *h)
```

Definition at line 46 of file hashtable.h.

1.10.2.7 is_empty

```
int(* is_empty) (hashtable_t *h)
```

Definition at line 48 of file hashtable.h.

1.10.2.8 remove

```
void*(* remove) (hashtable_t *h, const void *key, size_t key_length)
```

Definition at line 42 of file hashtable.h.

1.10.2.9 store

```
hashtable_node_t** store
```

Definition at line 37 of file hashtable.h.

1.10.2.10 store_size

```
int store_size
```

Definition at line 36 of file hashtable.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/hashtable.h

1.11 implicit_memory Struct Reference

```
#include <implicit_memory.h>
```

Data Fields

- nnode_t * node
- int data_width
- int addr_width
- char clock_added
- char output_added
- char * name

1.11.1 Detailed Description

Definition at line 33 of file implicit_memory.h.

1.11.2 Field Documentation

1.11.2.1 addr_width

```
int addr_width
```

Definition at line 36 of file implicit_memory.h.

1.11.2.2 clock_added

```
char clock_added
```

Definition at line 37 of file implicit_memory.h.

1.11.2.3 data_width

```
int data_width
```

Definition at line 35 of file implicit_memory.h.

1.11.2.4 name

```
char* name
```

Definition at line 39 of file implicit_memory.h.

1.11.2.5 node

```
nnode_t* node
```

Definition at line 34 of file implicit_memory.h.

1.11.2.6 output_added

```
char output_added
```

Definition at line 38 of file implicit_memory.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/implicit_memory.h

1.12 line_t Struct Reference

`#include <simulate_blif.h>`

Data Fields

- int number_of_pins
- int max_number_of_pins
- npin_t ** pins
- int * pin_numbers
- char * name
- int type

1.12.1 Detailed Description

Definition at line 64 of file simulate_blif.h.

1.12.2 Field Documentation

1.12.2.1 max_number_of_pins

`int max_number_of_pins`

Definition at line 66 of file simulate_blif.h.

1.12.2.2 name

`char* name`

Definition at line 69 of file simulate_blif.h.

1.12.2.3 number_of_pins

`int number_of_pins`

Definition at line 65 of file simulate_blif.h.

1.12.2.4 pin_numbers

```
int* pin_numbers
```

Definition at line 68 of file simulate_blif.h.

1.12.2.5 pins

```
npin_t** pins
```

Definition at line 67 of file simulate_blif.h.

1.12.2.6 type

```
int type
```

Definition at line 70 of file simulate_blif.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h

1.13 lines_t Struct Reference

```
#include <simulate_blif.h>
```

Data Fields

- line_t ** lines
- int * pin_numbers
- int count

1.13.1 Detailed Description

Definition at line 73 of file simulate_blif.h.

1.13.2 Field Documentation

1.13.2.1 count

```
int count
```

Definition at line 76 of file simulate_blif.h.

1.13.2.2 lines

```
line_t** lines
```

Definition at line 74 of file simulate_blif.h.

1.13.2.3 pin_numbers

```
int* pin_numbers
```

Definition at line 75 of file simulate_blif.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h

1.14 node_list_t_t Struct Reference

Data Fields

- nnode_t * node
- struct node_list_t_t * next

1.14.1 Detailed Description

Definition at line 42 of file netlist_cleanup.cpp.

1.14.2 Field Documentation

1.14.2.1 next

```
struct node_list_t_t* next
```

Definition at line 44 of file netlist_cleanup.cpp.

1.14.2.2 node

```
nnode_t* node
```

Definition at line 43 of file netlist_cleanup.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_cleanup.cpp

1.15 ParseInitRegState Struct Reference

Public Member Functions

- int from_str (std::string str)
- std::string to_str (int val)
- std::vector< std::string > default_choices ()

1.15.1 Detailed Description

Definition at line 271 of file odin_ii.cpp.

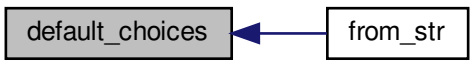
1.15.2 Member Function Documentation

1.15.2.1 default_choices()

```
std::vector<std::string> default_choices ( )  [inline]
```

Definition at line 290 of file odin_ii.cpp.

Here is the caller graph for this function:



1.15.2.2 from_str()

```
int from_str (
            std::string str )  [inline]
```

Definition at line 272 of file odin_ii.cpp.

1.15.2.3 to_str()

```
std::string to_str (
            int val )  [inline]
```

Definition at line 281 of file odin_ii.cpp.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/odin_ii.cpp

1.16 pin_names Struct Reference

```
#include <simulate_blif.h>
```

Data Fields

- char ** pins
- int count

1.16.1 Detailed Description

Definition at line 59 of file simulate_blif.h.

1.16.2 Field Documentation

1.16.2.1 count

```
int count
```

Definition at line 61 of file simulate_blif.h.

1.16.2.2 pins

```
char** pins
```

Definition at line 60 of file simulate_blif.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h

1.17 queue_node_t_t Struct Reference

```
#include <queue.h>
```

Data Fields

- queue_node_t * next
- void * item

1.17.1 Detailed Description

Definition at line 49 of file queue.h.

1.17.2 Field Documentation

1.17.2.1 item

```
void* item
```

Definition at line 52 of file queue.h.

1.17.2.2 next

```
queue_node_t* next
```

Definition at line 51 of file queue.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/queue.h

1.18 queue_t_t Struct Reference

`#include <queue.h>`

Data Fields

- queue_node_t * head
- queue_node_t * tail
- int count
- void(* add)(queue_t *q, void *item)
- void *(* remove)(queue_t *q)
- void **(* remove_all)(queue_t *q)
- int(* is_empty)(queue_t *q)
- void(* destroy)(queue_t *q)

1.18.1 Detailed Description

Definition at line 31 of file queue.h.

1.18.2 Field Documentation

1.18.2.1 add

```
void(* add) (queue_t *q, void *item)
```

Definition at line 38 of file queue.h.

1.18.2.2 count

```
int count
```

Definition at line 35 of file queue.h.

1.18.2.3 destroy

```
void(* destroy) (queue_t *q)
```

Definition at line 46 of file queue.h.

1.18.2.4 head

```
queue_node_t* head
```

Definition at line 33 of file queue.h.

1.18.2.5 is_empty

```
int(* is_empty) (queue_t *q)
```

Definition at line 44 of file queue.h.

1.18.2.6 remove

```
void*(* remove) (queue_t *q)
```

Definition at line 40 of file queue.h.

1.18.2.7 remove_all

```
void**(* remove_all) (queue_t *q)
```

Definition at line 42 of file queue.h.

1.18.2.8 tail

```
queue_node_t* tail
```

Definition at line 34 of file queue.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/queue.h

1.19 s_adder Struct Reference

```
#include <adders.h>
```

Data Fields

- int size_a
- int size_b
- int size_cin
- int size_sumout
- int size_cout
- struct s_adder * next

1.19.1 Detailed Description

Definition at line 28 of file adders.h.

1.19.2 Field Documentation

1.19.2.1 next

```
struct s_adder* next
```

Definition at line 35 of file adders.h.

1.19.2.2 size_a

```
int size_a
```

Definition at line 30 of file adders.h.

1.19.2.3 size_b

```
int size_b
```

Definition at line 31 of file adders.h.

1.19.2.4 size_cin

```
int size_cin
```

Definition at line 32 of file adders.h.

1.19.2.5 size_cout

```
int size_cout
```

Definition at line 34 of file adders.h.

1.19.2.6 size_sumout

```
int size_sumout
```

Definition at line 33 of file adders.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/adders.h

1.20 s_memory Struct Reference

```
#include <memories.h>
```

Data Fields

- int size_d1
- int size_d2
- int size_addr1
- int size_addr2
- int size_out1
- int size_out2
- struct s_memory * next

1.20.1 Detailed Description

Definition at line 36 of file memories.h.

1.20.2 Field Documentation

1.20.2.1 next

```
struct s_memory* next
```

Definition at line 44 of file memories.h.

1.20.2.2 size_addr1

```
int size_addr1
```

Definition at line 40 of file memories.h.

1.20.2.3 size_addr2

```
int size_addr2
```

Definition at line 41 of file memories.h.

1.20.2.4 size_d1

```
int size_d1
```

Definition at line 38 of file memories.h.

1.20.2.5 size_d2

```
int size_d2
```

Definition at line 39 of file memories.h.

1.20.2.6 size_out1

```
int size_out1
```

Definition at line 42 of file memories.h.

1.20.2.7 size_out2

```
int size_out2
```

Definition at line 43 of file memories.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.h

1.21 s_memory_port_sizes Struct Reference

`#include <memories.h>`

Data Fields

- int size
- char * name

1.21.1 Detailed Description

Definition at line 47 of file memories.h.

1.21.2 Field Documentation

1.21.2.1 name

`char* name`

Definition at line 50 of file memories.h.

1.21.2.2 size

`int size`

Definition at line 49 of file memories.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.h

1.22 s_multiplier Struct Reference

`#include <multipliers.h>`

Data Fields

- int size_a
- int size_b
- int size_out
- struct s_multiplier * next

1.22.1 Detailed Description

Definition at line 28 of file multipliers.h.

1.22.2 Field Documentation

1.22.2.1 next

```
struct s_multiplier* next
```

Definition at line 33 of file multipliers.h.

1.22.2.2 size_a

```
int size_a
```

Definition at line 30 of file multipliers.h.

1.22.2.3 size_b

```
int size_b
```

Definition at line 31 of file multipliers.h.

1.22.2.4 size_out

```
int size_out
```

Definition at line 32 of file multipliers.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/multipliers.h

1.23 sp_ram_signals Struct Reference

```
#include <memories.h>
```

Data Fields

- signal_list_t * addr
- signal_list_t * data
- signal_list_t * out
- npin_t * we
- npin_t * clk

1.23.1 Detailed Description

Definition at line 53 of file memories.h.

1.23.2 Field Documentation

1.23.2.1 addr

```
signal_list_t* addr
```

Definition at line 54 of file memories.h.

1.23.2.2 clk

```
npin_t* clk
```

Definition at line 58 of file memories.h.

1.23.2.3 data

```
signal_list_t* data
```

Definition at line 55 of file memories.h.

1.23.2.4 out

```
signal_list_t* out
```

Definition at line 56 of file memories.h.

1.23.2.5 we

```
npin_t* we
```

Definition at line 57 of file memories.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.h

1.24 stages_t Struct Reference

```
#include <simulate_blif.h>
```

Data Fields

- nnode_t *** stages
- int * counts
- int count
- double * sequential_times
- double * parallel_times
- int num_nodes
- int num_connections
- int * num_children
- int num_parallel_nodes

1.24.1 Detailed Description

Definition at line 79 of file simulate_blif.h.

1.24.2 Field Documentation

1.24.2.1 count

```
int count
```

Definition at line 82 of file simulate_blif.h.

1.24.2.2 counts

```
int* counts
```

Definition at line 81 of file simulate_blif.h.

1.24.2.3 num_children

```
int* num_children
```

Definition at line 89 of file simulate_blif.h.

1.24.2.4 num_connections

```
int num_connections
```

Definition at line 88 of file simulate_blif.h.

1.24.2.5 num_nodes

```
int num_nodes
```

Definition at line 87 of file simulate_blif.h.

1.24.2.6 num_parallel_nodes

```
int num_parallel_nodes
```

Definition at line 90 of file simulate_blif.h.

1.24.2.7 parallel_times

```
double* parallel_times
```

Definition at line 84 of file simulate_blif.h.

1.24.2.8 sequential_times

```
double* sequential_times
```

Definition at line 83 of file simulate_blif.h.

1.24.2.9 stages

```
nnode_t*** stages
```

Definition at line 80 of file simulate_blif.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h

1.25 STRING_CACHE Struct Reference

```
#include <string_cache.h>
```

Data Fields

- long size
- long string_hash_size
- long free
- long mod
- long mul
- char ** string
- void ** data
- long * string_hash
- long * next_string

1.25.1 Detailed Description

Definition at line 24 of file string_cache.h.

1.25.2 Field Documentation

1.25.2.1 data

```
void** data
```

Definition at line 31 of file string_cache.h.

1.25.2.2 free

```
long free
```

Definition at line 27 of file string_cache.h.

1.25.2.3 mod

```
long mod
```

Definition at line 28 of file string_cache.h.

1.25.2.4 mul

```
long mul
```

Definition at line 29 of file string_cache.h.

1.25.2.5 next_string

```
long* next_string
```

Definition at line 33 of file string_cache.h.

1.25.2.6 size

```
long size
```

Definition at line 25 of file string_cache.h.

1.25.2.7 string

```
char** string
```

Definition at line 30 of file string_cache.h.

1.25.2.8 string_hash

```
long* string_hash
```

Definition at line 32 of file string_cache.h.

1.25.2.9 string_hash_size

```
long string_hash_size
```

Definition at line 26 of file string_cache.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/string_cache.h

1.26 test_vector Struct Reference

```
#include <simulate_blif.h>
```

Data Fields

- signed char ** values
- int * counts
- int count

1.26.1 Detailed Description

Definition at line 93 of file simulate_blif.h.

1.26.2 Field Documentation

1.26.2.1 count

```
int count
```

Definition at line 96 of file simulate_blif.h.

1.26.2.2 counts

```
int* counts
```

Definition at line 95 of file simulate_blif.h.

1.26.2.3 values

```
signed char** values
```

Definition at line 94 of file simulate_blif.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h

1.27 veri_define Struct Reference

```
#include <verilog_preprocessor.h>
```

Data Fields

- char * symbol
- char * value
- int line
- veri_include * defined_in

1.27.1 Detailed Description

Definition at line 17 of file verilog_preprocessor.h.

1.27.2 Field Documentation

1.27.2.1 defined_in

```
veri_include* defined_in
```

Definition at line 22 of file verilog_preprocessor.h.

1.27.2.2 line

```
int line
```

Definition at line 21 of file verilog_preprocessor.h.

1.27.2.3 symbol

```
char* symbol
```

Definition at line 19 of file verilog_preprocessor.h.

1.27.2.4 value

```
char* value
```

Definition at line 20 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

1.28 veri_Defines Struct Reference

```
#include <verilog_preprocessor.h>
```

Data Fields

- veri_define ** defined_constants
- int current_size
- int current_index

1.28.1 Detailed Description

Definition at line 32 of file verilog_preprocessor.h.

1.28.2 Field Documentation

1.28.2.1 current_index

```
int current_index
```

Definition at line 36 of file verilog_preprocessor.h.

1.28.2.2 current_size

```
int current_size
```

Definition at line 35 of file verilog_preprocessor.h.

1.28.2.3 defined_constants

```
veri_define** defined_constants
```

Definition at line 34 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

1.29 veri_flag_node Struct Reference

```
#include <verilog_preprocessor.h>
```

Data Fields

- int flag
- struct veri_flag_node * next

1.29.1 Detailed Description

Definition at line 63 of file verilog_preprocessor.h.

1.29.2 Field Documentation

1.29.2.1 flag

```
int flag
```

Definition at line 65 of file verilog_preprocessor.h.

1.29.2.2 next

```
struct veri_flag_node* next
```

Definition at line 66 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

1.30 veri_flag_stack Struct Reference

```
#include <verilog_preprocessor.h>
```

Data Fields

- veri_flag_node * top

1.30.1 Detailed Description

Definition at line 69 of file verilog_preprocessor.h.

1.30.2 Field Documentation

1.30.2.1 top

```
veri_flag_node* top
```

Definition at line 71 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

1.31 veri_include Struct Reference

`#include <verilog_preprocessor.h>`

Data Fields

- char * path
- struct veri_include * included_from
- int line

1.31.1 Detailed Description

Definition at line 10 of file verilog_preprocessor.h.

1.31.2 Field Documentation

1.31.2.1 included_from

```
struct veri_include* included_from
```

Definition at line 13 of file verilog_preprocessor.h.

1.31.2.2 line

```
int line
```

Definition at line 14 of file verilog_preprocessor.h.

1.31.2.3 path

```
char* path
```

Definition at line 12 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

1.32 veri_Includes Struct Reference

`#include <verilog_preprocessor.h>`

Data Fields

- veri_include ** included_files
- int current_size
- int current_index

1.32.1 Detailed Description

Definition at line 25 of file verilog_preprocessor.h.

1.32.2 Field Documentation

1.32.2.1 current_index

`int current_index`

Definition at line 29 of file verilog_preprocessor.h.

1.32.2.2 current_size

`int current_size`

Definition at line 28 of file verilog_preprocessor.h.

1.32.2.3 included_files

`veri_include** included_files`

Definition at line 27 of file verilog_preprocessor.h.

The documentation for this struct was generated from the following file:

- vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h

2 File Documentation

2.1 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/netlist_visualizer.c File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "vtr_memory.h"
```

Functions

- void depth_first_traverse_visualize (nnode_t *node, FILE *fp, int traverse_mark_number)
- void depth_first_traversal_graph_display (FILE *out, short marker_value, netlist_t *netllist)
- void forward_traversal_net_graph_display (FILE *out, short marker_value, nnode_t *node)
- void backward_traversal_net_graph_display (FILE *out, short marker_value, nnode_t *node)
- void graphVizOutputNetlist (char *path, const char *name, short marker_value, netlist_t *netlist)
- void graphVizOutputCombinationalNet (char *path, const char *name, short marker_value, nnode_t *current_↩ node)

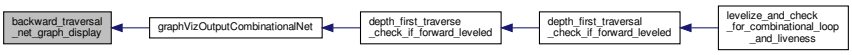
2.1.1 Function Documentation

2.1.1.1 backward_traversal_net_graph_display()

```
void backward_traversal_net_graph_display (
            FILE * out,
            short marker_value,
            nnode_t * node )
```

Definition at line 311 of file netlist_visualizer.c.

Here is the caller graph for this function:

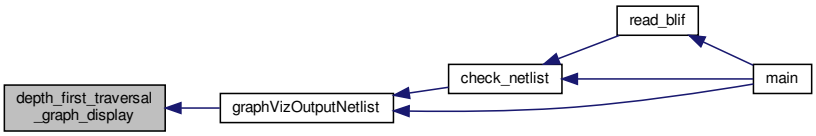


2.1.1.2 depth_first_traversal_graph_display()

```
void depth_first_traversal_graph_display (
            FILE * out,
            short marker_value,
            netlist_t * netllist )
```

Definition at line 68 of file netlist_visualizer.c.

Here is the caller graph for this function:

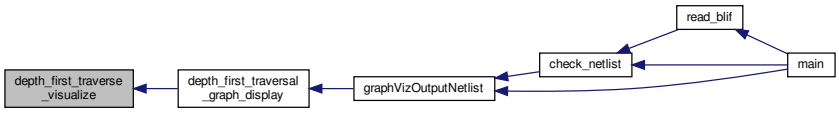


2.1.1.3 depth_first_traverse_visualize()

```
void depth_first_traverse_visualize (
            nnode_t * node,
            FILE * fp,
            int traverse_mark_number )
```

Definition at line 90 of file netlist_visualizer.c.

Here is the caller graph for this function:

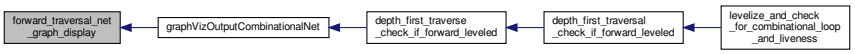


2.1.1.4 forward_traversal_net_graph_display()

```
void forward_traversal_net_graph_display (
            FILE * out,
            short marker_value,
            nnode_t * node )
```

Definition at line 208 of file netlist_visualizer.c.

Here is the caller graph for this function:



2.1.1.5 graphVizOutputCombinationalNet()

```
void graphVizOutputCombinationalNet (
            char * path,
            const char * name,
            short marker_value,
            nnode_t * current_node )
```

Definition at line 184 of file netlist_visualizer.c.

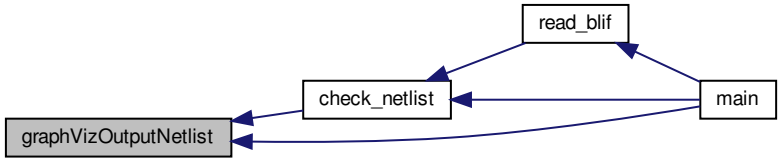
Here is the caller graph for this function:

2.1.1.6 graphVizOutputNetlist()

```
void graphVizOutputNetlist (
            char * path,
            const char * name,
            short marker_value,
            netlist_t * netlist )
```

Definition at line 46 of file netlist_visualizer.c.

Here is the caller graph for this function:



2.2 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/netlist_visualizer.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "vtr_memory.h"
```

Functions

- void depth_first_traverse_visualize (nnode_t *node, FILE *fp, int traverse_mark_number)
- void depth_first_traversal_graph_display (FILE *out, short marker_value, netlist_t *netllist)
- void forward_traversal_net_graph_display (FILE *out, short marker_value, nnode_t *node)
- void backward_traversal_net_graph_display (FILE *out, short marker_value, nnode_t *node)
- void graphVizOutputNetlist (std::string path, const char *name, short marker_value, netlist_t *netlist)
- void graphVizOutputCombinationalNet (std::string path, const char *name, short marker_value, nnode_t *current_node)

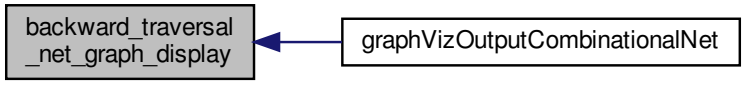
2.2.1 Function Documentation

2.2.1.1 backward_traversal_net_graph_display()

```
void backward_traversal_net_graph_display (
            FILE * out,
            short marker_value,
            nnode_t * node )
```

Definition at line 311 of file netlist_visualizer.cpp.

Here is the caller graph for this function:

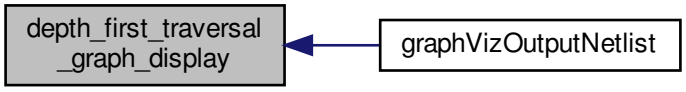


2.2.1.2 depth_first_traversal_graph_display()

```
void depth_first_traversal_graph_display (
             FILE * out,
             short marker_value,
             netlist_t * netllist )
```

Definition at line 68 of file netlist_visualizer.cpp.

Here is the caller graph for this function:

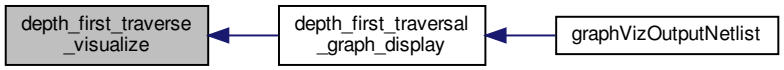


2.2.1.3 depth_first_traverse_visualize()

```
void depth_first_traverse_visualize (
             nnode_t * node,
             FILE * fp,
             int traverse_mark_number )
```

Definition at line 90 of file netlist_visualizer.cpp.

Here is the caller graph for this function:

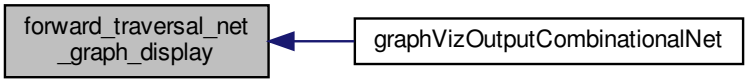


2.2.1.4 forward_traversal_net_graph_display()

```
void forward_traversal_net_graph_display (
            FILE * out,
            short marker_value,
            nnode_t * node )
```

Definition at line 208 of file netlist_visualizer.cpp.

Here is the caller graph for this function:



2.2.1.5 graphVizOutputCombinationalNet()

```
void graphVizOutputCombinationalNet (
            std::string path,
            const char * name,
            short marker_value,
            nnode_t * current_node )
```

Definition at line 184 of file netlist_visualizer.cpp.

2.2.1.6 graphVizOutputNetlist()

```
void graphVizOutputNetlist (
            std::string path,
            const char * name,
            short marker_value,
            netlist_t * netlist )
```

Definition at line 46 of file netlist_visualizer.cpp.

2.3 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/netlist_visualizer.h File Reference

```
#include "types.h"
```

Functions

- void graphVizOutputNetlist (std::string path, const char *name, short marker_value, netlist_t *netlist)
- void graphVizOutputCombinationalNet (std::string path, const char *name, short marker_value, nnode_t *current_node)

2.3.1 Function Documentation

2.3.1.1 graphVizOutputCombinationalNet()

```
void graphVizOutputCombinationalNet (
            std::string path,
            const char * name,
            short marker_value,
            nnode_t * current_node )
```

Definition at line 184 of file netlist_visualizer.cpp.

2.3.1.2 graphVizOutputNetlist()

```
void graphVizOutputNetlist (
            std::string path,
            const char * name,
            short marker_value,
            netlist_t * netlist )
```

Definition at line 46 of file netlist_visualizer.cpp.

2.4 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/print_netlist.c File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include "globals.h"
#include "types.h"
#include "netlist_utils.h"
#include "print_netlist.h"
```

Functions

- void function_to_print_node_and_its_pin (npin_t *)
- void print_netlist_for_checking (netlist_t *netlist, char *name)

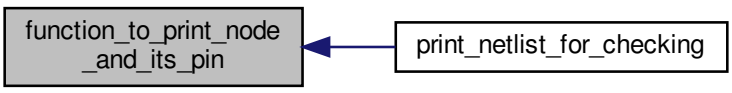
2.4.1 Function Documentation

2.4.1.1 function_to_print_node_and_its_pin()

```
void function_to_print_node_and_its_pin (
            npin_t * temp_pin )
```

Definition at line 298 of file print_netlist.c.

Here is the caller graph for this function:



2.4.1.2 print_netlist_for_checking()

```
void print_netlist_for_checking (
            netlist_t * netlist,
            char * name )
```

Definition at line 37 of file print_netlist.c.

2.5 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/print_netlist.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include "globals.h"
#include "types.h"
#include "netlist_utils.h"
#include "print_netlist.h"
```

Functions

- void function_to_print_node_and_its_pin (npin_t *)
- void print_netlist_for_checking (netlist_t *netlist, char *name)

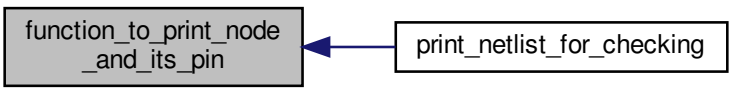
2.5.1 Function Documentation

2.5.1.1 function_to_print_node_and_its_pin()

```
void function_to_print_node_and_its_pin (
            npin_t * temp_pin )
```

Definition at line 298 of file print_netlist.cpp.

Here is the caller graph for this function:



2.5.1.2 print_netlist_for_checking()

```
void print_netlist_for_checking (
            netlist_t * netlist,
            char * name )
```

Definition at line 37 of file print_netlist.cpp.

2.6 vtr-verilog-to-routing/ODIN_II/SRC/DEBUG_TOOLS/print_netlist.h File Reference

Functions

- void print_netlist_for_checking (netlist_t *netlist, char *name)

2.6.1 Function Documentation

2.6.1.1 print_netlist_for_checking()

```
void print_netlist_for_checking (
            netlist_t * netlist,
            char * name )
```

Definition at line 37 of file print_netlist.c.

2.7 vtr-verilog-to-routing/ODIN_II/SRC/globals.h File Reference

```
#include "types.h"
#include "string_cache.h"
#include "read_xml_arch_file.h"
```

Variables

- t_type_descriptor * type_descriptors
- int yylineno
- short to_view_parse
- global_args_t global_args
- config_t configuration
- size_t current_parse_file
- size_t num_modules
- ast_node_t ** ast_modules
- STRING_CACHE * module_names_to_idx
- STRING_CACHE * output_nets_sc
- STRING_CACHE * input_nets_sc
- STRING_CACHE * local_symbol_table_sc
- STRING_CACHE * global_param_table_sc
- STRING_CACHE * function_local_symbol_table_sc
- netlist_t * verilog_netlist
- ast_node_t * top_module
- nnode_t ** top_input_nodes
- size_t num_top_input_nodes
- nnode_t ** top_output_nodes
- size_t num_top_output_nodes

- nnode_t * gnd_node
- nnode_t * vcc_node
- nnode_t * pad_node
- nnet_t * zero_net
- nnet_t * one_net
- nnet_t * pad_net
- char * one_string
- char * zero_string
- char * pad_string
- t_arch Arch
- netlist_t * blif_netlist
- netlist_t * read_blif_netlist
- global_args_read_blif_t global_args_read_blif
- size_t file_line_number

2.7.1 Variable Documentation

2.7.1.1 Arch

```
t_arch Arch
```

Definition at line 58 of file odin_ii.cpp.

2.7.1.2 ast_modules

```
ast_node_t** ast_modules
```

Definition at line 68 of file parse_making_ast.cpp.

2.7.1.3 blif_netlist

```
netlist_t* blif_netlist
```

2.7.1.4 configuration

```
config_t configuration
```

Definition at line 38 of file read_xml_config_file.cpp.

2.7.1.5 current_parse_file

```
size_t current_parse_file
```

Definition at line 57 of file odin_ii.cpp.

2.7.1.6 file_line_number

```
size_t file_line_number
```

Definition at line 47 of file read_blif.cpp.

2.7.1.7 function_local_symbol_table_sc

```
STRING_CACHE* function_local_symbol_table_sc
```

Definition at line 64 of file netlist_create_from_ast.cpp.

2.7.1.8 global_args

```
global_args_t global_args
```

Definition at line 59 of file odin_ii.cpp.

2.7.1.9 global_args_read_blif

```
global_args_read_blif_t global_args_read_blif
```

2.7.1.10 global_param_table_sc

```
STRING_CACHE* global_param_table_sc
```

Definition at line 65 of file netlist_create_from_ast.cpp.

2.7.1.11 gnd_node

```
nnode_t* gnd_node
```

2.7.1.12 input_nets_sc

```
STRING_CACHE* input_nets_sc
```

Definition at line 61 of file netlist_create_from_ast.cpp.

2.7.1.13 local_symbol_table_sc

```
STRING_CACHE* local_symbol_table_sc
```

Definition at line 63 of file netlist_create_from_ast.cpp.

2.7.1.14 module_names_to_idx

```
STRING_CACHE* module_names_to_idx
```

Definition at line 53 of file parse_making_ast.cpp.

2.7.1.15 num_modules

```
size_t num_modules
```

Definition at line 67 of file parse_making_ast.cpp.

2.7.1.16 num_top_input_nodes

```
size_t num_top_input_nodes
```

2.7.1.17 num_top_output_nodes

```
size_t num_top_output_nodes
```

2.7.1.18 one_net

```
nnet_t* one_net
```

2.7.1.19 one_string

```
char* one_string
```

Definition at line 75 of file netlist_create_from_ast.cpp.

2.7.1.20 output_nets_sc

```
STRING_CACHE* output_nets_sc
```

Definition at line 60 of file netlist_create_from_ast.cpp.

2.7.1.21 pad_net

```
nnet_t* pad_net
```

2.7.1.22 pad_node

```
nnode_t* pad_node
```

2.7.1.23 pad_string

```
char* pad_string
```

Definition at line 77 of file netlist_create_from_ast.cpp.

2.7.1.24 read_blif_netlist

```
netlist_t* read_blif_netlist
```

2.7.1.25 to_view_parse

```
short to_view_parse
```

Definition at line 75 of file parse_making_ast.cpp.

2.7.1.26 top_input_nodes

```
nnode_t** top_input_nodes
```

2.7.1.27 top_module

```
ast_node_t* top_module
```

Definition at line 79 of file netlist_create_from_ast.cpp.

2.7.1.28 top_output_nodes

```
nnode_t** top_output_nodes
```

2.7.1.29 type_descriptors

```
t_type_descriptor* type_descriptors
```

Definition at line 60 of file odin_ii.cpp.

2.7.1.30 vcc_node

```
nnode_t* vcc_node
```

2.7.1.31 verilog_netlist

```
netlist_t* verilog_netlist
```

Definition at line 81 of file netlist_create_from_ast.cpp.

2.7.1.32 yylineno

```
int yylineno
```

2.7.1.33 zero_net

```
nnet_t* zero_net
```

2.7.1.34 zero_string

```
char* zero_string
```

Definition at line 76 of file netlist_create_from_ast.cpp.

2.8 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/ast_elaborate.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
#include "types.h"
#include "ast_util.h"
#include "ast_elaborate.h"
#include "parse_making_ast.h"
#include "verilog_bison.h"
#include "netlist_create_from_ast.h"
#include "ctype.h"
#include "vtr_util.h"
#include "vtr_memory.h"
#include <string>
#include <iostream>
#include <vector>
#include <stack>
```

Macros

- #define read_node 1
- #define write_node 2
- #define e_data 1
- #define e_operation 2
- #define e_variable 3
- #define N 64
- #define Max_size 64

Functions

- int simplify_ast ()
- void optimize_for_tree ()
- void search_for_node (ast_node_t *root, std::vector< ast_node_t *> list_for_node, std::vector< ast_node_t *> list_parent)
- ast_node_t * get_copy_tree (ast_node_t *node, long long virtual_value, std::string virtual_name)
- void record_expression (ast_node_t *node, std::vector< std::string > expressions, bool *found_statement)
- long long calculation (std::vector< std::string > post_exp)
- void translate_expression (std::vector< std::string > infix_exp, std::vector< std::string > postfix_exp)
- void reallocate_node (ast_node_t *node, int idx)
- void find_most_unique_count ()
- void mark_node_write (ast_node_t *node, std::vector< std::string > list)
- void mark_node_read (ast_node_t *node, std::vector< std::string > list)
- void remove_intermediate_variable (ast_node_t *node, std::vector< std::string > list, long long virtual_value, std::string virtual_name)
- ast_node_t * search_marked_node (ast_node_t *node, int is, std::string temp)
- void reduce_assignment_expression ()
- void find_assign_node (ast_node_t *node, std::vector< ast_node_t *> list)
- bool simplify_expression ()
- enode * find_tail (enode *node)
- void reduce_enode_list ()
- void store_exp_list (ast_node_t *node)
- void record_tree_info (ast_node_t *node)
- void create_enode (ast_node_t *node)
- bool adjoin_constant ()
- enode * replace_enode (int data, enode *t, int mark)
- bool combine_constant ()
- void construct_new_tree (enode *tail, ast_node_t *node, int line_num, int file_num)
- int check_exp_list (enode *tail)
- bool delete_continuous_multiply ()
- void create_ast_node (enode *temp, ast_node_t *node, int line_num, int file_num)
- void create_op_node (ast_node_t *node, enode *temp, int line_num, int file_num)
- void free_exp_list ()
- bool deal_with_bracket (ast_node_t *node)
- bool check_mult_bracket (std::vector< int > list)
- void recursive_tree (ast_node_t *node, std::vector< int > list_bracket)
- void find_leaf_node (ast_node_t *node, std::vector< int > list_bracket, int ids2)
- void delete_bracket (int begin, int end)
- void delete_bracket_head (enode *begin, enode *end)
- void change_exp_list (enode *begin, enode *end, enode *s, int flag)
- enode * copy_enode_list (enode *new_head, enode *begin, enode *end)
- void copy_enode (enode *node, enode *new_node)
- void delete_bracket_tail (enode *begin, enode *end)
- void delete_bracket_body (enode *begin, enode *end)
- bool check_tree_operation (ast_node_t *node)
- void check_operation (enode *begin, enode *end)
- void reduce_parameter ()
- void find_parameter (ast_node_t *node, std::vector< ast_node_t *>para)
- void remove_para_node (ast_node_t *top, std::vector< ast_node_t *> para)
- void change_para_node (ast_node_t *node, std::string name, long long value)

- void shift_operation ()
- void search_certain_operation (ast_node_t *node)
- void check_binary_operation (ast_node_t *node)
- void check_node_number (ast_node_t *parent, ast_node_t *child, int flag)
- short has_intermediate_variable (ast_node_t *node)
- void keep_all_branch (ast_node_t *temp_node, ast_node_t *for_parent, int mark)

Variables

- size_t count_id = 0
- size_t count_assign = 0
- size_t count
- size_t count_write
- enode * head
- enode * p

2.8.1 Macro Definition Documentation

2.8.1.1 e_data

```
#define e_data 1
```

Definition at line 46 of file ast_elaborate.cpp.

2.8.1.2 e_operation

```
#define e_operation 2
```

Definition at line 47 of file ast_elaborate.cpp.

2.8.1.3 e_variable

```
#define e_variable 3
```

Definition at line 48 of file ast_elaborate.cpp.

2.8.1.4 Max_size

```
#define Max_size 64
```

Definition at line 51 of file ast_elaborate.cpp.

2.8.1.5 N

```
#define N 64
```

Definition at line 50 of file ast_elaborate.cpp.

2.8.1.6 read_node

```
#define read_node 1
```

Definition at line 43 of file ast_elaborate.cpp.

2.8.1.7 write_node

```
#define write_node 2
```

Definition at line 44 of file ast_elaborate.cpp.

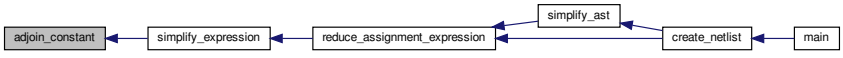
2.8.2 Function Documentation

2.8.2.1 adjoin_constant()

```
bool adjoin_constant ( )
```

Definition at line 692 of file ast_elaborate.cpp.

Here is the caller graph for this function:

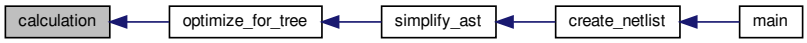


2.8.2.2 calculation()

```
long long calculation (
            std::vector< std::string > post_exp )
```

Definition at line 261 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.3 change_exp_list()

```
void change_exp_list (
            enode * begin,
            enode * end,
            enode * s,
            int flag )
```

Definition at line 1226 of file ast_elaborate.cpp.

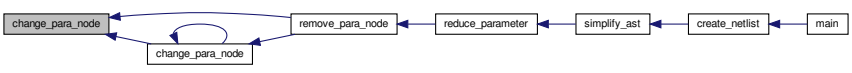
Here is the caller graph for this function:

2.8.2.4 change_para_node()

```
void change_para_node (
            ast_node_t * node,
            std::string name,
            long long value )
```

Definition at line 1486 of file ast_elaborate.cpp.

Here is the caller graph for this function:

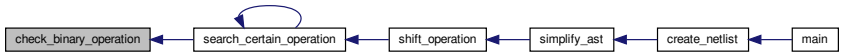


2.8.2.5 check_binary_operation()

```
void check_binary_operation (
            ast_node_t * node )
```

Definition at line 1526 of file ast_elaborate.cpp.

Here is the caller graph for this function:

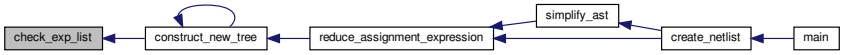


2.8.2.6 check_exp_list()

```
int check_exp_list (
            enode * tail )
```

Definition at line 939 of file ast_elaborate.cpp.

Here is the caller graph for this function:

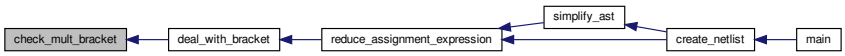


2.8.2.7 check_mult_bracket()

```
bool check_mult_bracket (
            std::vector< int > list )
```

Definition at line 1109 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.8 check_node_number()

```
void check_node_number (
            ast_node_t * parent,
            ast_node_t * child,
            int flag )
```

Definition at line 1550 of file ast_elaborate.cpp.

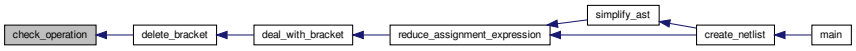
Here is the caller graph for this function:

2.8.2.9 check_operation()

```
void check_operation (
            enode * begin,
            enode * end )
```

Definition at line 1403 of file ast_elaborate.cpp.

Here is the caller graph for this function:

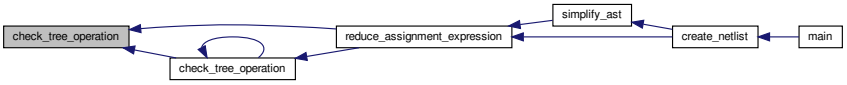


2.8.2.10 check_tree_operation()

```
bool check_tree_operation (
            ast_node_t * node )
```

Definition at line 1388 of file ast_elaborate.cpp.

Here is the caller graph for this function:

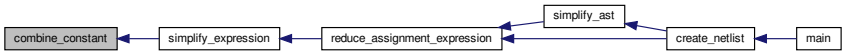


2.8.2.11 combine_constant()

```
bool combine_constant ( )
```

Definition at line 804 of file ast_elaborate.cpp.

Here is the caller graph for this function:

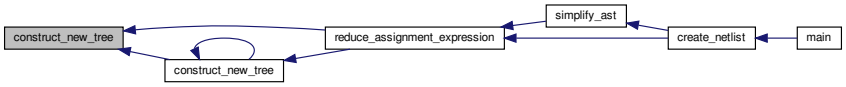


2.8.2.12 construct_new_tree()

```
void construct_new_tree (
            enode * tail,
            ast_node_t * node,
            int line_num,
            int file_num )
```

Definition at line 883 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.13 copy_enode()

```
void copy_enode (
            enode * node,
            enode * new_node )
```

Definition at line 1338 of file ast_elaborate.cpp.

Here is the caller graph for this function:

2.8.2.14 copy_enode_list()

```
enode* copy_enode_list (
            enode * new_head,
            enode * begin,
            enode * end )
```

Definition at line 1319 of file ast_elaborate.cpp.

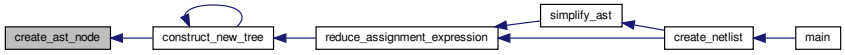
Here is the caller graph for this function:

2.8.2.15 create_ast_node()

```
void create_ast_node (
            enode * temp,
            ast_node_t * node,
            int line_num,
            int file_num )
```

Definition at line 1019 of file ast_elaborate.cpp.

Here is the caller graph for this function:

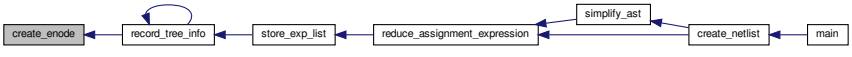


2.8.2.16 create_enode()

```
void create_enode (
            ast_node_t * node )
```

Definition at line 622 of file ast_elaborate.cpp.

Here is the caller graph for this function:

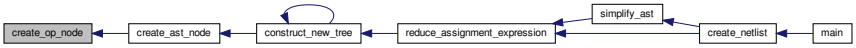


2.8.2.17 create_op_node()

```
void create_op_node (
            ast_node_t * node,
            enode * temp,
            int line_num,
            int file_num )
```

Definition at line 1046 of file ast_elaborate.cpp.

Here is the caller graph for this function:

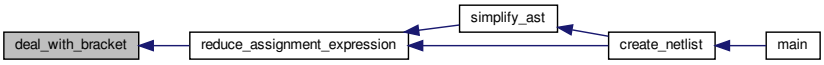


2.8.2.18 deal_with_bracket()

```
bool deal_with_bracket (
            ast_node_t * node )
```

Definition at line 1090 of file ast_elaborate.cpp.

Here is the caller graph for this function:

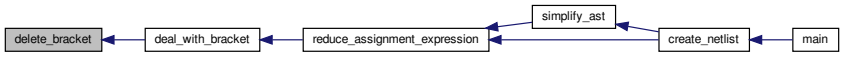


2.8.2.19 delete_bracket()

```
void delete_bracket (
            int begin,
            int end )
```

Definition at line 1170 of file ast_elaborate.cpp.

Here is the caller graph for this function:

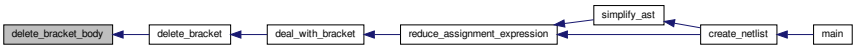


2.8.2.20 delete_bracket_body()

```
void delete_bracket_body (
            enode * begin,
            enode * end )
```

Definition at line 1364 of file ast_elaborate.cpp.

Here is the caller graph for this function:

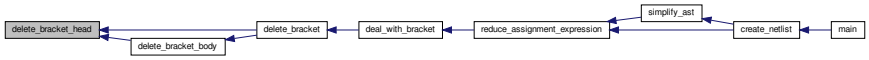


2.8.2.21 delete_bracket_head()

```
void delete_bracket_head (
            enode * begin,
            enode * end )
```

Definition at line 1206 of file ast_elaborate.cpp.

Here is the caller graph for this function:

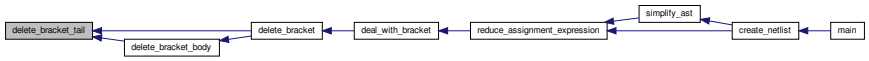


2.8.2.22 delete_bracket_tail()

```
void delete_bracket_tail (
            enode * begin,
            enode * end )
```

Definition at line 1349 of file ast_elaborate.cpp.

Here is the caller graph for this function:

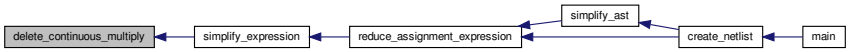


2.8.2.23 delete_continuous_multiply()

```
bool delete_continuous_multiply ( )
```

Definition at line 956 of file ast_elaborate.cpp.

Here is the caller graph for this function:

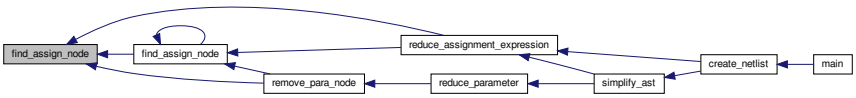


2.8.2.24 find_assign_node()

```
void find_assign_node (
            ast_node_t * node,
            std::vector< ast_node_t *> list )
```

Definition at line 482 of file ast_elaborate.cpp.

Here is the caller graph for this function:

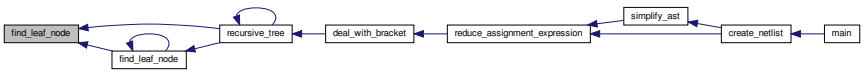


2.8.2.25 find_leaf_node()

```
void find_leaf_node (
            ast_node_t * node,
            std::vector< int > list_bracket,
            int ids2 )
```

Definition at line 1156 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.26 find_most_unique_count()

```
void find_most_unique_count ( )
```

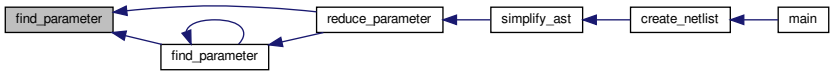
Definition at line 340 of file ast_elaborate.cpp.

2.8.2.27 find_parameter()

```
void find_parameter (
            ast_node_t * node,
            std::vector< ast_node_t *> para )
```

Definition at line 1444 of file ast_elaborate.cpp.

Here is the caller graph for this function:

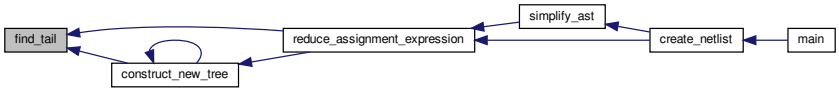


2.8.2.28 find_tail()

```
enode* find_tail (
            enode * node )
```

Definition at line 513 of file ast_elaborate.cpp.

Here is the caller graph for this function:

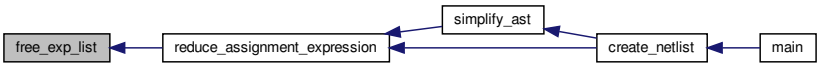


2.8.2.29 free_exp_list()

```
void free_exp_list ( )
```

Definition at line 1077 of file ast_elaborate.cpp.

Here is the caller graph for this function:

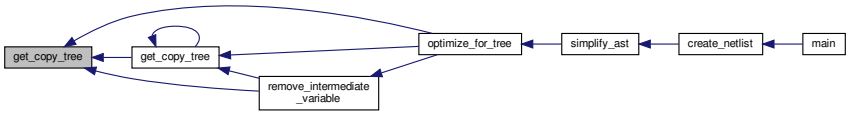


2.8.2.30 get_copy_tree()

```
ast_node_t* get_copy_tree (
             ast_node_t * node,
             long long virtual_value,
             std::string virtual_name )
```

Definition at line 177 of file ast_elaborate.cpp.

Here is the caller graph for this function:

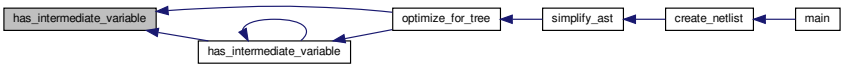


2.8.2.31 has_intermediate_variable()

```
short has_intermediate_variable (
             ast_node_t * node )
```

Definition at line 1582 of file ast_elaborate.cpp.

Here is the caller graph for this function:

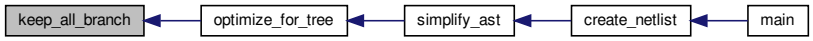


2.8.2.32 keep_all_branch()

```
void keep_all_branch (
            ast_node_t * temp_node,
            ast_node_t * for_parent,
            int mark )
```

Definition at line 1599 of file ast_elaborate.cpp.

Here is the caller graph for this function:

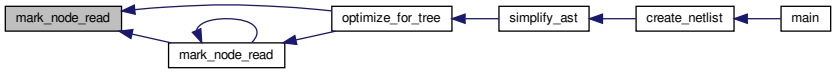


2.8.2.33 mark_node_read()

```
void mark_node_read (
            ast_node_t * node,
            std::vector< std::string > list )
```

Definition at line 367 of file ast_elaborate.cpp.

Here is the caller graph for this function:

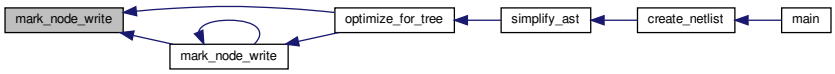


2.8.2.34 mark_node_write()

```
void mark_node_write (
            ast_node_t * node,
            std::vector< std::string > list )
```

Definition at line 351 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.35 optimize_for_tree()

```
void optimize_for_tree ( )
```

Definition at line 80 of file ast_elaborate.cpp.

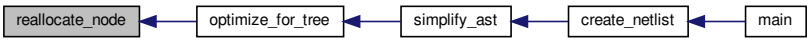
Here is the caller graph for this function:

2.8.2.36 reallocate_node()

```
void reallocate_node (
            ast_node_t * node,
            int idx )
```

Definition at line 326 of file ast_elaborate.cpp.

Here is the caller graph for this function:

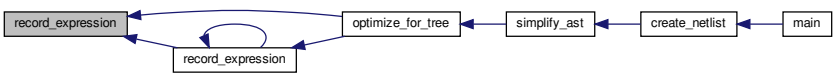


2.8.2.37 record_expression()

```
void record_expression (
            ast_node_t * node,
            std::vector< std::string > expressions,
            bool * found_statement )
```

Definition at line 205 of file ast_elaborate.cpp.

Here is the caller graph for this function:

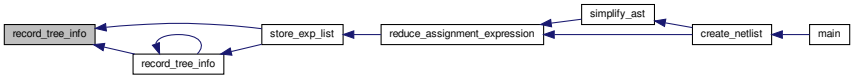


2.8.2.38 record_tree_info()

```
void record_tree_info (
            ast_node_t * node )
```

Definition at line 603 of file ast_elaborate.cpp.

Here is the caller graph for this function:

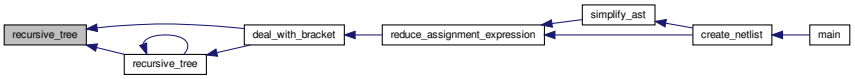


2.8.2.39 recursive_tree()

```
void recursive_tree (
            ast_node_t * node,
            std::vector< int > list_bracket )
```

Definition at line 1133 of file ast_elaborate.cpp.

Here is the caller graph for this function:

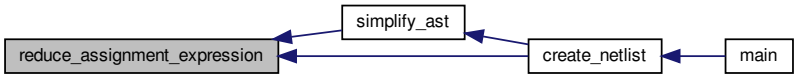


2.8.2.40 reduce_assignment_expression()

```
void reduce_assignment_expression ( )
```

Definition at line 439 of file ast_elaborate.cpp.

Here is the caller graph for this function:

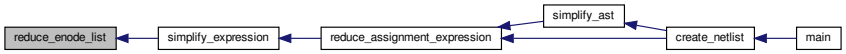


2.8.2.41 reduce_enode_list()

```
void reduce_enode_list ( )
```

Definition at line 527 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.42 reduce_parameter()

```
void reduce_parameter ( )
```

Definition at line 1428 of file ast_elaborate.cpp.

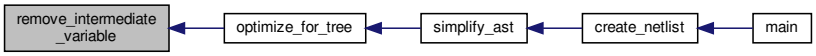
Here is the caller graph for this function:

2.8.2.43 remove_intermediate_variable()

```
void remove_intermediate_variable (
            ast_node_t * node,
            std::vector< std::string > list,
            long long virtual_value,
            std::string virtual_name )
```

Definition at line 382 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.44 remove_para_node()

```
void remove_para_node (
            ast_node_t * top,
            std::vector< ast_node_t *> para )
```

Definition at line 1458 of file ast_elaborate.cpp.

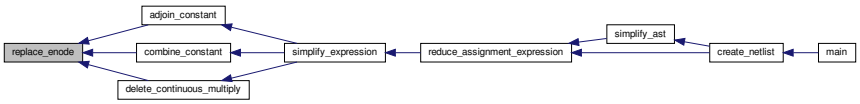
Here is the caller graph for this function:

2.8.2.45 replace_enode()

```
enode* replace_enode (
            int data,
            enode * t,
            int mark )
```

Definition at line 760 of file ast_elaborate.cpp.

Here is the caller graph for this function:

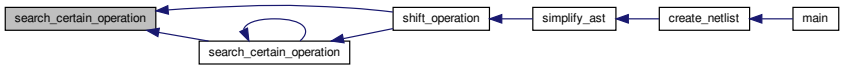


2.8.2.46 search_certain_operation()

```
void search_certain_operation (
            ast_node_t * node )
```

Definition at line 1514 of file ast_elaborate.cpp.

Here is the caller graph for this function:

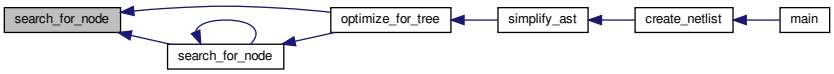


2.8.2.47 search_for_node()

```
void search_for_node (
             ast_node_t * root,
             std::vector< ast_node_t *> list_for_node,
             std::vector< ast_node_t *> list_parent )
```

Definition at line 158 of file ast_elaborate.cpp.

Here is the caller graph for this function:

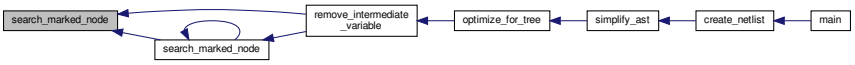


2.8.2.48 search_marked_node()

```
ast_node_t* search_marked_node (
             ast_node_t * node,
             int is,
             std::string temp )
```

Definition at line 419 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.49 shift_operation()

```
void shift_operation ( )
```

Definition at line 1499 of file ast_elaborate.cpp.

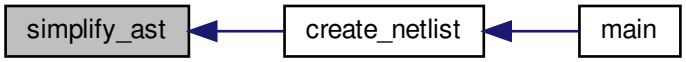
Here is the caller graph for this function:

2.8.2.50 simplify_ast()

```
int simplify_ast ( )
```

Definition at line 59 of file ast_elaborate.cpp.

Here is the caller graph for this function:

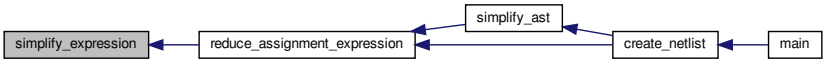


2.8.2.51 simplify_expression()

```
bool simplify_expression ( )
```

Definition at line 495 of file ast_elaborate.cpp.

Here is the caller graph for this function:

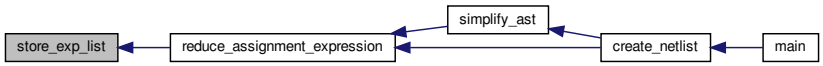


2.8.2.52 store_exp_list()

```
void store_exp_list (
            ast_node_t * node )
```

Definition at line 586 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.8.2.53 translate_expression()

```
void translate_expression (
            std::vector< std::string > infix_exp,
            std::vector< std::string > postfix_exp )
```

Definition at line 297 of file ast_elaborate.cpp.

Here is the caller graph for this function:

2.8.3 Variable Documentation

2.8.3.1 count

```
size_t count
```

Definition at line 55 of file ast_elaborate.cpp.

2.8.3.2 count_assign

```
size_t count_assign = 0
```

Definition at line 54 of file ast_elaborate.cpp.

2.8.3.3 count_id

```
size_t count_id = 0
```

Definition at line 53 of file ast_elaborate.cpp.

2.8.3.4 count_write

```
size_t count_write
```

Definition at line 56 of file ast_elaborate.cpp.

2.8.3.5 head

```
enode* head
```

Definition at line 57 of file ast_elaborate.cpp.

2.8.3.6 p

```
enode * p
```

Definition at line 57 of file ast_elaborate.cpp.

2.9 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/ast_elaborate.h File Reference

Data Structures

- struct exp_node

Typedefs

- typedef struct exp_node enode

Functions

- int simplify_ast ()
- void optimize_for_tree ()
- void search_for_node (ast_node_t *root, std::vector< ast_node_t *> list_for_node, std::vector< ast_node_t *> list_parent)
- ast_node_t * get_copy_tree (ast_node_t *node, long long virtual_value, std::string virtual_name)
- void record_expression (ast_node_t *node, std::vector< std::string > expressions, bool *found_statement)
- long long calculation (std::vector< std::string > post_exp)
- void translate_expression (std::vector< std::string > infix_exp, std::vector< std::string > postfix_exp)
- void reallocate_node (ast_node_t *node, int idx)
- void find_most_unique_count ()
- void mark_node_write (ast_node_t *node, std::vector< std::string > list)
- void mark_node_read (ast_node_t *node, std::vector< std::string > list)
- void remove_intermediate_variable (ast_node_t *node, std::vector< std::string > list, long long virtual_value, std::string virtual_name)
- ast_node_t * search_marked_node (ast_node_t *node, int is, std::string temp)
- void reduce_assignment_expression ()
- void find_assign_node (ast_node_t *t, std::vector< ast_node_t *>list)
- ast_node_t * find_top_module ()
- void record_tree_info (ast_node_t *node)
- void store_exp_list (ast_node_t *node)
- void create_enode (ast_node_t *node)
- bool simplify_expression ()

- bool adjoin_constant ()
- enode * replace_enode (int data, enode *t, int mark)
- bool combine_constant ()
- bool delete_continuous_multiply ()
- void construct_new_tree (enode *tail, ast_node_t *node, int line_num, int file_num)
- void reduce_enode_list ()
- enode * find_tail (enode *node)
- int check_exp_list (enode *tail)
- void create_ast_node (enode *temp, ast_node_t *node, int line_num, int file_num)
- void create_op_node (ast_node_t *node, enode *temp, int line_num, int file_num)
- void free_exp_list ()
- bool deal_with_bracket (ast_node_t *node)
- void recursive_tree (ast_node_t *node, std::vector< int > list_bracket)
- void find_leaf_node (ast_node_t *node, std::vector< int > list_bracket, int ids2)
- void delete_bracket (int beign, int end)
- void delete_bracket_head (enode *begin, enode *end)
- void change_exp_list (enode *beign, enode *end, enode *s, int flag)
- enode * copy_enode_list (enode *new_head, enode *begin, enode *end)
- void copy_enode (enode *node, enode *new_node)
- void delete_bracket_tail (enode *begin, enode *end)
- void delete_bracket_body (enode *begin, enode *end)
- bool check_tree_operation (ast_node_t *node)
- void reduce_parameter ()
- void find_parameter (ast_node_t *top, std::vector< ast_node_t *>para)
- void remove_para_node (ast_node_t *top, std::vector< ast_node_t *>para)
- void change_para_node (ast_node_t *node, std::string name, long long value)
- void check_operation (enode *begin, enode *end)
- void shift_operation ()
- void search_certain_operation (ast_node_t *node)
- void check_binary_operation (ast_node_t *node)
- void check_node_number (ast_node_t *parent, ast_node_t *child, int flag)
- bool check_mult_bracket (std::vector< int > list)
- short has_intermediate_variable (ast_node_t *node)
- void keep_all_branch (ast_node_t *temp_node, ast_node_t *for_parent, int mark)

2.9.1 Typedef Documentation

2.9.1.1 enode

```
typedef struct exp_node enode
```

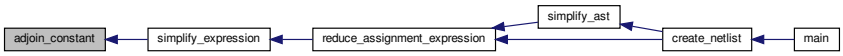
2.9.2 Function Documentation

2.9.2.1 adjoin_constant()

```
bool adjoin_constant ( )
```

Definition at line 692 of file ast_elaborate.cpp.

Here is the caller graph for this function:

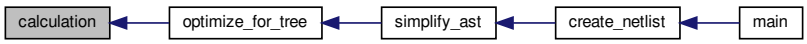


2.9.2.2 calculation()

```
long long calculation (
            std::vector< std::string > post_exp )
```

Definition at line 261 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.3 change_exp_list()

```
void change_exp_list (
            enode * beign,
            enode * end,
            enode * s,
            int flag )
```

Definition at line 1226 of file ast_elaborate.cpp.

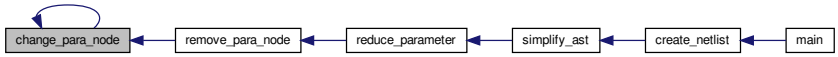
Here is the caller graph for this function:

2.9.2.4 change_para_node()

```
void change_para_node (
            ast_node_t * node,
            std::string name,
            long long value )
```

Definition at line 1486 of file ast_elaborate.cpp.

Here is the caller graph for this function:

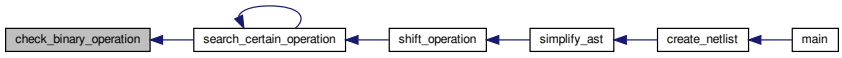


2.9.2.5 check_binary_operation()

```
void check_binary_operation (
            ast_node_t * node )
```

Definition at line 1526 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.6 check_exp_list()

```
int check_exp_list (
            enode * tail )
```

Definition at line 939 of file ast_elaborate.cpp.

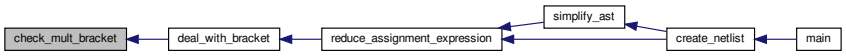
Here is the caller graph for this function:

2.9.2.7 check_mult_bracket()

```
bool check_mult_bracket (
            std::vector< int > list )
```

Definition at line 1109 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.8 check_node_number()

```
void check_node_number (
            ast_node_t * parent,
            ast_node_t * child,
            int flag )
```

Definition at line 1550 of file ast_elaborate.cpp.

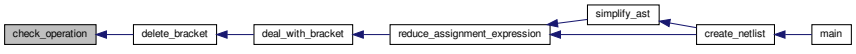
Here is the caller graph for this function:

2.9.2.9 check_operation()

```
void check_operation (
            enode * begin,
            enode * end )
```

Definition at line 1403 of file ast_elaborate.cpp.

Here is the caller graph for this function:

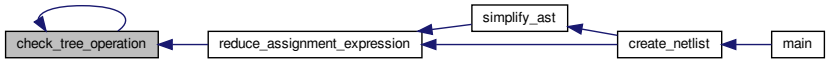


2.9.2.10 check_tree_operation()

```
bool check_tree_operation (
            ast_node_t * node )
```

Definition at line 1388 of file ast_elaborate.cpp.

Here is the caller graph for this function:

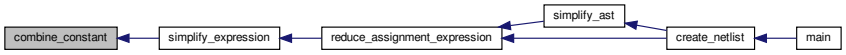


2.9.2.11 combine_constant()

```
bool combine_constant ( )
```

Definition at line 804 of file ast_elaborate.cpp.

Here is the caller graph for this function:

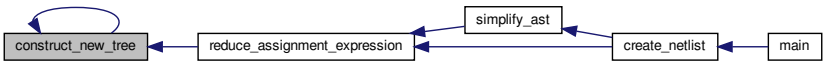


2.9.2.12 construct_new_tree()

```
void construct_new_tree (
            enode * tail,
            ast_node_t * node,
            int line_num,
            int file_num )
```

Definition at line 883 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.13 copy_enode()

```
void copy_enode (
            enode * node,
            enode * new_node )
```

Definition at line 1338 of file ast_elaborate.cpp.

Here is the caller graph for this function:

2.9.2.14 copy_enode_list()

```
enode* copy_enode_list (
            enode * new_head,
            enode * begin,
            enode * end )
```

Definition at line 1319 of file ast_elaborate.cpp.

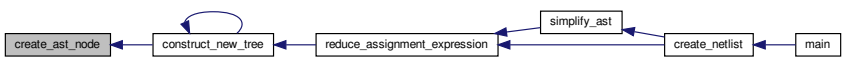
Here is the caller graph for this function:

2.9.2.15 create_ast_node()

```
void create_ast_node (
            enode * temp,
            ast_node_t * node,
            int line_num,
            int file_num )
```

Definition at line 1019 of file ast_elaborate.cpp.

Here is the caller graph for this function:

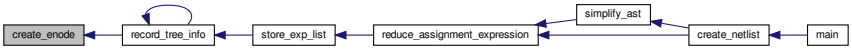


2.9.2.16 create_enode()

```
void create_enode (
            ast_node_t * node )
```

Definition at line 622 of file ast_elaborate.cpp.

Here is the caller graph for this function:

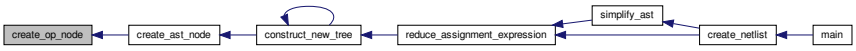


2.9.2.17 create_op_node()

```
void create_op_node (
            ast_node_t * node,
            enode * temp,
            int line_num,
            int file_num )
```

Definition at line 1046 of file ast_elaborate.cpp.

Here is the caller graph for this function:

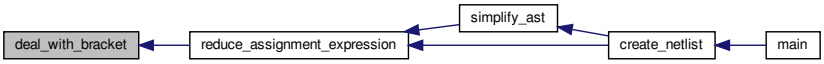


2.9.2.18 deal_with_bracket()

```
bool deal_with_bracket (
            ast_node_t * node )
```

Definition at line 1090 of file ast_elaborate.cpp.

Here is the caller graph for this function:

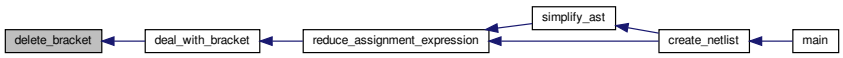


2.9.2.19 delete_bracket()

```
void delete_bracket (
            int beign,
            int end )
```

Definition at line 1170 of file ast_elaborate.cpp.

Here is the caller graph for this function:

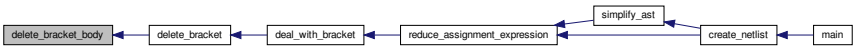


2.9.2.20 delete_bracket_body()

```
void delete_bracket_body (
            enode * begin,
            enode * end )
```

Definition at line 1364 of file ast_elaborate.cpp.

Here is the caller graph for this function:

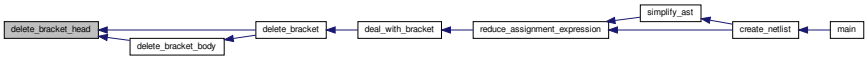


2.9.2.21 delete_bracket_head()

```
void delete_bracket_head (
            enode * begin,
            enode * end )
```

Definition at line 1206 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.22 delete_bracket_tail()

```
void delete_bracket_tail (
            enode * begin,
            enode * end )
```

Definition at line 1349 of file ast_elaborate.cpp.

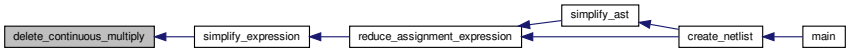
Here is the caller graph for this function:

2.9.2.23 delete_continuous_multiply()

```
bool delete_continuous_multiply ( )
```

Definition at line 956 of file ast_elaborate.cpp.

Here is the caller graph for this function:

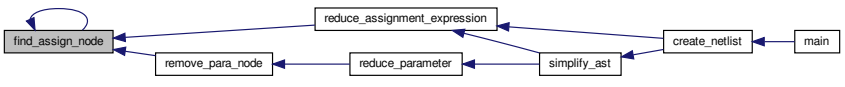


2.9.2.24 find_assign_node()

```
void find_assign_node (
            ast_node_t * t,
            std::vector< ast_node_t *> list )
```

Definition at line 482 of file ast_elaborate.cpp.

Here is the caller graph for this function:

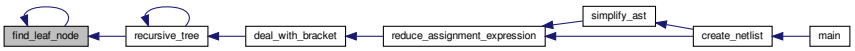


2.9.2.25 find_leaf_node()

```
void find_leaf_node (
            ast_node_t * node,
            std::vector< int > list_bracket,
            int ids2 )
```

Definition at line 1156 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.26 find_most_unique_count()

```
void find_most_unique_count ( )
```

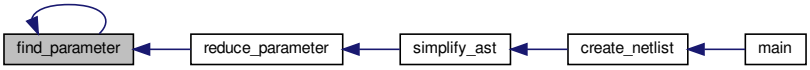
Definition at line 340 of file ast_elaborate.cpp.

2.9.2.27 find_parameter()

```
void find_parameter (
            ast_node_t * top,
            std::vector< ast_node_t *> para )
```

Definition at line 1444 of file ast_elaborate.cpp.

Here is the caller graph for this function:

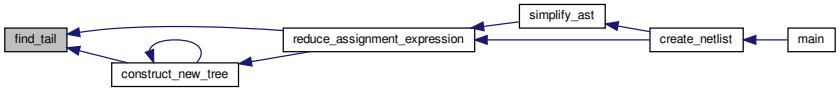


2.9.2.28 find_tail()

```
enode* find_tail (
            enode * node )
```

Definition at line 513 of file ast_elaborate.cpp.

Here is the caller graph for this function:

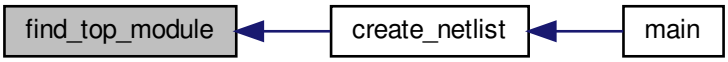


2.9.2.29 find_top_module()

```
ast_node_t* find_top_module ( )
```

Definition at line 419 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

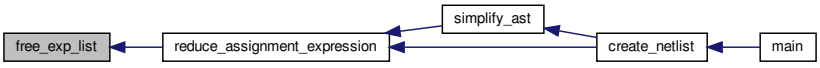


2.9.2.30 free_exp_list()

```
void free_exp_list ( )
```

Definition at line 1077 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.31 get_copy_tree()

```
ast_node_t* get_copy_tree (
             ast_node_t * node,
             long long virtual_value,
             std::string virtual_name )
```

Definition at line 177 of file ast_elaborate.cpp.

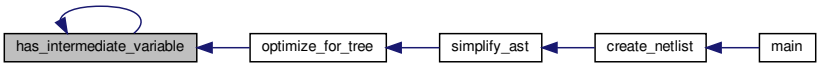
Here is the caller graph for this function:

2.9.2.32 has_intermediate_variable()

```
short has_intermediate_variable (
             ast_node_t * node )
```

Definition at line 1582 of file ast_elaborate.cpp.

Here is the caller graph for this function:

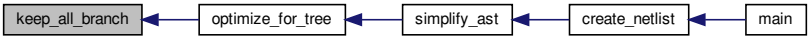


2.9.2.33 keep_all_branch()

```
void keep_all_branch (
             ast_node_t * temp_node,
             ast_node_t * for_parent,
             int mark )
```

Definition at line 1599 of file ast_elaborate.cpp.

Here is the caller graph for this function:

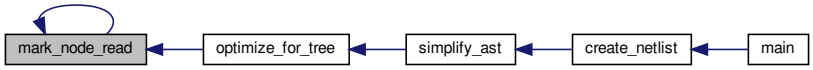


2.9.2.34 mark_node_read()

```
void mark_node_read (
            ast_node_t * node,
            std::vector< std::string > list )
```

Definition at line 367 of file ast_elaborate.cpp.

Here is the caller graph for this function:

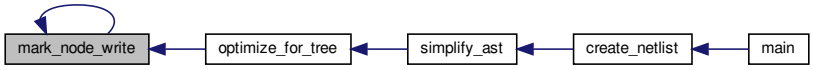


2.9.2.35 mark_node_write()

```
void mark_node_write (
            ast_node_t * node,
            std::vector< std::string > list )
```

Definition at line 351 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.36 optimize_for_tree()

```
void optimize_for_tree ( )
```

Definition at line 80 of file ast_elaborate.cpp.

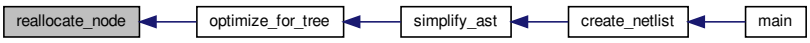
Here is the caller graph for this function:

2.9.2.37 reallocate_node()

```
void reallocate_node (
            ast_node_t * node,
            int idx )
```

Definition at line 326 of file ast_elaborate.cpp.

Here is the caller graph for this function:

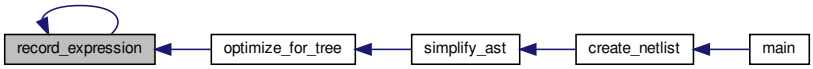


2.9.2.38 record_expression()

```
void record_expression (
            ast_node_t * node,
            std::vector< std::string > expressions,
            bool * found_statement )
```

Definition at line 205 of file ast_elaborate.cpp.

Here is the caller graph for this function:

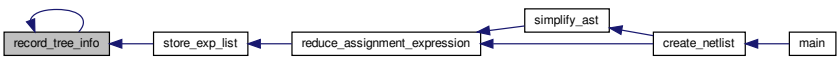


2.9.2.39 record_tree_info()

```
void record_tree_info (
            ast_node_t * node )
```

Definition at line 603 of file ast_elaborate.cpp.

Here is the caller graph for this function:

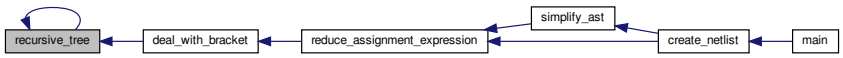


2.9.2.40 recursive_tree()

```
void recursive_tree (
            ast_node_t * node,
            std::vector< int > list_bracket )
```

Definition at line 1133 of file ast_elaborate.cpp.

Here is the caller graph for this function:

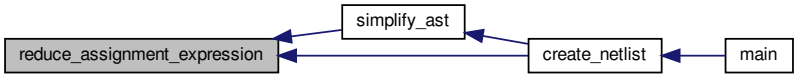


2.9.2.41 reduce_assignment_expression()

```
void reduce_assignment_expression ( )
```

Definition at line 439 of file ast_elaborate.cpp.

Here is the caller graph for this function:

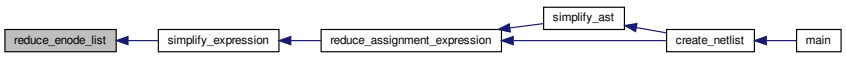


2.9.2.42 reduce_enode_list()

```
void reduce_enode_list ( )
```

Definition at line 527 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.43 reduce_parameter()

```
void reduce_parameter ( )
```

Definition at line 1428 of file ast_elaborate.cpp.

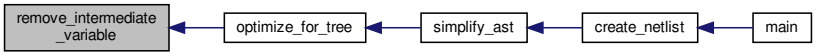
Here is the caller graph for this function:

2.9.2.44 remove_intermediate_variable()

```
void remove_intermediate_variable (
            ast_node_t * node,
            std::vector< std::string > list,
            long long virtual_value,
            std::string virtual_name )
```

Definition at line 382 of file ast_elaborate.cpp.

Here is the caller graph for this function:

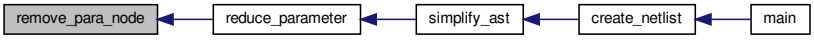


2.9.2.45 remove_para_node()

```
void remove_para_node (
            ast_node_t * top,
            std::vector< ast_node_t *> para )
```

Definition at line 1458 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.46 replace_enode()

```
enode* replace_enode (
            int data,
            enode * t,
            int mark )
```

Definition at line 760 of file ast_elaborate.cpp.

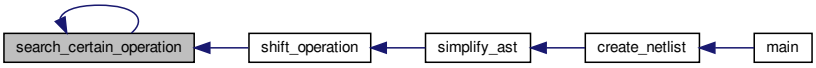
Here is the caller graph for this function:

2.9.2.47 search_certain_operation()

```
void search_certain_operation (
            ast_node_t * node )
```

Definition at line 1514 of file ast_elaborate.cpp.

Here is the caller graph for this function:

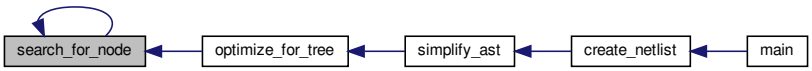


2.9.2.48 search_for_node()

```
void search_for_node (
            ast_node_t * root,
            std::vector< ast_node_t *> list_for_node,
            std::vector< ast_node_t *> list_parent )
```

Definition at line 158 of file ast_elaborate.cpp.

Here is the caller graph for this function:

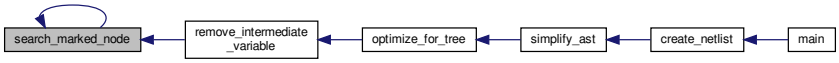


2.9.2.49 search_marked_node()

```
ast_node_t* search_marked_node (
              ast_node_t * node,
              int is,
              std::string temp )
```

Definition at line 419 of file ast_elaborate.cpp.

Here is the caller graph for this function:

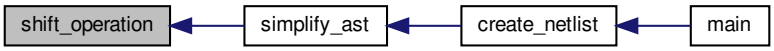


2.9.2.50 shift_operation()

```
void shift_operation ( )
```

Definition at line 1499 of file ast_elaborate.cpp.

Here is the caller graph for this function:

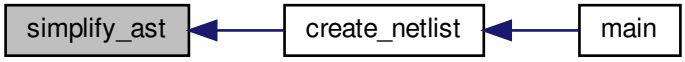


2.9.2.51 simplify_ast()

```
int simplify_ast ( )
```

Definition at line 59 of file ast_elaborate.cpp.

Here is the caller graph for this function:

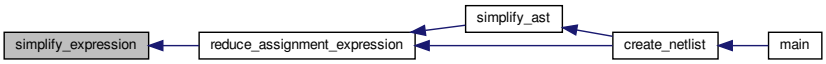


2.9.2.52 simplify_expression()

```
bool simplify_expression ( )
```

Definition at line 495 of file ast_elaborate.cpp.

Here is the caller graph for this function:

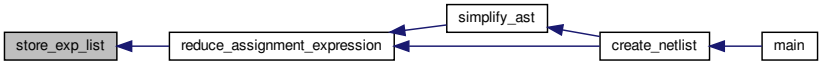


2.9.2.53 store_exp_list()

```
void store_exp_list (
            ast_node_t * node )
```

Definition at line 586 of file ast_elaborate.cpp.

Here is the caller graph for this function:



2.9.2.54 translate_expression()

```
void translate_expression (
            std::vector< std::string > infix_exp,
            std::vector< std::string > postfix_exp )
```

Definition at line 297 of file ast_elaborate.cpp.

Here is the caller graph for this function:

2.10 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/ast_util.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <stdarg.h>
#include <math.h>
#include "globals.h"
#include "types.h"
#include "ast_util.h"
#include "odin_util.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- char ** get_name_of_pins_number (ast_node_t *var_node, int start, int width)
- void update_tree_tag (ast_node_t *node, int cases, int tagged)
- void add_tag_data ()
- ast_node_t * create_node_w_type (ids id, int line_number, int file_number)
- void free_assignement_of_node_keep_tree (ast_node_t *node)
- ast_node_t * free_single_node (ast_node_t *node)
- ast_node_t * free_whole_tree (ast_node_t *node)
- ast_node_t * create_tree_node_id (char *string, int line_number, int)
- ast_node_t * create_tree_node_long_long_number (long long number, int constant_bit_size, int line_number, int)
- ast_node_t * create_tree_node_number (char *number, int line_number, int)
- void allocate_children_to_node (ast_node_t *node, int num_children,...)
- void add_child_to_node (ast_node_t *node, ast_node_t *child)
- void add_child_at_the_beginning_of_the_node (ast_node_t *node, ast_node_t *child)
- int get_range (ast_node_t *first_node)
- void make_concat_into_list_of_strings (ast_node_t *concat_top, char *instance_name_prefix)
- void change_to_number_node (ast_node_t *node, long long value)
- char * get_name_of_var_declare_at_bit (ast_node_t *var_declare, int bit)
- char * get_name_of_pin_at_bit (ast_node_t *var_node, int bit, char *instance_name_prefix)
- char_list_t * get_name_of_pins (ast_node_t *var_node, char *instance_name_prefix)
- char_list_t * get_name_of_pins_with_prefix (ast_node_t *var_node, char *instance_name_prefix)
- ast_node_t * resolve_node (STRING_CACHE *local_param_table_sc, short initial, char *module_name, ast_↩ node_t *node)
- char * make_module_param_name (ast_node_t *module_param_list, char *module_name)
- void move_ast_node (ast_node_t *src, ast_node_t *dest, ast_node_t *node)
- ast_node_t * ast_node_deep_copy (ast_node_t *node)
- ast_node_t * fold_unary (ast_node_t *child_0, operation_list op_id)
- ast_node_t * fold_binary (ast_node_t *child_0, ast_node_t *child_1, operation_list op_id)
- ast_node_t * node_is_constant (ast_node_t *node)
- void initial_node (ast_node_t *new_node, ids id, int line_number, int file_number, int unique_counter)

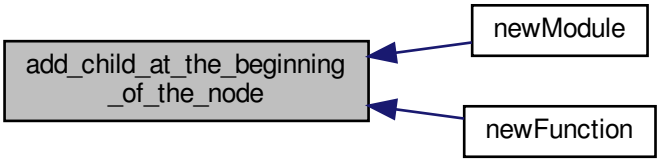
2.10.1 Function Documentation

2.10.1.1 add_child_at_the_beginning_of_the_node()

```
void add_child_at_the_beginning_of_the_node (
            ast_node_t * node,
            ast_node_t * child )
```

Definition at line 387 of file ast_util.cpp.

Here is the caller graph for this function:

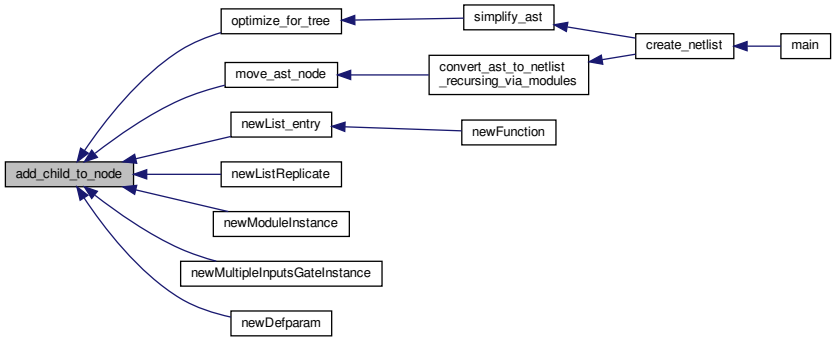


2.10.1.2 add_child_to_node()

```
void add_child_to_node (
            ast_node_t * node,
            ast_node_t * child )
```

Definition at line 372 of file ast_util.cpp.

Here is the caller graph for this function:

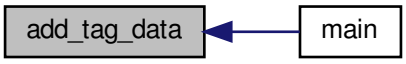


2.10.1.3 add_tag_data()

```
void add_tag_data ( )
```

Definition at line 70 of file ast_util.cpp.

Here is the caller graph for this function:

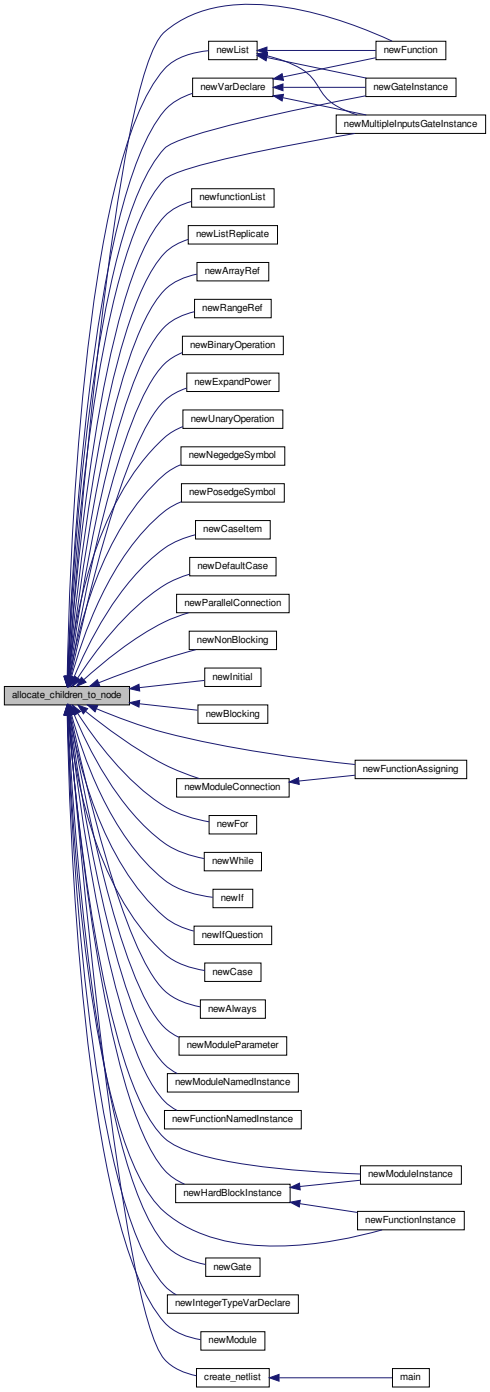


2.10.1.4 allocate_children_to_node()

```
void allocate_children_to_node (
             ast_node_t * node,
             int num_children,
              ...  )
```

Definition at line 351 of file ast_util.cpp.

Here is the caller graph for this function:



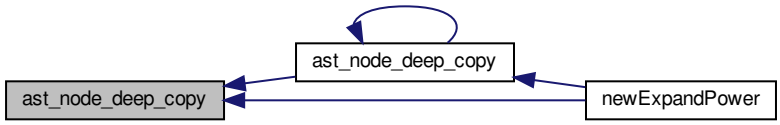
2.10.1.5 ast_node_deep_copy()

```
ast_node_t* ast_node_deep_copy (
```

```
            ast_node_t * node )
```

Definition at line 1040 of file ast_util.cpp.

Here is the caller graph for this function:

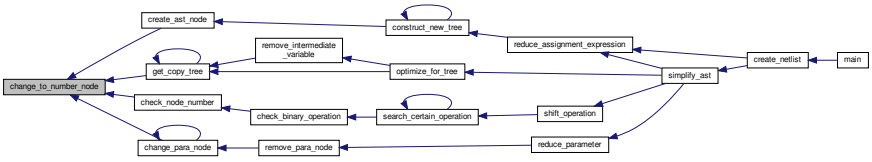


2.10.1.6 change_to_number_node()

```
void change_to_number_node (
            ast_node_t * node,
            long long value )
```

Definition at line 563 of file ast_util.cpp.

Here is the caller graph for this function:

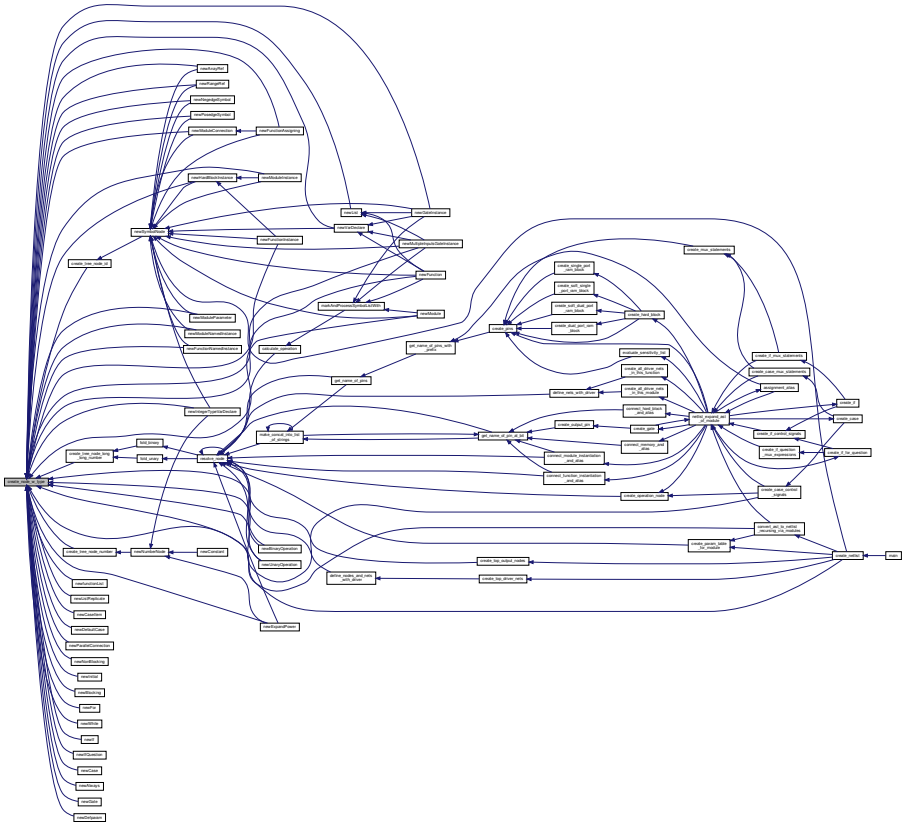


2.10.1.7 create_node_w_type()

```
ast_node_t* create_node_w_type (
            ids id,
            int line_number,
            int file_number )
```

Definition at line 95 of file ast_util.cpp.

Here is the caller graph for this function:

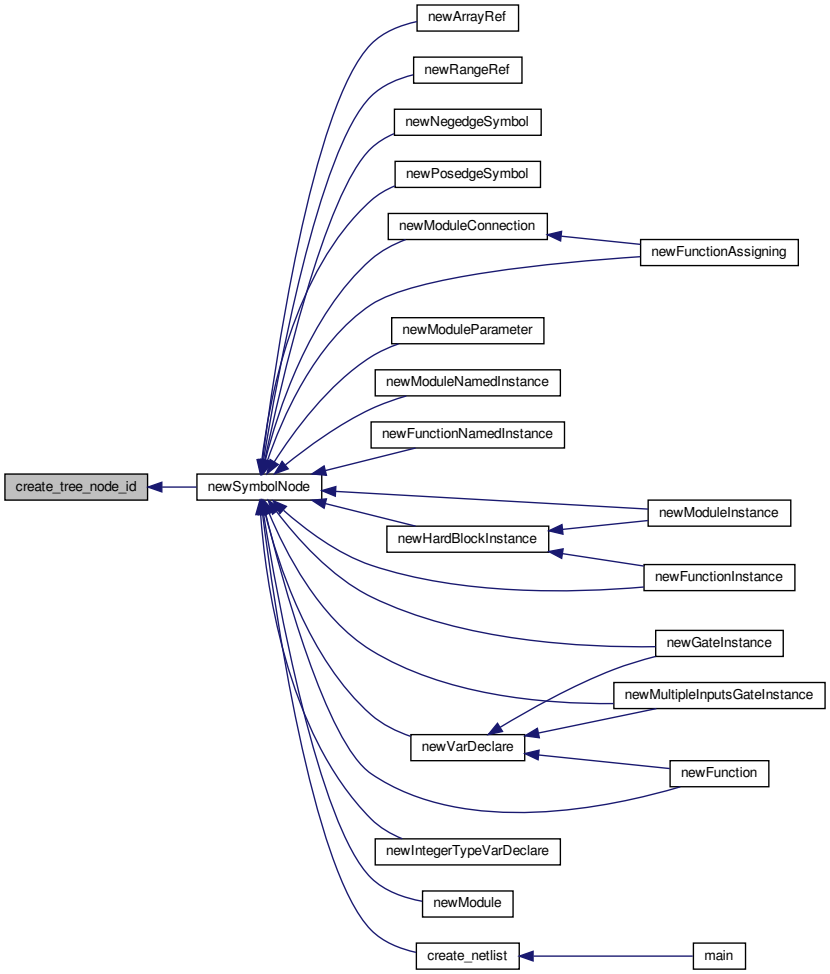


2.10.1.8 create_tree_node_id()

```
ast_node_t* create_tree_node_id (
             char * string,
             int line_number,
             int  )
```

Definition at line 175 of file ast_util.cpp.

Here is the caller graph for this function:

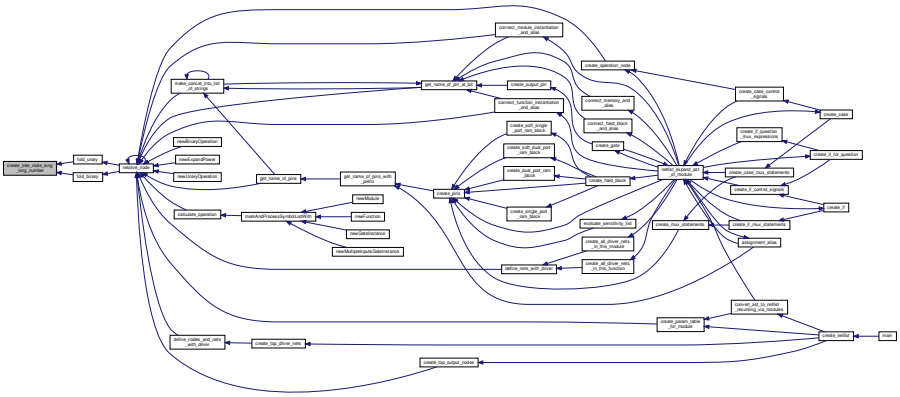


2.10.1.9 create_tree_node_long_long_number()

```
ast_node_t* create_tree_node_long_long_number (
             long long number,
             int constant_bit_size,
             int line_number,
             int  )
```

Definition at line 186 of file ast_util.cpp.

Here is the caller graph for this function:

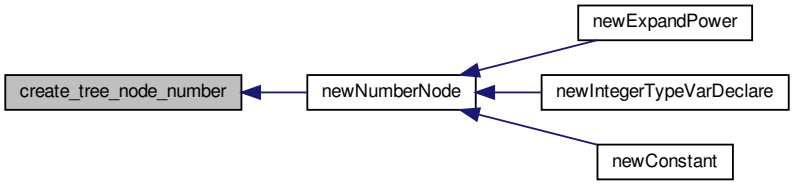


2.10.1.10 create_tree_node_number()

```
ast_node_t* create_tree_node_number (
             char * number,
             int line_number,
             int  )
```

Definition at line 212 of file ast_util.cpp.

Here is the caller graph for this function:

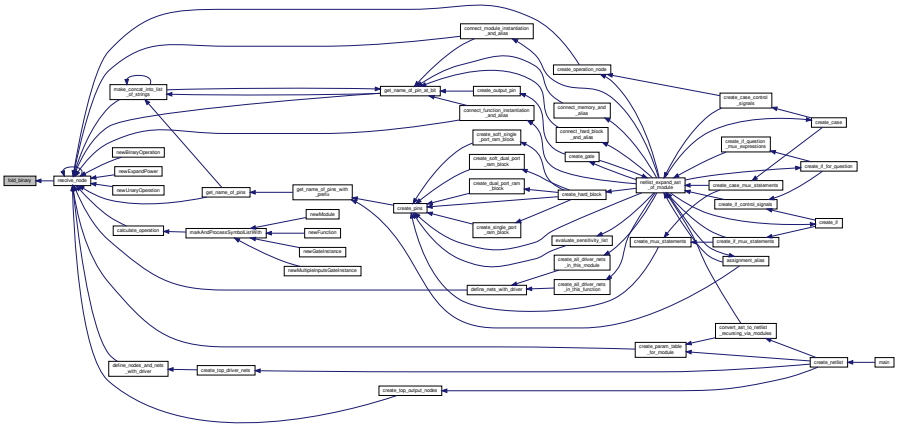


2.10.1.11 fold_binary()

```
ast_node_t* fold_binary (
             ast_node_t * child_0,
             ast_node_t * child_1,
             operation_list op_id )
```

Definition at line 1158 of file ast_util.cpp.

Here is the caller graph for this function:

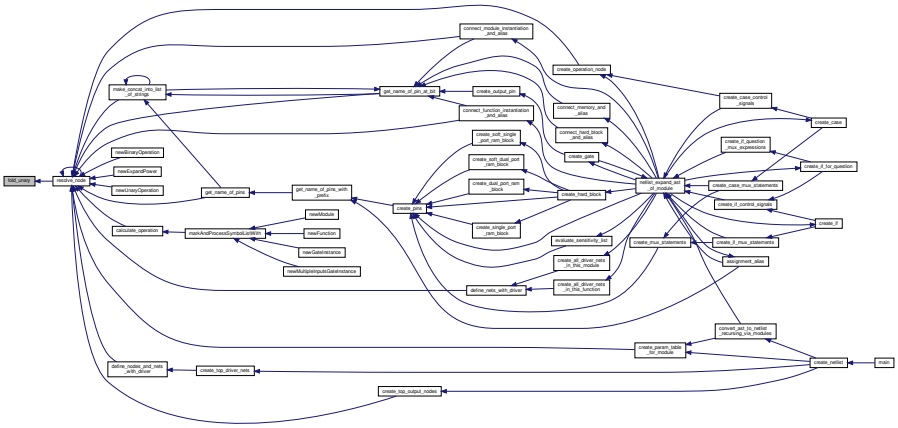


2.10.1.12 fold_unary()

```
ast_node_t* fold_unary (
            ast_node_t * child_0,
            operation_list op_id )
```

Definition at line 1071 of file ast_util.cpp.

Here is the caller graph for this function:

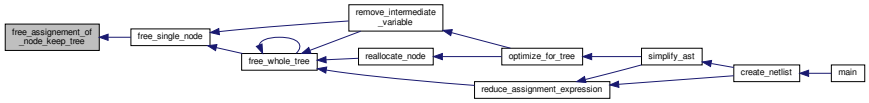


2.10.1.13 free_assignement_of_node_keep_tree()

```
void free_assignement_of_node_keep_tree (
            ast_node_t * node )
```

Definition at line 122 of file ast_util.cpp.

Here is the caller graph for this function:

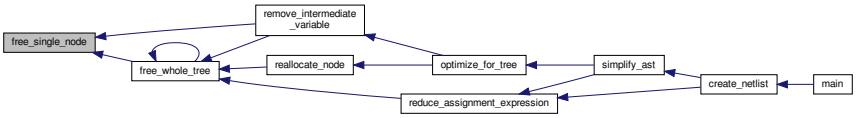


2.10.1.14 free_single_node()

```
ast_node_t* free_single_node (
            ast_node_t * node )
```

Definition at line 147 of file ast_util.cpp.

Here is the caller graph for this function:

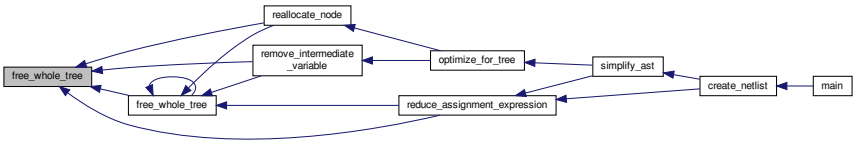


2.10.1.15 free_whole_tree()

```
ast_node_t* free_whole_tree (
            ast_node_t * node )
```

Definition at line 161 of file ast_util.cpp.

Here is the caller graph for this function:

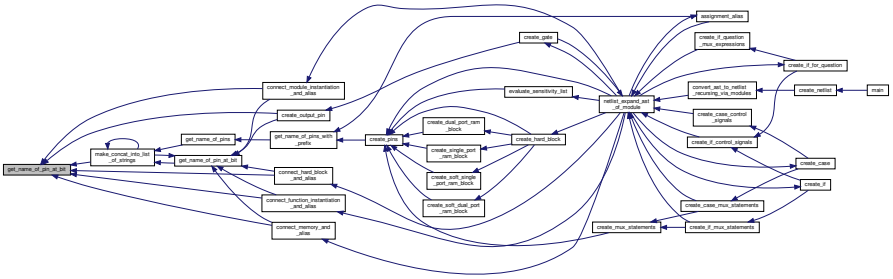


2.10.1.16 get_name_of_pin_at_bit()

```
char* get_name_of_pin_at_bit (
            ast_node_t * var_node,
            int bit,
            char * instance_name_prefix )
```

Definition at line 617 of file ast_util.cpp.

Here is the caller graph for this function:

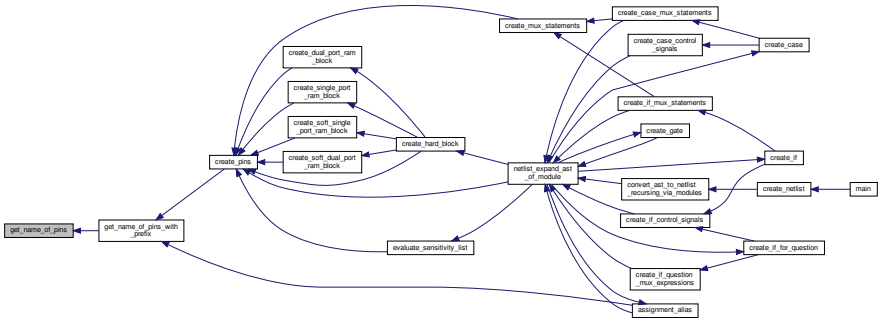


2.10.1.17 get_name_of_pins()

```
char_list_t* get_name_of_pins (
            ast_node_t * var_node,
            char * instance_name_prefix )
```

Definition at line 754 of file ast_util.cpp.

Here is the caller graph for this function:

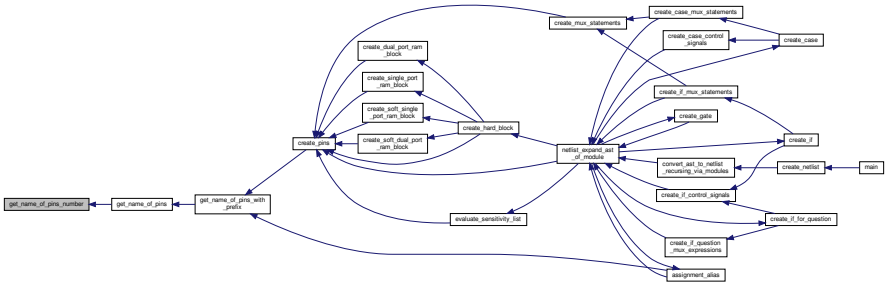


2.10.1.18 get_name_of_pins_number()

```
char ** get_name_of_pins_number (
            ast_node_t * var_node,
            int start,
            int width )
```

Definition at line 721 of file ast_util.cpp.

Here is the caller graph for this function:

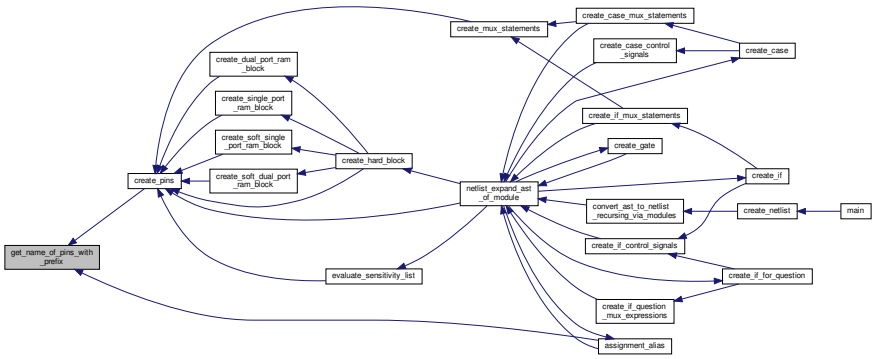


2.10.1.19 get_name_of_pins_with_prefix()

```
char_list_t* get_name_of_pins_with_prefix (
            ast_node_t * var_node,
            char * instance_name_prefix )
```

Definition at line 897 of file ast_util.cpp.

Here is the caller graph for this function:

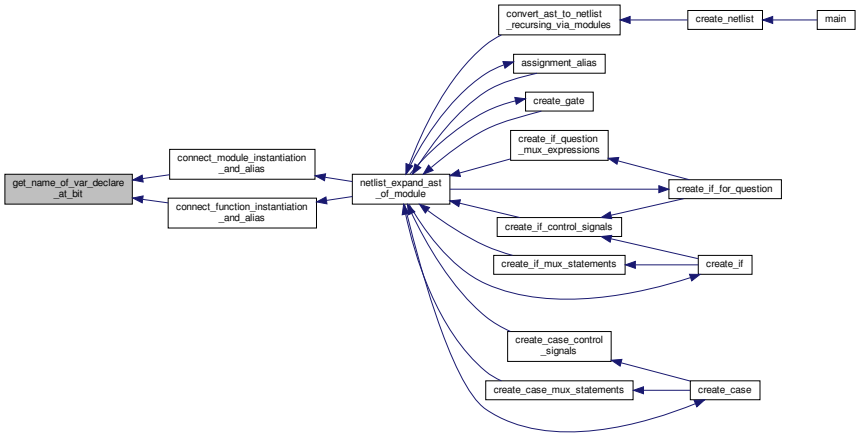


2.10.1.20 get_name_of_var_declare_at_bit()

```
char* get_name_of_var_declare_at_bit (
            ast_node_t * var_declare,
            int bit )
```

Definition at line 589 of file ast_util.cpp.

Here is the caller graph for this function:

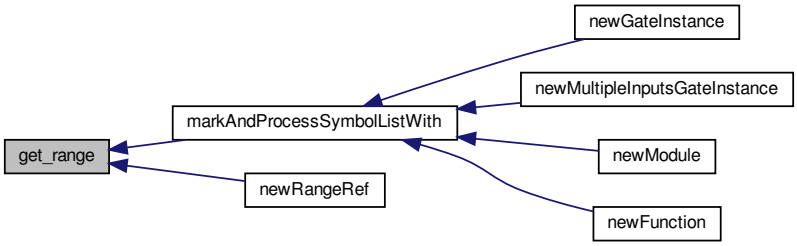


2.10.1.21 get_range()

```
int get_range (
            ast_node_t * first_node )
```

Definition at line 417 of file ast_util.cpp.

Here is the caller graph for this function:



2.10.1.22 initial_node()

```
void initial_node (
            ast_node_t * new_node,
            ids id,
            int line_number,
            int file_number,
            int unique_counter )
```

Definition at line 1358 of file ast_util.cpp.

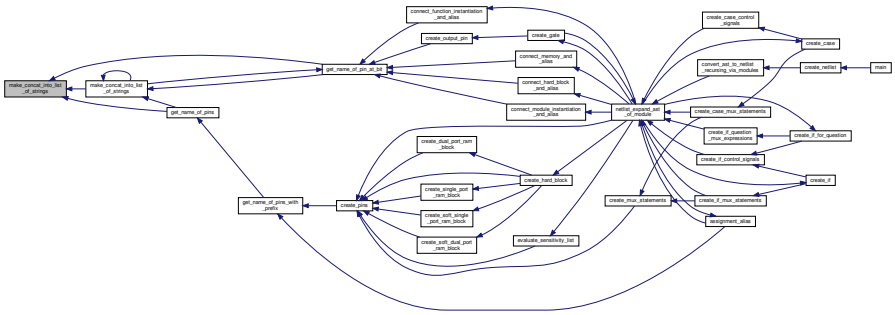
Here is the caller graph for this function:

2.10.1.23 make_concat_into_list_of_strings()

```
void make_concat_into_list_of_strings (
            ast_node_t * concat_top,
            char * instance_name_prefix )
```

Definition at line 446 of file ast_util.cpp.

Here is the caller graph for this function:



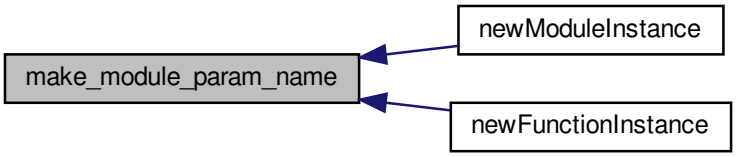
2.10.1.24 make_module_param_name()

```
char* make_module_param_name (
            ast_node_t * module_param_list,
            char * module_name )
```

Make a unique name for a module based on its parameter list e.g. for a "mod #(0,1,2,3) a(b,c,d)" instantiation you get name___0_1_2_3

Definition at line 988 of file ast_util.cpp.

Here is the caller graph for this function:

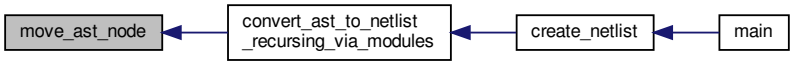


2.10.1.25 move_ast_node()

```
void move_ast_node (
            ast_node_t * src,
            ast_node_t * dest,
            ast_node_t * node )
```

Definition at line 1016 of file ast_util.cpp.

Here is the caller graph for this function:

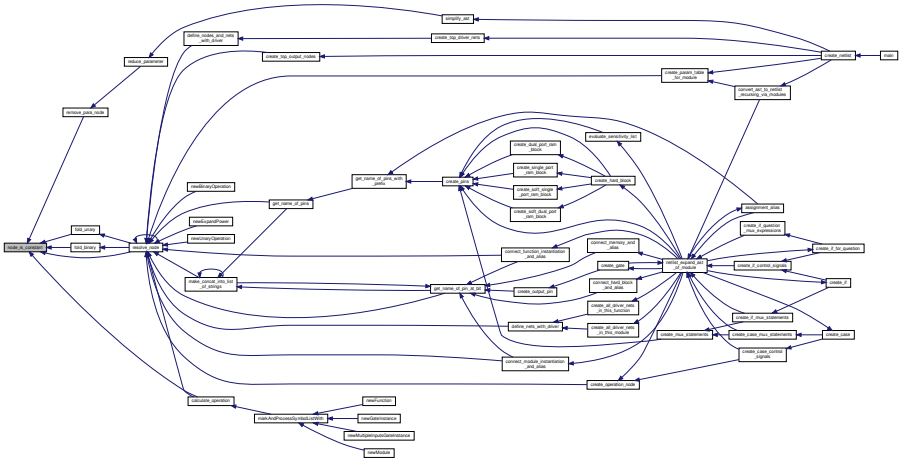


2.10.1.26 node_is_constant()

```
ast_node_t* node_is_constant (
            ast_node_t * node )
```

Definition at line 1334 of file ast_util.cpp.

Here is the caller graph for this function:



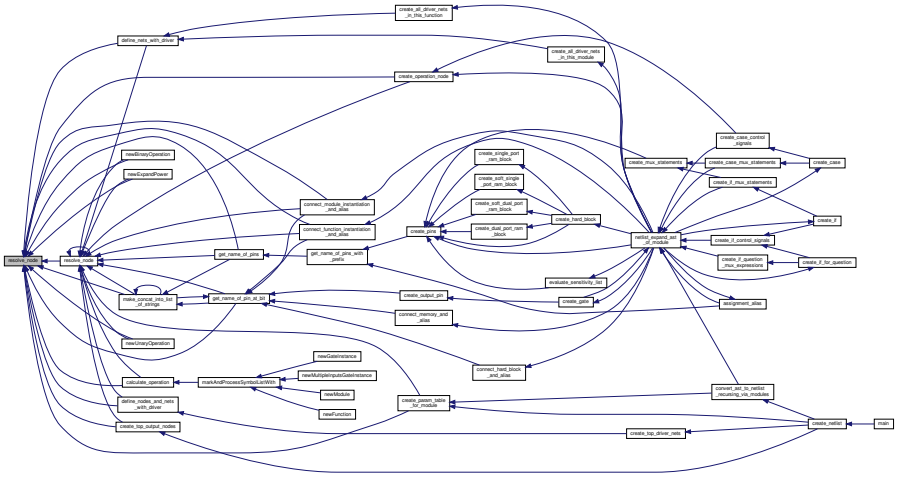
2.10.1.27 resolve_node()

```
ast_node_t* resolve_node (
            STRING_CACHE * local_param_table_sc,
            short initial,
            char * module_name,
            ast_node_t * node )
```

Recursively resolves an IDENTIFIER to a parameter into its actual value, by looking it up in the global_param_table_sc Also try and fold any BINARY_OPERATIONs now that an IDENTIFIER has been resolved

Definition at line 923 of file ast_util.cpp.

Here is the caller graph for this function:



2.10.1.28 update_tree_tag()

```
void update_tree_tag (
            ast_node_t * node,
            int cases,
            int tagged )
```

Definition at line 48 of file ast_util.cpp.

2.11 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/ast_util.h File Reference

```
#include "types.h"
```

Functions

- void add_tag_data ()
- ast_node_t * create_node_w_type (ids id, int line_number, int file_number)
- ast_node_t * create_tree_node_id (char *string, int line_number, int file_number)
- ast_node_t * create_tree_node_long_long_number (long long number, int constant_bit_size, int line_number, int file_number)
- ast_node_t * create_tree_node_number (char *number, int line_number, int file_number)
- void initial_node (ast_node_t *node, ids id, int line_number, int file_number, int counter)
- void allocate_children_to_node (ast_node_t *node, int num_children,...)
- void add_child_to_node (ast_node_t *node, ast_node_t *child)
- void add_child_at_the_beginning_of_the_node (ast_node_t *node, ast_node_t *child)
- void move_ast_node (ast_node_t *src, ast_node_t *dest, ast_node_t *node)

- ast_node_t * ast_node_deep_copy (ast_node_t *node)
- ast_node_t * free_whole_tree (ast_node_t *node)
- ast_node_t * free_single_node (ast_node_t *node)
- void free_assignement_of_node_keep_tree (ast_node_t *node)
- char * make_module_param_name (ast_node_t *module_param_list, char *module_name)
- void make_concat_into_list_of_strings (ast_node_t *concat_top, char *instance_name_prefix)
- void change_to_number_node (ast_node_t *node, long long number)
- int get_range (ast_node_t *first_node)
- char * get_name_of_pin_at_bit (ast_node_t *var_node, int bit, char *instance_name_prefix)
- char * get_name_of_var_declare_at_bit (ast_node_t *var_declare, int bit)
- char_list_t * get_name_of_pins (ast_node_t *var_node, char *instance_name_prefix)
- char_list_t * get_name_of_pins_with_prefix (ast_node_t *var_node, char *instance_name_prefix)
- ast_node_t * resolve_node (STRING_CACHE *local_param_table_sc, short initial, char *module_name, ast_node_t *node)
- ast_node_t * node_is_constant (ast_node_t *node)
- ast_node_t * fold_binary (ast_node_t *child_0, ast_node_t *child_1, operation_list op_id)
- ast_node_t * fold_unary (ast_node_t *child_0, operation_list op_id)

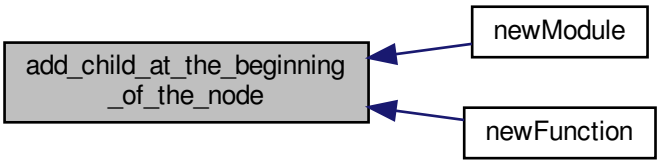
2.11.1 Function Documentation

2.11.1.1 add_child_at_the_beginning_of_the_node()

```
void add_child_at_the_beginning_of_the_node (
              ast_node_t * node,
              ast_node_t * child )
```

Definition at line 387 of file ast_util.cpp.

Here is the caller graph for this function:

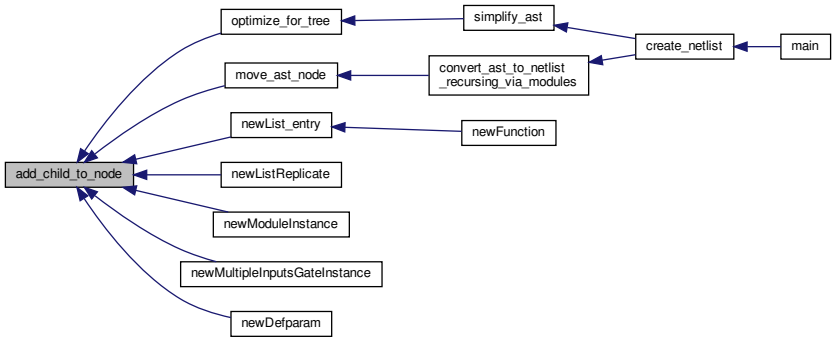


2.11.1.2 add_child_to_node()

```
void add_child_to_node (
            ast_node_t * node,
            ast_node_t * child )
```

Definition at line 372 of file ast_util.cpp.

Here is the caller graph for this function:

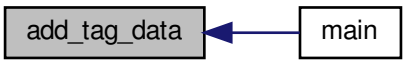


2.11.1.3 add_tag_data()

```
void add_tag_data ( )
```

Definition at line 70 of file ast_util.cpp.

Here is the caller graph for this function:

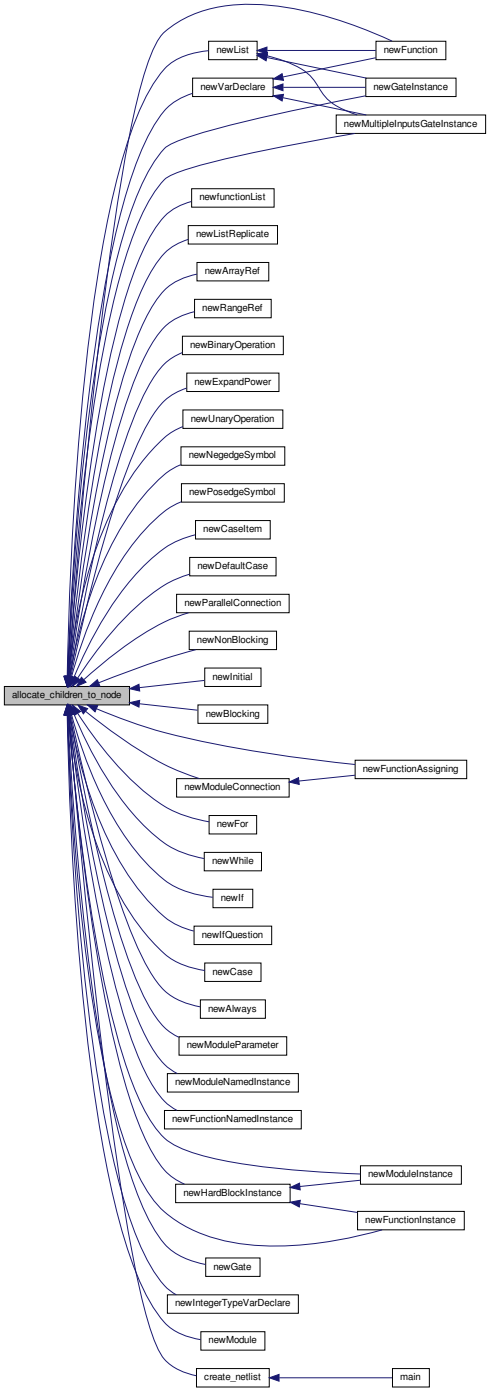


2.11.1.4 allocate_children_to_node()

```
void allocate_children_to_node (
             ast_node_t * node,
             int num_children,
              ...  )
```

Definition at line 351 of file ast_util.cpp.

Here is the caller graph for this function:



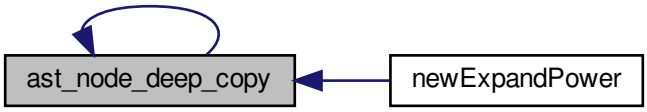
2.11.1.5 ast_node_deep_copy()

```
ast_node_t* ast_node_deep_copy (
```

```
            ast_node_t * node )
```

Definition at line 1040 of file ast_util.cpp.

Here is the caller graph for this function:

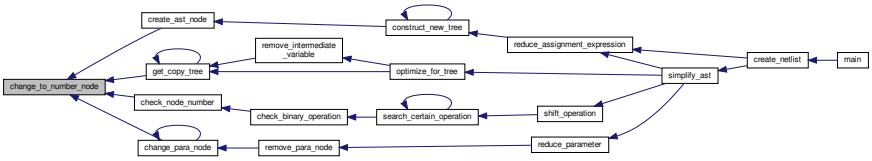


2.11.1.6 change_to_number_node()

```
void change_to_number_node (
            ast_node_t * node,
            long long number )
```

Definition at line 563 of file ast_util.cpp.

Here is the caller graph for this function:

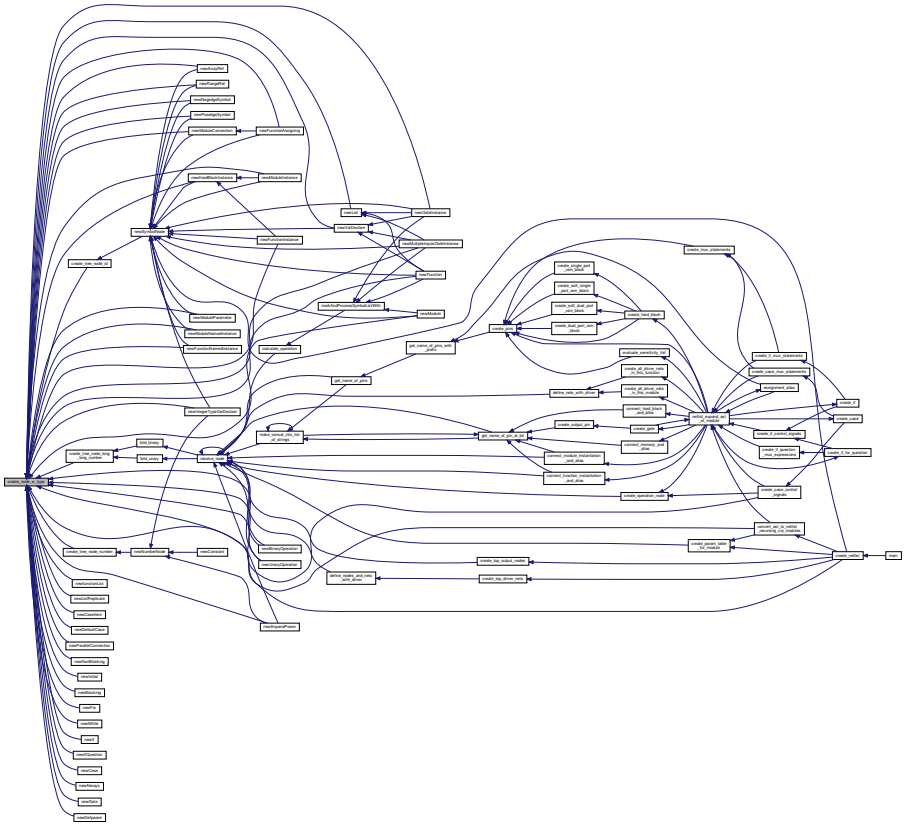


2.11.1.7 create_node_w_type()

```
ast_node_t* create_node_w_type (
            ids id,
            int line_number,
            int file_number )
```

Definition at line 95 of file ast_util.cpp.

Here is the caller graph for this function:

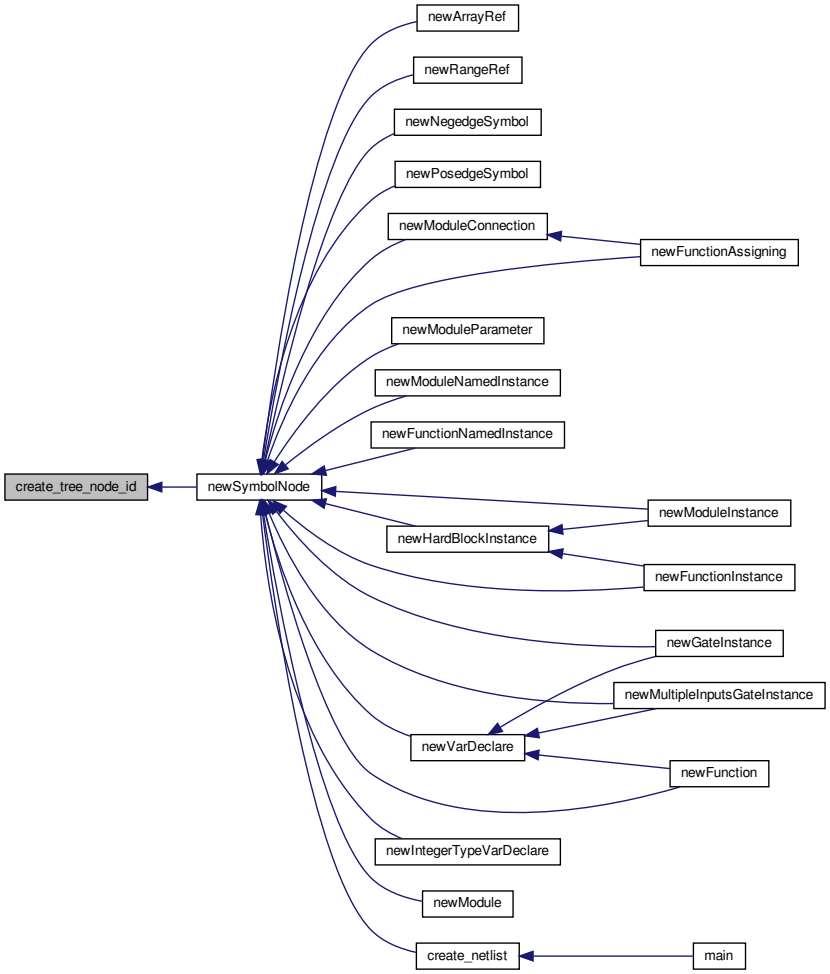


2.11.1.8 create_tree_node_id()

```
ast_node_t* create_tree_node_id (
              char * string,
              int line_number,
              int file_number )
```

Definition at line 175 of file ast_util.cpp.

Here is the caller graph for this function:

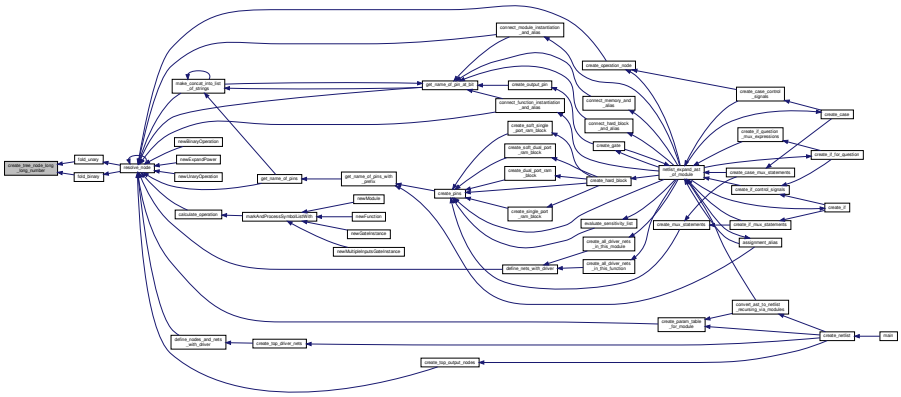


2.11.1.9 create_tree_node_long_long_number()

```
ast_node_t* create_tree_node_long_long_number (
             long long number,
             int constant_bit_size,
             int line_number,
             int file_number )
```

Definition at line 186 of file ast_util.cpp.

Here is the caller graph for this function:

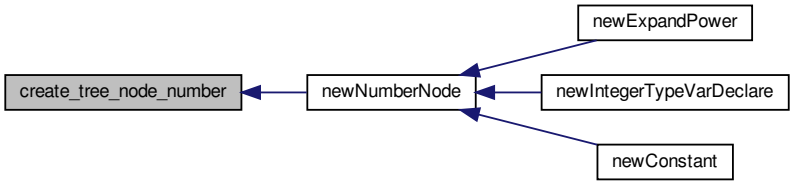


2.11.1.10 create_tree_node_number()

```
ast_node_t* create_tree_node_number (
            char * number,
            int line_number,
            int file_number )
```

Definition at line 212 of file ast_util.cpp.

Here is the caller graph for this function:

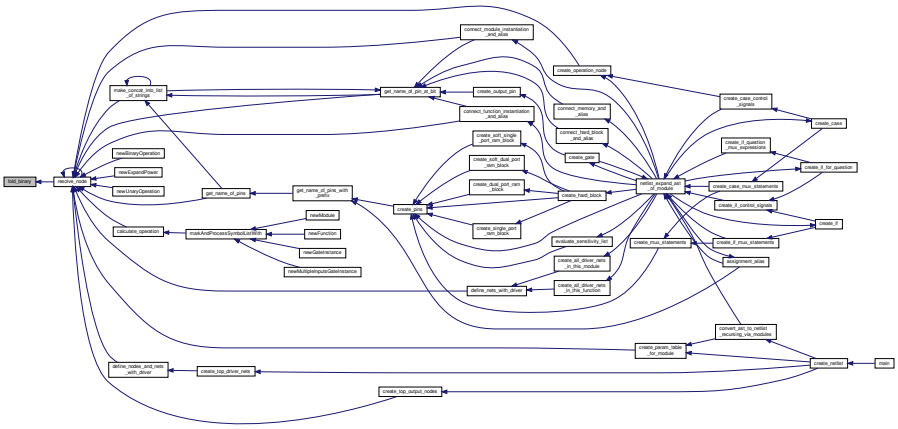


2.11.1.11 fold_binary()

```
ast_node_t* fold_binary (
            ast_node_t * child_0,
            ast_node_t * child_1,
            operation_list op_id )
```

Definition at line 1158 of file ast_util.cpp.

Here is the caller graph for this function:

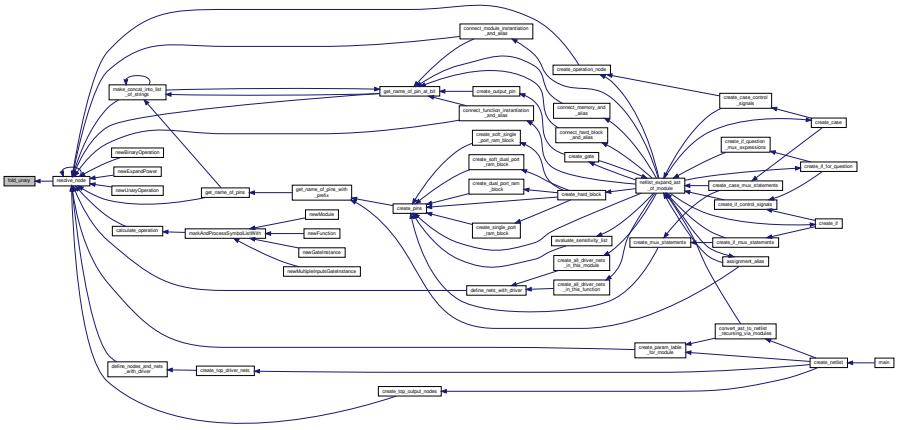


2.11.1.12 fold_unary()

```
ast_node_t* fold_unary (
             ast_node_t * child_0,
             operation_list op_id )
```

Definition at line 1071 of file ast_util.cpp.

Here is the caller graph for this function:

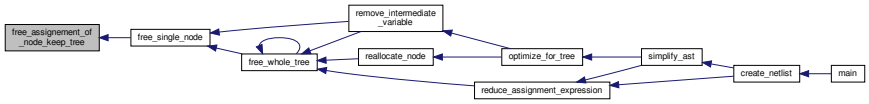


2.11.1.13 free_assignement_of_node_keep_tree()

```
void free_assignement_of_node_keep_tree (
            ast_node_t * node )
```

Definition at line 122 of file ast_util.cpp.

Here is the caller graph for this function:

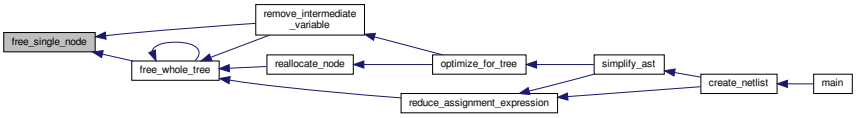


2.11.1.14 free_single_node()

```
ast_node_t* free_single_node (
            ast_node_t * node )
```

Definition at line 147 of file ast_util.cpp.

Here is the caller graph for this function:

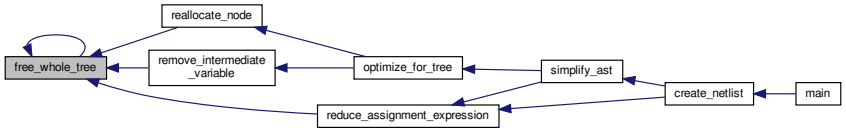


2.11.1.15 free_whole_tree()

```
ast_node_t* free_whole_tree (
            ast_node_t * node )
```

Definition at line 161 of file ast_util.cpp.

Here is the caller graph for this function:

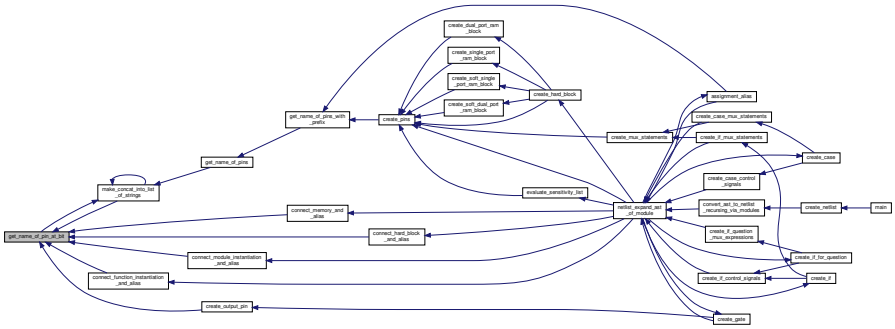


2.11.1.16 get_name_of_pin_at_bit()

```
char* get_name_of_pin_at_bit (
            ast_node_t * var_node,
            int bit,
            char * instance_name_prefix )
```

Definition at line 617 of file ast_util.cpp.

Here is the caller graph for this function:

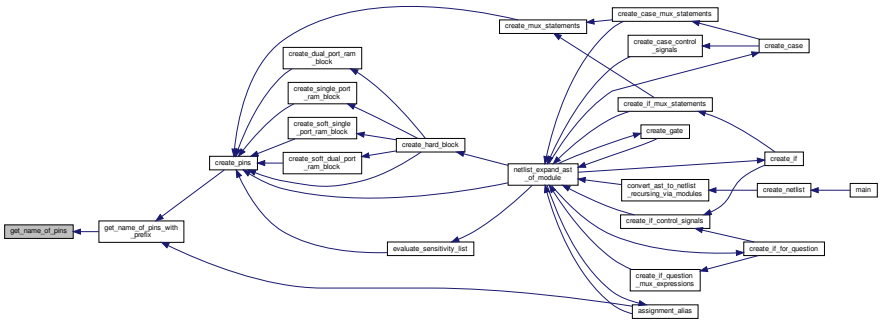


2.11.1.17 get_name_of_pins()

```
char_list_t* get_name_of_pins (
            ast_node_t * var_node,
            char * instance_name_prefix )
```

Definition at line 754 of file ast_util.cpp.

Here is the caller graph for this function:

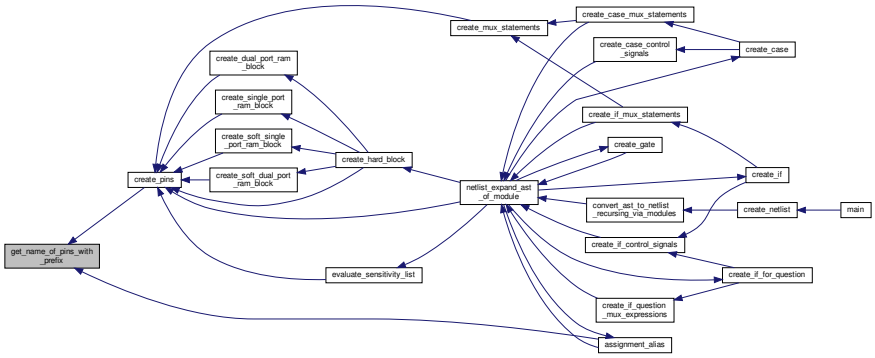


2.11.1.18 get_name_of_pins_with_prefix()

```
char_list_t* get_name_of_pins_with_prefix (
             ast_node_t * var_node,
             char * instance_name_prefix )
```

Definition at line 897 of file ast_util.cpp.

Here is the caller graph for this function:

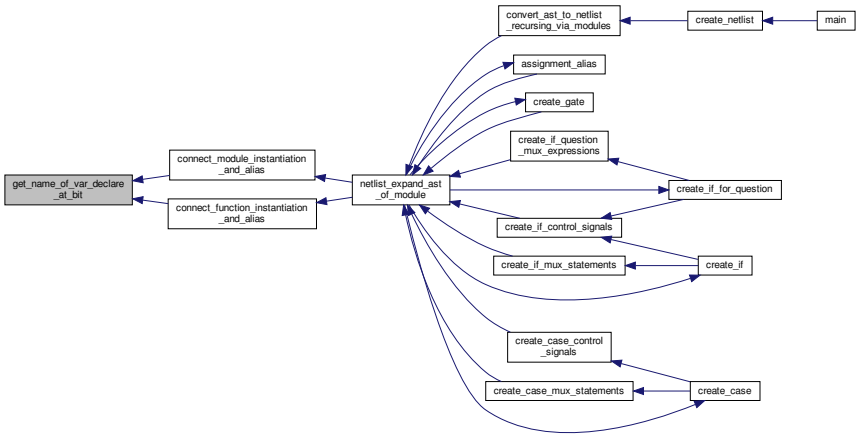


2.11.1.19 get_name_of_var_declare_at_bit()

```
char* get_name_of_var_declare_at_bit (
             ast_node_t * var_declare,
             int bit )
```

Definition at line 589 of file ast_util.cpp.

Here is the caller graph for this function:

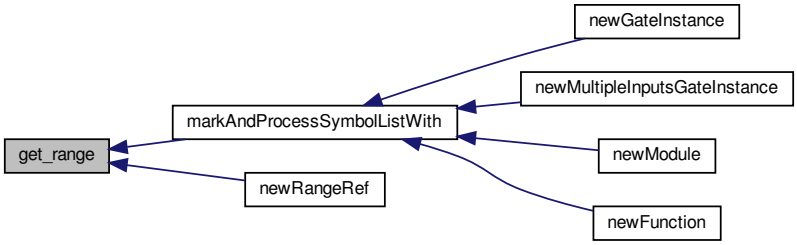


2.11.1.20 get_range()

```
int get_range (
            ast_node_t * first_node )
```

Definition at line 417 of file ast_util.cpp.

Here is the caller graph for this function:



2.11.1.21 initial_node()

```
void initial_node (
            ast_node_t * node,
            ids id,
            int line_number,
            int file_number,
            int counter )
```

Definition at line 1358 of file ast_util.cpp.

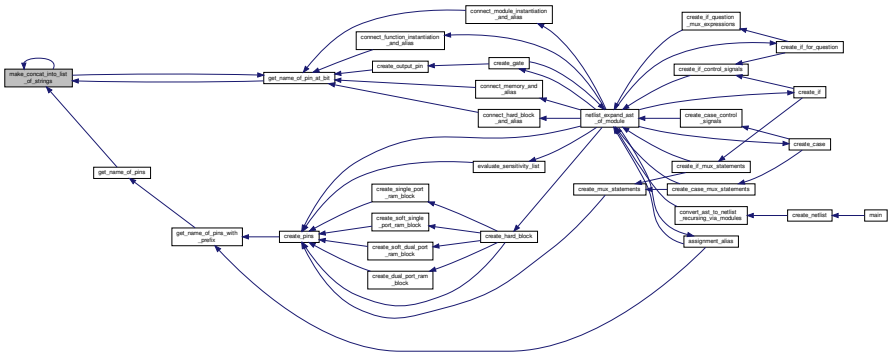
Here is the caller graph for this function:

2.11.1.22 make_concat_into_list_of_strings()

```
void make_concat_into_list_of_strings (
            ast_node_t * concat_top,
            char * instance_name_prefix )
```

Definition at line 446 of file ast_util.cpp.

Here is the caller graph for this function:



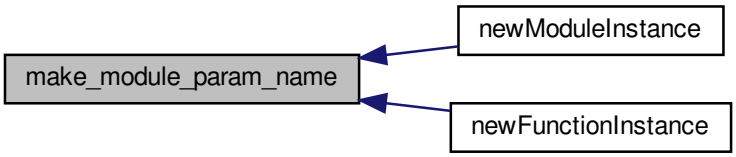
2.11.1.23 make_module_param_name()

```
char* make_module_param_name (
            ast_node_t * module_param_list,
            char * module_name )
```

Make a unique name for a module based on its parameter list e.g. for a "mod #(0,1,2,3) a(b,c,d)" instantiation you get name___0_1_2_3

Definition at line 988 of file ast_util.cpp.

Here is the caller graph for this function:

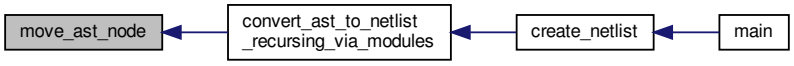


2.11.1.24 move_ast_node()

```
void move_ast_node (
             ast_node_t * src,
             ast_node_t * dest,
             ast_node_t * node )
```

Definition at line 1016 of file ast_util.cpp.

Here is the caller graph for this function:

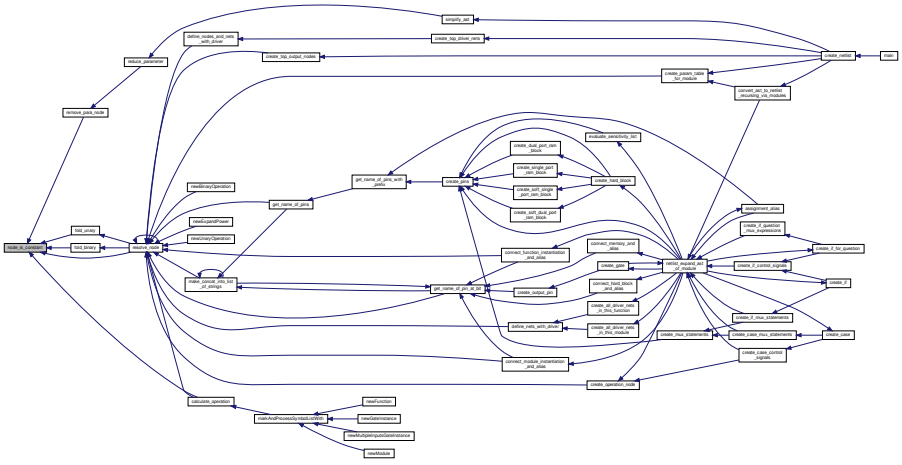


2.11.1.25 node_is_constant()

```
ast_node_t* node_is_constant (
             ast_node_t * node )
```

Definition at line 1334 of file ast_util.cpp.

Here is the caller graph for this function:



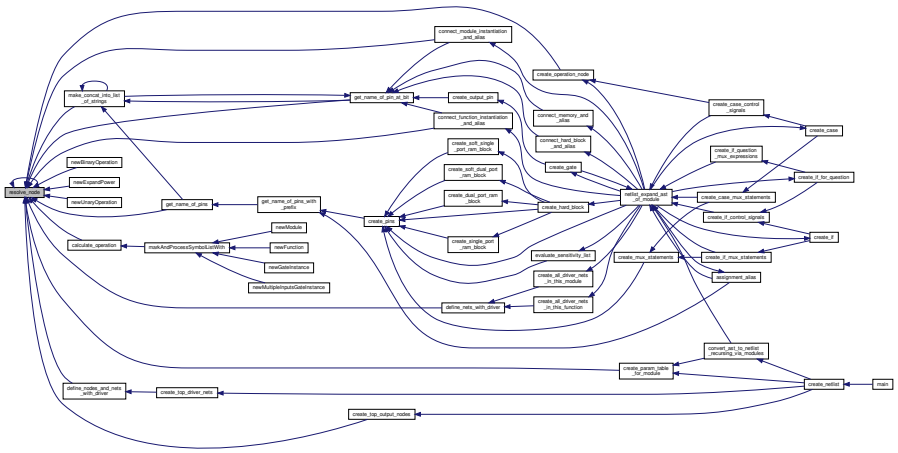
2.11.1.26 resolve_node()

```
ast_node_t* resolve_node (
              STRING_CACHE * local_param_table_sc,
              short initial,
              char * module_name,
              ast_node_t * node )
```

Recursively resolves an IDENTIFIER to a parameter into its actual value, by looking it up in the global_param_table_sc Also try and fold any BINARY_OPERATIONs now that an IDENTIFIER has been resolved

Definition at line 923 of file ast_util.cpp.

Here is the caller graph for this function:



2.12 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/parse_making_ast.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <assert.h>
#include <math.h>
#include "globals.h"
#include "types.h"
#include "ast_util.h"
#include "parse_making_ast.h"
#include "string_cache.h"
#include "verilog_bison_user_defined.h"
#include "verilog_preprocessor.h"
#include "hard_blocks.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- void graphVizOutputPreproc (FILE *yyin, std::string path, char *file)
- ast_node_t * newFunctionAssigning (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newHardBlockInstance (char *module_ref_name, ast_node_t *module_named_instance, int line_number)
- void parse_to_ast ()
- void cleanup_hard_blocks ()
- void init_parser ()
- void cleanup_parser ()
- void init_parser_for_file ()
- void clean_up_parser_for_file ()
- void next_parsed_verilog_file (ast_node_t *file_items_list)
- ast_node_t * newSymbolNode (char *id, int line_number)
- ast_node_t * newNumberNode (char *num, int line_number)
- ast_node_t * newList (ids node_type, ast_node_t *child)
- ast_node_t * newfunctionList (ids node_type, ast_node_t *child)
- ast_node_t * newList_entry (ast_node_t *list, ast_node_t *child)
- ast_node_t * newListReplicate (ast_node_t *exp, ast_node_t *child)
- ast_node_t * markAndProcessSymbolListWith (ids top_type, ids id, ast_node_t *symbol_list)
- ast_node_t * newArrayRef (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newRangeRef (char *id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newBinaryOperation (operation_list op_id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newExpandPower (operation_list op_id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newUnaryOperation (operation_list op_id, ast_node_t *expression, int line_number)
- ast_node_t * newNegedgeSymbol (char *symbol, int line_number)
- ast_node_t * newPosedgeSymbol (char *symbol, int line_number)
- ast_node_t * newCaseItem (ast_node_t *expression, ast_node_t *statement, int line_number)
- ast_node_t * newDefaultCase (ast_node_t *statement, int line_number)
- ast_node_t * newParallelConnection (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newNonBlocking (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newInitial (ast_node_t *expression1, int line_number)
- ast_node_t * newBlocking (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newFor (ast_node_t *initial, ast_node_t *compare_expression, ast_node_t *terminal, ast_node_t *statement, int line_number)
- ast_node_t * newWhile (ast_node_t *compare_expression, ast_node_t *statement, int line_number)
- ast_node_t * newIf (ast_node_t *compare_expression, ast_node_t *true_expression, ast_node_t *false_expression, int line_number)
- ast_node_t * newIfQuestion (ast_node_t *compare_expression, ast_node_t *true_expression, ast_node_t *false_expression, int line_number)
- ast_node_t * newCase (ast_node_t *compare_expression, ast_node_t *case_list, int line_number)
- ast_node_t * newAlways (ast_node_t *delay_control, ast_node_t *statement, int line_number)
- ast_node_t * newModuleConnection (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newModuleParameter (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newModuleNamedInstance (char *unique_name, ast_node_t *module_connect_list, ast_node_t *module_parameter_list, int line_number)
- ast_node_t * newFunctionNamedInstance (ast_node_t *module_connect_list, ast_node_t *module_parameter_list, int line_number)

- ast_node_t * newModuleInstance (char *module_ref_name, ast_node_t *module_named_instance, int line_number)
- ast_node_t * newFunctionInstance (char *function_ref_name, ast_node_t *function_named_instance, int line_number)
- ast_node_t * newGateInstance (char *gate_instance_name, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, int line_number)
- ast_node_t * newMultipleInputsGateInstance (char *gate_instance_name, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, int line_number)
- ast_node_t * newGate (operation_list op_id, ast_node_t *gate_instance, int line_number)
- ast_node_t * newVarDeclare (char *symbol, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, ast_node_t *expression4, ast_node_t *value, int line_number)
- ast_node_t * newIntegerTypeVarDeclare (char *symbol, ast_node_t *, ast_node_t *, ast_node_t *expression3, ast_node_t *expression4, ast_node_t *value, int line_number)
- ast_node_t * newModule (char *module_name, ast_node_t *list_of_ports, ast_node_t *list_of_module_items, int line_number)
- ast_node_t * newFunction (ast_node_t *list_of_ports, ast_node_t *list_of_module_items, int line_number)
- void next_function ()
- void next_module ()
- ast_node_t * newDefparam (ids, ast_node_t *val, int line_number)
- void newConstant (char *id, char *number, int line_number)
- void graphVizOutputAst (std::string path, ast_node_t *top)
- void graphVizOutputAst_traverse_node (FILE *fp, ast_node_t *node, ast_node_t *from, int from_num)
- long calculate_operation (ast_node_t *node)

Variables

- int yylineno
- STRING_CACHE * defines_for_file_sc
- STRING_CACHE ** defines_for_module_sc
- STRING_CACHE * modules_inputs_sc
- STRING_CACHE * modules_outputs_sc
- STRING_CACHE ** defines_for_function_sc
- STRING_CACHE * functions_inputs_sc
- STRING_CACHE * functions_outputs_sc
- STRING_CACHE * module_names_to_idx
- ast_node_t ** block_instantiations_instance
- int size_block_instantiations
- ast_node_t ** module_instantiations_instance
- int size_module_instantiations
- ast_node_t ** module_variables_not_defined
- int size_module_variables_not_defined
- ast_node_t ** function_instantiations_instance
- int size_function_instantiations
- ast_node_t ** function_instantiations_instance_by_module
- int size_function_instantiations_by_module
- size_t num_modules
- ast_node_t ** ast_modules
- int num_functions
- ast_node_t ** ast_functions
- ast_node_t ** all_file_items_list
- int size_all_file_items_list
- short to_view_parse
- int unique_label_count

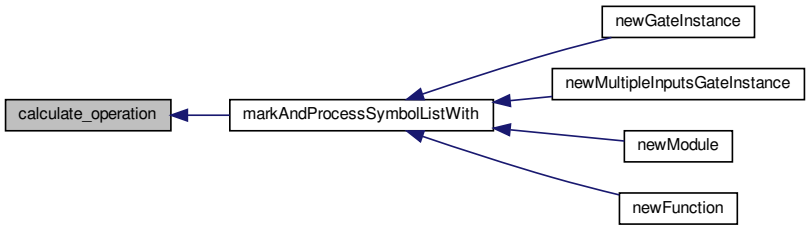
2.12.1 Function Documentation

2.12.1.1 calculate_operation()

```
long calculate_operation (
            ast_node_t * node )
```

Definition at line 2151 of file parse_making_ast.cpp.

Here is the caller graph for this function:

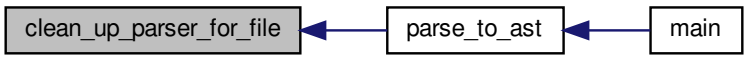


2.12.1.2 clean_up_parser_for_file()

```
void clean_up_parser_for_file ( )
```

Definition at line 314 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.3 cleanup_hard_blocks()

```
void cleanup_hard_blocks ( )
```

Definition at line 222 of file parse_making_ast.cpp.

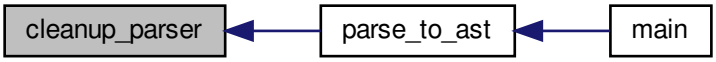
Here is the caller graph for this function:

2.12.1.4 cleanup_parser()

```
void cleanup_parser ( )
```

Definition at line 279 of file parse_making_ast.cpp.

Here is the caller graph for this function:

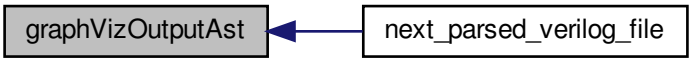


2.12.1.5 graphVizOutputAst()

```
void graphVizOutputAst (
             std::string path,
             ast_node_t * top )
```

Definition at line 1805 of file parse_making_ast.cpp.

Here is the caller graph for this function:

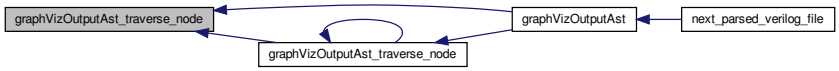


2.12.1.6 graphVizOutputAst_traverse_node()

```
void graphVizOutputAst_traverse_node (
            FILE * fp,
            ast_node_t * node,
            ast_node_t * from,
            int from_num )
```

Definition at line 1830 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.7 graphVizOutputPreproc()

```
void graphVizOutputPreproc (
            FILE * yyin,
            std::string path,
            char * file )
```

Definition at line 87 of file parse_making_ast.cpp.

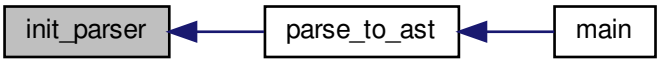
Here is the caller graph for this function:

2.12.1.8 init_parser()

```
void init_parser ( )
```

Definition at line 247 of file parse_making_ast.cpp.

Here is the caller graph for this function:

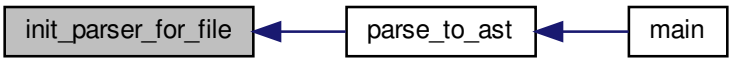


2.12.1.9 init_parser_for_file()

```
void init_parser_for_file ( )
```

Definition at line 298 of file parse_making_ast.cpp.

Here is the caller graph for this function:

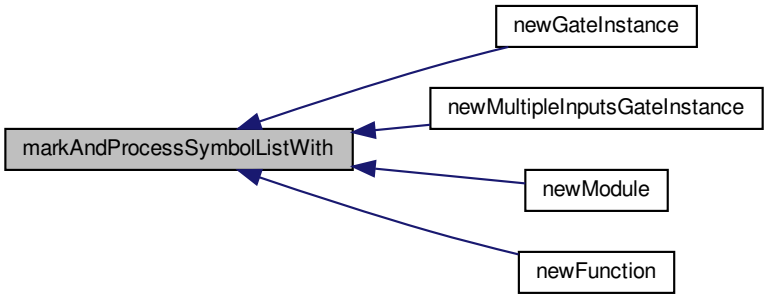


2.12.1.10 markAndProcessSymbolListWith()

```
ast_node_t* markAndProcessSymbolListWith (
            ids top_type,
            ids id,
            ast_node_t * symbol_list )
```

Definition at line 450 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.11 newAlways()

```
ast_node_t* newAlways (
             ast_node_t * delay_control,
             ast_node_t * statement,
             int line_number )
```

Definition at line 1157 of file parse_making_ast.cpp.

2.12.1.12 newArrayRef()

```
ast_node_t* newArrayRef (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 847 of file parse_making_ast.cpp.

2.12.1.13 newBinaryOperation()

```
ast_node_t* newBinaryOperation (
             operation_list op_id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 879 of file parse_making_ast.cpp.

2.12.1.14 newBlocking()

```
ast_node_t* newBlocking (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 1052 of file parse_making_ast.cpp.

2.12.1.15 newCase()

```
ast_node_t* newCase (
             ast_node_t * compare_expression,
             ast_node_t * case_list,
             int line_number )
```

Definition at line 1144 of file parse_making_ast.cpp.

2.12.1.16 newCaseItem()

```
ast_node_t* newCaseItem (
             ast_node_t * expression,
             ast_node_t * statement,
             int line_number )
```

Definition at line 989 of file parse_making_ast.cpp.

2.12.1.17 newConstant()

```
void newConstant (
             char * id,
             char * number,
             int line_number )
```

Definition at line 1776 of file parse_making_ast.cpp.

2.12.1.18 newDefaultCase()

```
ast_node_t* newDefaultCase (
             ast_node_t * statement,
             int line_number )
```

Definition at line 1002 of file parse_making_ast.cpp.

2.12.1.19 newDefparam()

```
ast_node_t* newDefparam (
             ids ,
             ast_node_t * val,
             int line_number )
```

Definition at line 1707 of file parse_making_ast.cpp.

2.12.1.20 newExpandPower()

```
ast_node_t* newExpandPower (
             operation_list op_id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 893 of file parse_making_ast.cpp.

2.12.1.21 newFor()

```
ast_node_t* newFor (
             ast_node_t * initial,
             ast_node_t * compare_expression,
             ast_node_t * terminal,
             ast_node_t * statement,
             int line_number )
```

Definition at line 1089 of file parse_making_ast.cpp.

2.12.1.22 newFunction()

```
ast_node_t* newFunction (
             ast_node_t * list_of_ports,
             ast_node_t * list_of_module_items,
             int line_number )
```

Definition at line 1572 of file parse_making_ast.cpp.

2.12.1.23 newFunctionAssigning()

```
ast_node_t * newFunctionAssigning (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 1064 of file parse_making_ast.cpp.

2.12.1.24 newFunctionInstance()

```
ast_node_t* newFunctionInstance (
             char * function_ref_name,
             ast_node_t * function_named_instance,
             int line_number )
```

Definition at line 1344 of file parse_making_ast.cpp.

2.12.1.25 newfunctionList()

```
ast_node_t* newfunctionList (
             ids node_type,
             ast_node_t * child )
```

Definition at line 404 of file parse_making_ast.cpp.

2.12.1.26 newFunctionNamedInstance()

```
ast_node_t* newFunctionNamedInstance (
             ast_node_t * module_connect_list,
             ast_node_t * module_parameter_list,
             int line_number )
```

Definition at line 1241 of file parse_making_ast.cpp.

2.12.1.27 newGate()

```
ast_node_t* newGate (
             operation_list op_id,
             ast_node_t * gate_instance,
             int line_number )
```

Definition at line 1455 of file parse_making_ast.cpp.

2.12.1.28 newGateInstance()

```
ast_node_t* newGateInstance (
             char * gate_instance_name,
             ast_node_t * expression1,
             ast_node_t * expression2,
             ast_node_t * expression3,
             int line_number )
```

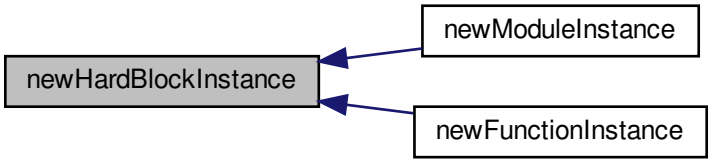
Definition at line 1378 of file parse_making_ast.cpp.

2.12.1.29 newHardBlockInstance()

```
ast_node_t * newHardBlockInstance (
             char * module_ref_name,
             ast_node_t * module_named_instance,
             int line_number )
```

Definition at line 1264 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.30 newIf()

```
ast_node_t* newIf (
             ast_node_t * compare_expression,
             ast_node_t * true_expression,
             ast_node_t * false_expression,
             int line_number )
```

Definition at line 1119 of file parse_making_ast.cpp.

2.12.1.31 newIfQuestion()

```
ast_node_t* newIfQuestion (
             ast_node_t * compare_expression,
             ast_node_t * true_expression,
             ast_node_t * false_expression,
             int line_number )
```

Definition at line 1132 of file parse_making_ast.cpp.

2.12.1.32 newInitial()

```
ast_node_t* newInitial (
             ast_node_t * expression1,
             int line_number )
```

Definition at line 1040 of file parse_making_ast.cpp.

2.12.1.33 newIntegerTypeVarDeclare()

```
ast_node_t* newIntegerTypeVarDeclare (
             char * symbol,
             ast_node_t * ,
             ast_node_t * ,
             ast_node_t * expression3,
             ast_node_t * expression4,
             ast_node_t * value,
             int line_number )
```

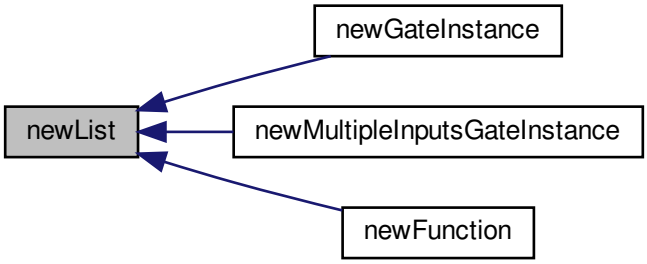
Definition at line 1489 of file parse_making_ast.cpp.

2.12.1.34 newList()

```
ast_node_t* newList (
             ids node_type,
             ast_node_t * child )
```

Definition at line 394 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.35 newList_entry()

```
ast_node_t* newList_entry (
             ast_node_t * list,
             ast_node_t * child )
```

Definition at line 418 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.12.1.36 newListReplicate()

```
ast_node_t* newListReplicate (
             ast_node_t * exp,
             ast_node_t * child )
```

Definition at line 432 of file parse_making_ast.cpp.

2.12.1.37 newModule()

```
ast_node_t* newModule (
             char * module_name,
             ast_node_t * list_of_ports,
             ast_node_t * list_of_module_items,
             int line_number )
```

Definition at line 1516 of file parse_making_ast.cpp.

2.12.1.38 newModuleConnection()

```
ast_node_t* newModuleConnection (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 1170 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.12.1.39 newModuleInstance()

```
ast_node_t* newModuleInstance (
             char * module_ref_name,
             ast_node_t * module_named_instance,
             int line_number )
```

Definition at line 1284 of file parse_making_ast.cpp.

2.12.1.40 newModuleNamedInstance()

```
ast_node_t* newModuleNamedInstance (
             char * unique_name,
             ast_node_t * module_connect_list,
             ast_node_t * module_parameter_list,
             int line_number )
```

Definition at line 1226 of file parse_making_ast.cpp.

2.12.1.41 newModuleParameter()

```
ast_node_t* newModuleParameter (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 1193 of file parse_making_ast.cpp.

2.12.1.42 newMultipleInputsGateInstance()

```
ast_node_t* newMultipleInputsGateInstance (
             char * gate_instance_name,
             ast_node_t * expression1,
             ast_node_t * expression2,
             ast_node_t * expression3,
             int line_number )
```

Definition at line 1409 of file parse_making_ast.cpp.

2.12.1.43 newNegedgeSymbol()

```
ast_node_t* newNegedgeSymbol (
             char * symbol,
             int line_number )
```

Definition at line 959 of file parse_making_ast.cpp.

2.12.1.44 newNonBlocking()

```
ast_node_t* newNonBlocking (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

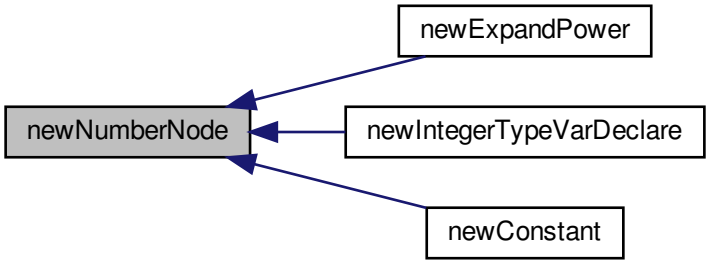
Definition at line 1027 of file parse_making_ast.cpp.

2.12.1.45 newNumberNode()

```
ast_node_t* newNumberNode (
             char * num,
             int line_number )
```

Definition at line 385 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.46 newParallelConnection()

```
ast_node_t* newParallelConnection (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 1015 of file parse_making_ast.cpp.

2.12.1.47 newPosedgeSymbol()

```
ast_node_t* newPosedgeSymbol (
             char * symbol,
             int line_number )
```

Definition at line 974 of file parse_making_ast.cpp.

2.12.1.48 newRangeRef()

```
ast_node_t* newRangeRef (
             char * id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

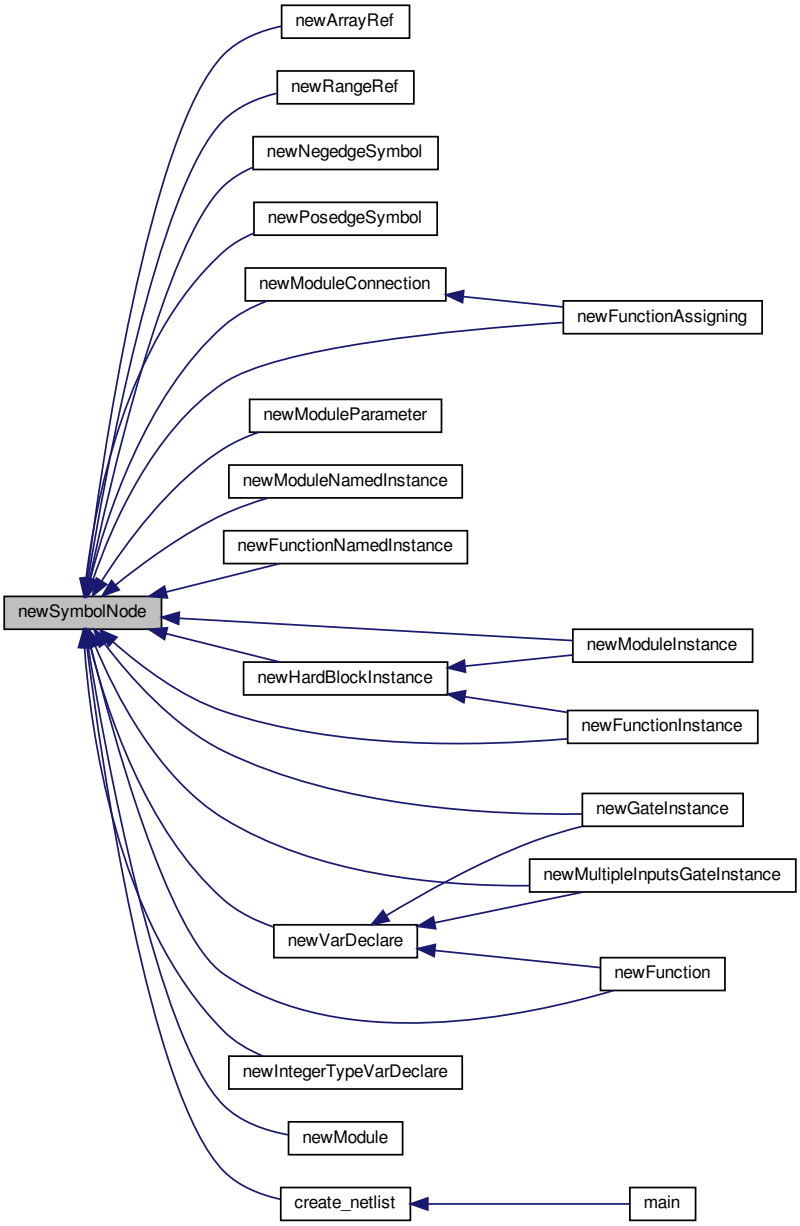
Definition at line 862 of file parse_making_ast.cpp.

2.12.1.49 newSymbolNode()

```
ast_node_t* newSymbolNode (
             char * id,
             int line_number )
```

Definition at line 348 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.50 newUnaryOperation()

```
ast_node_t* newUnaryOperation (
            operation_list op_id,
```

```
            ast_node_t * expression,
            int line_number )
```

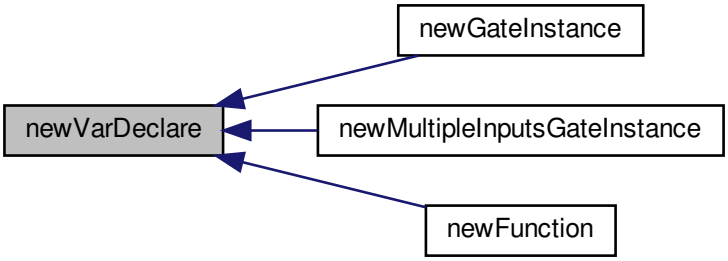
Definition at line 941 of file parse_making_ast.cpp.

2.12.1.51 newVarDeclare()

```
ast_node_t* newVarDeclare (
            char * symbol,
            ast_node_t * expression1,
            ast_node_t * expression2,
            ast_node_t * expression3,
            ast_node_t * expression4,
            ast_node_t * value,
            int line_number )
```

Definition at line 1472 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.1.52 newWhile()

```
ast_node_t* newWhile (
            ast_node_t * compare_expression,
            ast_node_t * statement,
            int line_number )
```

Definition at line 1102 of file parse_making_ast.cpp.

2.12.1.53 next_function()

```
void next_function ( )
```

Definition at line 1655 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.12.1.54 next_module()

```
void next_module ( )
```

Definition at line 1678 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.12.1.55 next_parsed_verilog_file()

```
void next_parsed_verilog_file (
             ast_node_t * file_items_list )
```

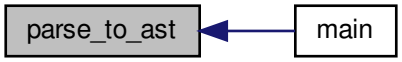
Definition at line 323 of file parse_making_ast.cpp.

2.12.1.56 parse_to_ast()

```
void parse_to_ast ( )
```

Definition at line 116 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.12.2 Variable Documentation

2.12.2.1 all_file_items_list

```
ast_node_t** all_file_items_list
```

Definition at line 72 of file parse_making_ast.cpp.

2.12.2.2 ast_functions

```
ast_node_t** ast_functions
```

Definition at line 71 of file parse_making_ast.cpp.

2.12.2.3 ast_modules

```
ast_node_t** ast_modules
```

Definition at line 68 of file parse_making_ast.cpp.

2.12.2.4 block_instantiations_instance

```
ast_node_t** block_instantiations_instance
```

Definition at line 55 of file parse_making_ast.cpp.

2.12.2.5 defines_for_file_sc

```
STRING_CACHE* defines_for_file_sc
```

Definition at line 43 of file parse_making_ast.cpp.

2.12.2.6 defines_for_function_sc

```
STRING_CACHE** defines_for_function_sc
```

Definition at line 49 of file parse_making_ast.cpp.

2.12.2.7 defines_for_module_sc

```
STRING_CACHE** defines_for_module_sc
```

Definition at line 45 of file parse_making_ast.cpp.

2.12.2.8 function_instantiations_instance

```
ast_node_t** function_instantiations_instance
```

Definition at line 62 of file parse_making_ast.cpp.

2.12.2.9 function_instantiations_instance_by_module

```
ast_node_t** function_instantiations_instance_by_module
```

Definition at line 64 of file parse_making_ast.cpp.

2.12.2.10 functions_inputs_sc

```
STRING_CACHE* functions_inputs_sc
```

Definition at line 50 of file parse_making_ast.cpp.

2.12.2.11 functions_outputs_sc

```
STRING_CACHE* functions_outputs_sc
```

Definition at line 51 of file parse_making_ast.cpp.

2.12.2.12 module_instantiations_instance

```
ast_node_t** module_instantiations_instance
```

Definition at line 58 of file parse_making_ast.cpp.

2.12.2.13 module_names_to_idx

```
STRING_CACHE* module_names_to_idx
```

Definition at line 53 of file parse_making_ast.cpp.

2.12.2.14 module_variables_not_defined

```
ast_node_t** module_variables_not_defined
```

Definition at line 60 of file parse_making_ast.cpp.

2.12.2.15 modules_inputs_sc

```
STRING_CACHE* modules_inputs_sc
```

Definition at line 46 of file parse_making_ast.cpp.

2.12.2.16 modules_outputs_sc

```
STRING_CACHE* modules_outputs_sc
```

Definition at line 47 of file parse_making_ast.cpp.

2.12.2.17 num_functions

```
int num_functions
```

Definition at line 70 of file parse_making_ast.cpp.

2.12.2.18 num_modules

```
size_t num_modules
```

Definition at line 67 of file parse_making_ast.cpp.

2.12.2.19 size_all_file_items_list

```
int size_all_file_items_list
```

Definition at line 73 of file parse_making_ast.cpp.

2.12.2.20 size_block_instantiations

```
int size_block_instantiations
```

Definition at line 56 of file parse_making_ast.cpp.

2.12.2.21 size_function_instantiations

```
int size_function_instantiations
```

Definition at line 63 of file parse_making_ast.cpp.

2.12.2.22 size_function_instantiations_by_module

```
int size_function_instantiations_by_module
```

Definition at line 65 of file parse_making_ast.cpp.

2.12.2.23 size_module_instantiations

```
int size_module_instantiations
```

Definition at line 59 of file parse_making_ast.cpp.

2.12.2.24 size_module_variables_not_defined

```
int size_module_variables_not_defined
```

Definition at line 61 of file parse_making_ast.cpp.

2.12.2.25 to_view_parse

```
short to_view_parse
```

Definition at line 75 of file parse_making_ast.cpp.

2.12.2.26 unique_label_count

```
int unique_label_count
```

Definition at line 1801 of file parse_making_ast.cpp.

2.12.2.27 yylineno

```
int yylineno
```

2.13 vtr-verilog-to-routing/ODIN_II/SRC/lib_ast/parse_making_ast.h File Reference

```
#include "types.h"
```

Functions

- void parse_to_ast ()
- void init_parser ()
- void cleanup_parser ()
- void cleanup_hard_blocks ()
- void init_parser_for_file ()
- void clean_up_parser_for_file ()
- ast_node_t * newSymbolNode (char *id, int line_number)
- ast_node_t * newNumberNode (char *num, int line_number)
- ast_node_t * newList (ids type_id, ast_node_t *expression)
- ast_node_t * newList_entry (ast_node_t *concat_node, ast_node_t *expression)
- ast_node_t * newListReplicate (ast_node_t *exp, ast_node_t *child)
- ast_node_t * markAndProcessSymbolListWith (ids top_type, ids id, ast_node_t *symbol_list)
- ast_node_t * newArrayRef (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newRangeRef (char *id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newBinaryOperation (operation_list op_id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newExpandPower (operation_list op_id, ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newUnaryOperation (operation_list op_id, ast_node_t *expression, int line_number)
- ast_node_t * newPosedgeSymbol (char *symbol, int line_number)
- ast_node_t * newNegedgeSymbol (char *symbol, int line_number)
- ast_node_t * newCaseItem (ast_node_t *expression, ast_node_t *statement, int line_number)
- ast_node_t * newDefaultCase (ast_node_t *statement, int line_number)
- ast_node_t * newNonBlocking (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newInitial (ast_node_t *expression1, int line_number)
- ast_node_t * newBlocking (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newIf (ast_node_t *compare_expression, ast_node_t *true_expression, ast_node_t *false_↩ expression, int line_number)
- ast_node_t * newIfQuestion (ast_node_t *compare_expression, ast_node_t *true_expression, ast_node_↩ t *false_expression, int line_number)
- ast_node_t * newCase (ast_node_t *compare_expression, ast_node_t *case_list, int line_number)
- ast_node_t * newAlways (ast_node_t *delay_control, ast_node_t *statements, int line_number)
- ast_node_t * newFor (ast_node_t *initial, ast_node_t *compare_expression, ast_node_t *terminal, ast_node_t *statement, int line_number)
- ast_node_t * newWhile (ast_node_t *compare_expression, ast_node_t *statement, int line_number)
- ast_node_t * newModuleConnection (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newModuleNamedInstance (char *unique_name, ast_node_t *module_connect_list, ast_node_t *module_parameter_list, int line_number)
- ast_node_t * newFunctionNamedInstance (ast_node_t *module_connect_list, ast_node_t *module_parameter↩ _list, int line_number)
- ast_node_t * newModuleInstance (char *module_ref_name, ast_node_t *module_named_instance, int line_↩ number)
- ast_node_t * newFunctionInstance (char *function_ref_name, ast_node_t *function_named_instance, int line↩ _number)
- ast_node_t * newModuleParameter (char *id, ast_node_t *expression, int line_number)
- ast_node_t * newfunctionList (ids node_type, ast_node_t *child)
- ast_node_t * newParallelConnection (ast_node_t *expression1, ast_node_t *expression2, int line_number)
- ast_node_t * newGateInstance (char *gate_instance_name, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, int line_number)

- ast_node_t * newMultipleInputsGateInstance (char *gate_instance_name, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, int line_number)
- ast_node_t * newGate (operation_list gate_type, ast_node_t *gate_instance, int line_number)
- ast_node_t * newAssign (ast_node_t *statement, int line_number)
- ast_node_t * newVarDeclare (char *symbol, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, ast_node_t *expression4, ast_node_t *value, int line_number)
- ast_node_t * newIntegerTypeVarDeclare (char *symbol, ast_node_t *expression1, ast_node_t *expression2, ast_node_t *expression3, ast_node_t *expression4, ast_node_t *value, int line_number)
- ast_node_t * newModule (char *module_name, ast_node_t *list_of_ports, ast_node_t *list_of_module_items, int line_number)
- ast_node_t * newFunction (ast_node_t *list_of_ports, ast_node_t *list_of_module_items, int line_number)
- void next_module ()
- void next_function ()
- void newConstant (char *id, char *number, int line_number)
- ast_node_t * newDefparam (ids id, ast_node_t *val, int line_number)
- void next_parsed_verilog_file (ast_node_t *file_items_list)
- void graphVizOutputAst (std::string path, ast_node_t *top)
- void graphVizOutputAst_traverse_node (FILE *fp, ast_node_t *node, ast_node_t *from, int from_num)
- long calculate_operation (ast_node_t *node)

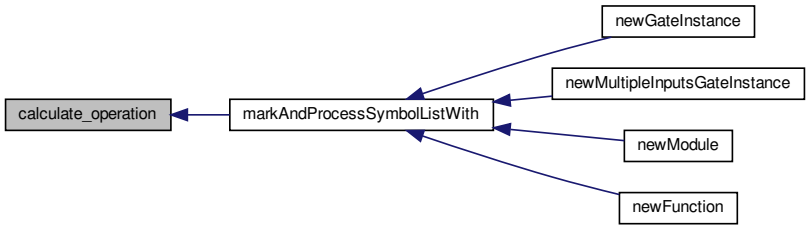
2.13.1 Function Documentation

2.13.1.1 calculate_operation()

```
long calculate_operation (
            ast_node_t * node )
```

Definition at line 2151 of file parse_making_ast.cpp.

Here is the caller graph for this function:

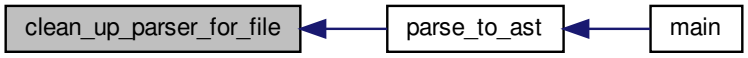


2.13.1.2 clean_up_parser_for_file()

```
void clean_up_parser_for_file ( )
```

Definition at line 314 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.3 cleanup_hard_blocks()

```
void cleanup_hard_blocks ( )
```

Definition at line 222 of file parse_making_ast.cpp.

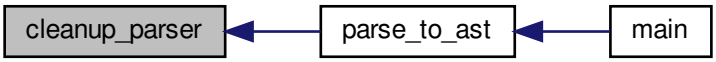
Here is the caller graph for this function:

2.13.1.4 cleanup_parser()

```
void cleanup_parser ( )
```

Definition at line 279 of file parse_making_ast.cpp.

Here is the caller graph for this function:

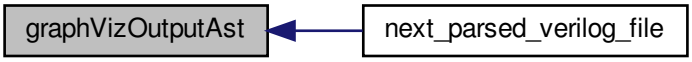


2.13.1.5 graphVizOutputAst()

```
void graphVizOutputAst (
             std::string path,
             ast_node_t * top )
```

Definition at line 1805 of file parse_making_ast.cpp.

Here is the caller graph for this function:

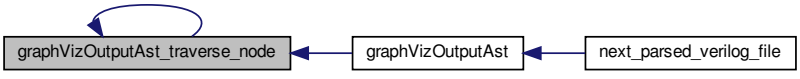


2.13.1.6 graphVizOutputAst_traverse_node()

```
void graphVizOutputAst_traverse_node (
             FILE * fp,
             ast_node_t * node,
             ast_node_t * from,
             int from_num )
```

Definition at line 1830 of file parse_making_ast.cpp.

Here is the caller graph for this function:

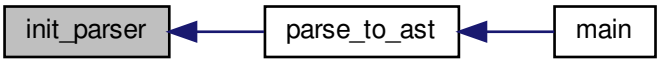


2.13.1.7 init_parser()

```
void init_parser ( )
```

Definition at line 247 of file parse_making_ast.cpp.

Here is the caller graph for this function:

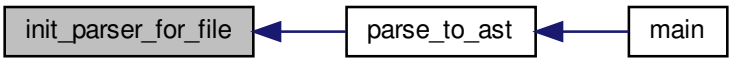


2.13.1.8 init_parser_for_file()

```
void init_parser_for_file ( )
```

Definition at line 298 of file parse_making_ast.cpp.

Here is the caller graph for this function:

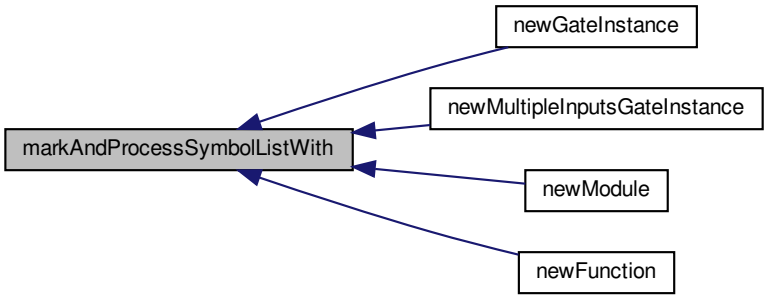


2.13.1.9 markAndProcessSymbolListWith()

```
ast_node_t* markAndProcessSymbolListWith (
            ids top_type,
            ids id,
            ast_node_t * symbol_list )
```

Definition at line 450 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.10 newAlways()

```
ast_node_t* newAlways (
             ast_node_t * delay_control,
             ast_node_t * statements,
             int line_number )
```

Definition at line 1157 of file parse_making_ast.cpp.

2.13.1.11 newArrayRef()

```
ast_node_t* newArrayRef (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 847 of file parse_making_ast.cpp.

2.13.1.12 newAssign()

```
ast_node_t* newAssign (
             ast_node_t * statement,
             int line_number )
```

2.13.1.13 newBinaryOperation()

```
ast_node_t* newBinaryOperation (
             operation_list op_id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 879 of file parse_making_ast.cpp.

2.13.1.14 newBlocking()

```
ast_node_t* newBlocking (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 1052 of file parse_making_ast.cpp.

2.13.1.15 newCase()

```
ast_node_t* newCase (
             ast_node_t * compare_expression,
             ast_node_t * case_list,
             int line_number )
```

Definition at line 1144 of file parse_making_ast.cpp.

2.13.1.16 newCaseItem()

```
ast_node_t* newCaseItem (
             ast_node_t * expression,
             ast_node_t * statement,
             int line_number )
```

Definition at line 989 of file parse_making_ast.cpp.

2.13.1.17 newConstant()

```
void newConstant (
             char * id,
             char * number,
             int line_number )
```

Definition at line 1776 of file parse_making_ast.cpp.

2.13.1.18 newDefaultCase()

```
ast_node_t* newDefaultCase (
             ast_node_t * statement,
             int line_number )
```

Definition at line 1002 of file parse_making_ast.cpp.

2.13.1.19 newDefparam()

```
ast_node_t* newDefparam (
             ids id,
             ast_node_t * val,
             int line_number )
```

Definition at line 1707 of file parse_making_ast.cpp.

2.13.1.20 newExpandPower()

```
ast_node_t* newExpandPower (
             operation_list op_id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

Definition at line 893 of file parse_making_ast.cpp.

2.13.1.21 newFor()

```
ast_node_t* newFor (
             ast_node_t * initial,
             ast_node_t * compare_expression,
             ast_node_t * terminal,
             ast_node_t * statement,
             int line_number )
```

Definition at line 1089 of file parse_making_ast.cpp.

2.13.1.22 newFunction()

```
ast_node_t* newFunction (
             ast_node_t * list_of_ports,
             ast_node_t * list_of_module_items,
             int line_number )
```

Definition at line 1572 of file parse_making_ast.cpp.

2.13.1.23 newFunctionInstance()

```
ast_node_t* newFunctionInstance (
             char * function_ref_name,
             ast_node_t * function_named_instance,
             int line_number )
```

Definition at line 1344 of file parse_making_ast.cpp.

2.13.1.24 newfunctionList()

```
ast_node_t* newfunctionList (
             ids node_type,
             ast_node_t * child )
```

Definition at line 404 of file parse_making_ast.cpp.

2.13.1.25 newFunctionNamedInstance()

```
ast_node_t* newFunctionNamedInstance (
             ast_node_t * module_connect_list,
             ast_node_t * module_parameter_list,
             int line_number )
```

Definition at line 1241 of file parse_making_ast.cpp.

2.13.1.26 newGate()

```
ast_node_t* newGate (
             operation_list gate_type,
             ast_node_t * gate_instance,
             int line_number )
```

Definition at line 1455 of file parse_making_ast.cpp.

2.13.1.27 newGateInstance()

```
ast_node_t* newGateInstance (
             char * gate_instance_name,
             ast_node_t * expression1,
             ast_node_t * expression2,
             ast_node_t * expression3,
             int line_number )
```

Definition at line 1378 of file parse_making_ast.cpp.

2.13.1.28 newIf()

```
ast_node_t* newIf (
             ast_node_t * compare_expression,
             ast_node_t * true_expression,
             ast_node_t * false_expression,
             int line_number )
```

Definition at line 1119 of file parse_making_ast.cpp.

2.13.1.29 newIfQuestion()

```
ast_node_t* newIfQuestion (
             ast_node_t * compare_expression,
             ast_node_t * true_expression,
             ast_node_t * false_expression,
             int line_number )
```

Definition at line 1132 of file parse_making_ast.cpp.

2.13.1.30 newInitial()

```
ast_node_t* newInitial (
             ast_node_t * expression1,
             int line_number )
```

Definition at line 1040 of file parse_making_ast.cpp.

2.13.1.31 newIntegerTypeVarDeclare()

```
ast_node_t* newIntegerTypeVarDeclare (
             char * symbol,
             ast_node_t * expression1,
             ast_node_t * expression2,
             ast_node_t * expression3,
             ast_node_t * expression4,
             ast_node_t * value,
             int line_number )
```

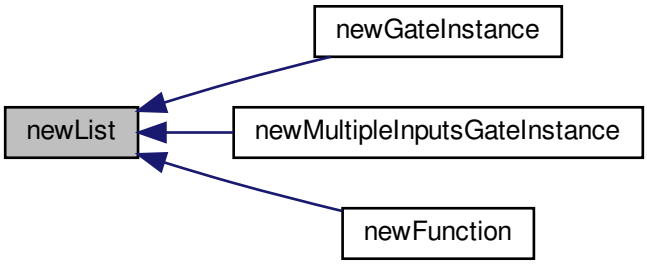
Definition at line 1489 of file parse_making_ast.cpp.

2.13.1.32 newList()

```
ast_node_t* newList (
             ids type_id,
             ast_node_t * expression )
```

Definition at line 394 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.33 newList_entry()

```
ast_node_t* newList_entry (
             ast_node_t * concat_node,
             ast_node_t * expression )
```

Definition at line 418 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.13.1.34 newListReplicate()

```
ast_node_t* newListReplicate (
             ast_node_t * exp,
             ast_node_t * child )
```

Definition at line 432 of file parse_making_ast.cpp.

2.13.1.35 newModule()

```
ast_node_t* newModule (
             char * module_name,
             ast_node_t * list_of_ports,
             ast_node_t * list_of_module_items,
             int line_number )
```

Definition at line 1516 of file parse_making_ast.cpp.

2.13.1.36 newModuleConnection()

```
ast_node_t* newModuleConnection (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 1170 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.13.1.37 newModuleInstance()

```
ast_node_t* newModuleInstance (
             char * module_ref_name,
             ast_node_t * module_named_instance,
             int line_number )
```

Definition at line 1284 of file parse_making_ast.cpp.

2.13.1.38 newModuleNamedInstance()

```
ast_node_t* newModuleNamedInstance (
             char * unique_name,
             ast_node_t * module_connect_list,
             ast_node_t * module_parameter_list,
             int line_number )
```

Definition at line 1226 of file parse_making_ast.cpp.

2.13.1.39 newModuleParameter()

```
ast_node_t* newModuleParameter (
             char * id,
             ast_node_t * expression,
             int line_number )
```

Definition at line 1193 of file parse_making_ast.cpp.

2.13.1.40 newMultipleInputsGateInstance()

```
ast_node_t* newMultipleInputsGateInstance (
             char * gate_instance_name,
             ast_node_t * expression1,
             ast_node_t * expression2,
             ast_node_t * expression3,
             int line_number )
```

Definition at line 1409 of file parse_making_ast.cpp.

2.13.1.41 newNegedgeSymbol()

```
ast_node_t* newNegedgeSymbol (
             char * symbol,
             int line_number )
```

Definition at line 959 of file parse_making_ast.cpp.

2.13.1.42 newNonBlocking()

```
ast_node_t* newNonBlocking (
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

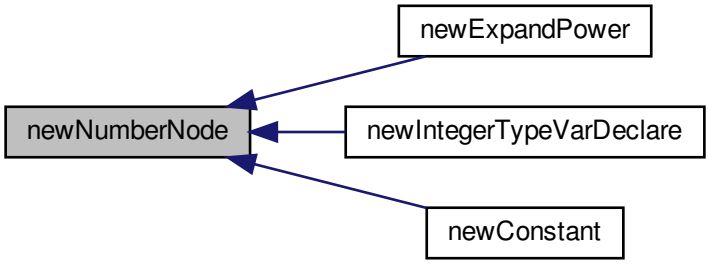
Definition at line 1027 of file parse_making_ast.cpp.

2.13.1.43 newNumberNode()

```
ast_node_t* newNumberNode (
              char * num,
              int line_number )
```

Definition at line 385 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.44 newParallelConnection()

```
ast_node_t* newParallelConnection (
              ast_node_t * expression1,
              ast_node_t * expression2,
              int line_number )
```

Definition at line 1015 of file parse_making_ast.cpp.

2.13.1.45 newPosedgeSymbol()

```
ast_node_t* newPosedgeSymbol (
              char * symbol,
              int line_number )
```

Definition at line 974 of file parse_making_ast.cpp.

2.13.1.46 newRangeRef()

```
ast_node_t* newRangeRef (
             char * id,
             ast_node_t * expression1,
             ast_node_t * expression2,
             int line_number )
```

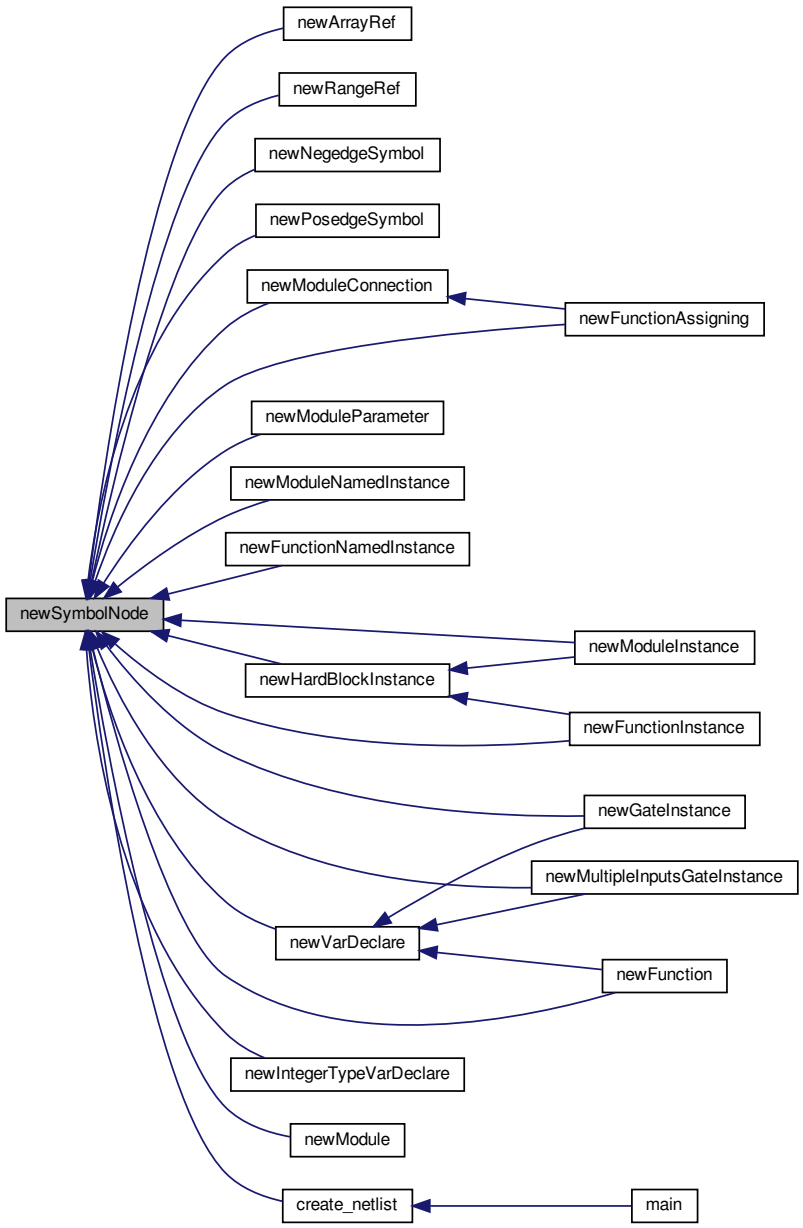
Definition at line 862 of file parse_making_ast.cpp.

2.13.1.47 newSymbolNode()

```
ast_node_t* newSymbolNode (
             char * id,
             int line_number )
```

Definition at line 348 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.48 newUnaryOperation()

```
ast_node_t* newUnaryOperation (
            operation_list op_id,
```

```
            ast_node_t * expression,
            int line_number )
```

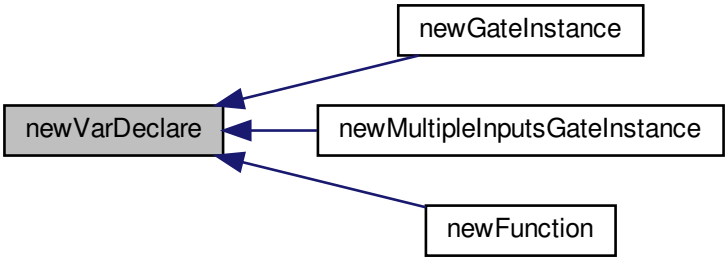
Definition at line 941 of file parse_making_ast.cpp.

2.13.1.49 newVarDeclare()

```
ast_node_t* newVarDeclare (
            char * symbol,
            ast_node_t * expression1,
            ast_node_t * expression2,
            ast_node_t * expression3,
            ast_node_t * expression4,
            ast_node_t * value,
            int line_number )
```

Definition at line 1472 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.13.1.50 newWhile()

```
ast_node_t* newWhile (
            ast_node_t * compare_expression,
            ast_node_t * statement,
            int line_number )
```

Definition at line 1102 of file parse_making_ast.cpp.

2.13.1.51 next_function()

```
void next_function ( )
```

Definition at line 1655 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.13.1.52 next_module()

```
void next_module ( )
```

Definition at line 1678 of file parse_making_ast.cpp.

Here is the caller graph for this function:

2.13.1.53 next_parsed_verilog_file()

```
void next_parsed_verilog_file (
             ast_node_t * file_items_list )
```

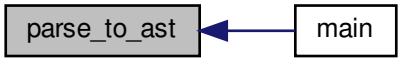
Definition at line 323 of file parse_making_ast.cpp.

2.13.1.54 parse_to_ast()

```
void parse_to_ast ( )
```

Definition at line 116 of file parse_making_ast.cpp.

Here is the caller graph for this function:



2.14 vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/output_blif.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdarg.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "multipliers.h"
#include "hard_blocks.h"
#include "adders.h"
#include "subtractions.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- void depth_first_traversal_to_output (short marker_value, FILE *fp, netlist_t *netlist)
- void depth_traverse_output_blif (nnode_t *node, int traverse_mark_number, FILE *fp)
- void output_node (nnode_t *node, short traverse_number, FILE *fp)
- void define_logical_function (nnode_t *node, short type, FILE *out)
- void define_set_input_logical_function (nnode_t *node, const char *bit_output, FILE *out)
- void define_ff (nnode_t *node, FILE *out)
- void define_decoded_mux (nnode_t *node, FILE *out)
- void output_blif_pin_connect (nnode_t *node, FILE *out)
- void output_blif (char *file_name, netlist_t *netlist)

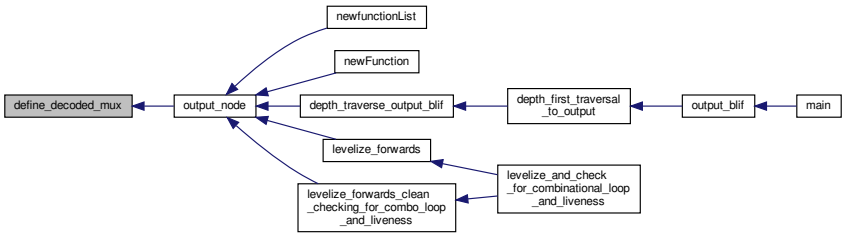
2.14.1 Function Documentation

2.14.1.1 define_decoded_mux()

```
void define_decoded_mux (
            nnode_t * node,
            FILE * out )
```

Definition at line 703 of file output_blif.cpp.

Here is the caller graph for this function:

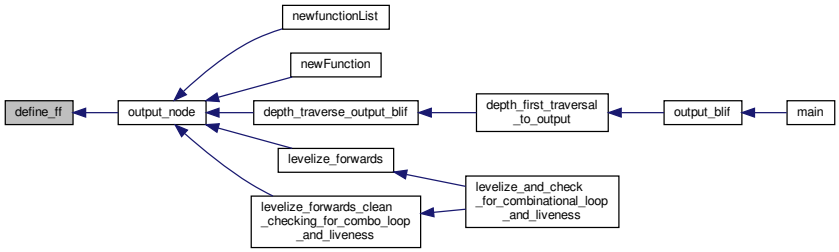


2.14.1.2 define_ff()

```
void define_ff (
            nnode_t * node,
            FILE * out )
```

Definition at line 663 of file output_blif.cpp.

Here is the caller graph for this function:

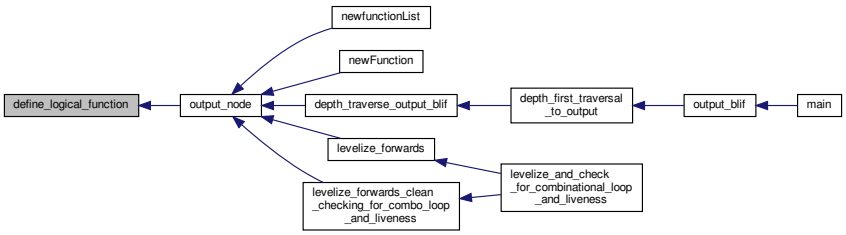


2.14.1.3 define_logical_function()

```
void define_logical_function (
             nnode_t * node,
             short type,
             FILE * out )
```

Definition at line 402 of file output_blif.cpp.

Here is the caller graph for this function:

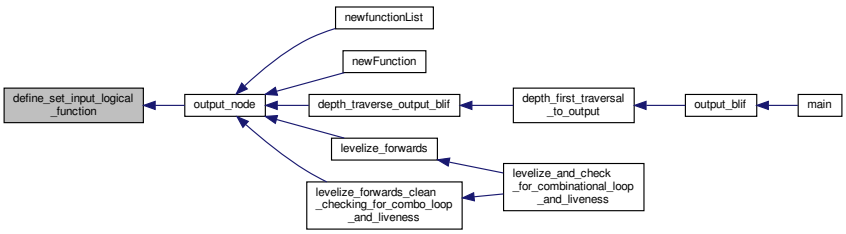


2.14.1.4 define_set_input_logical_function()

```
void define_set_input_logical_function (
             nnode_t * node,
             const char * bit_output,
             FILE * out )
```

Definition at line 575 of file output_blif.cpp.

Here is the caller graph for this function:

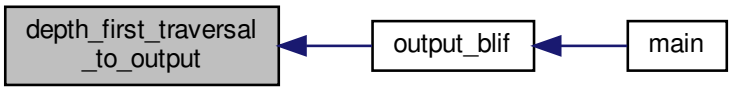


2.14.1.5 depth_first_traversal_to_output()

```
void depth_first_traversal_to_output (
             short marker_value,
             FILE * fp,
             netlist_t * netlist )
```

Definition at line 228 of file output_blif.cpp.

Here is the caller graph for this function:

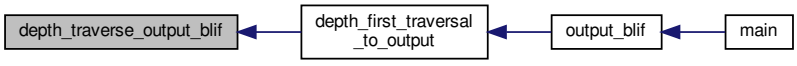


2.14.1.6 depth_traverse_output_blif()

```
void depth_traverse_output_blif (
             nnode_t * node,
             int traverse_mark_number,
             FILE * fp )
```

Definition at line 253 of file output_blif.cpp.

Here is the caller graph for this function:

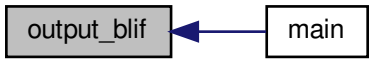


2.14.1.7 output_blif()

```
void output_blif (
            char * file_name,
            netlist_t * netlist )
```

Definition at line 55 of file output_blif.cpp.

Here is the caller graph for this function:

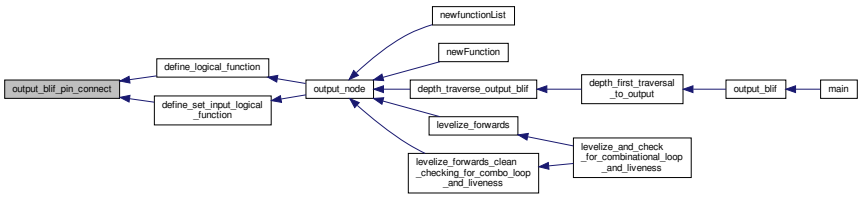


2.14.1.8 output_blif_pin_connect()

```
void output_blif_pin_connect (
            nnode_t * node,
            FILE * out )
```

Definition at line 803 of file output_blif.cpp.

Here is the caller graph for this function:

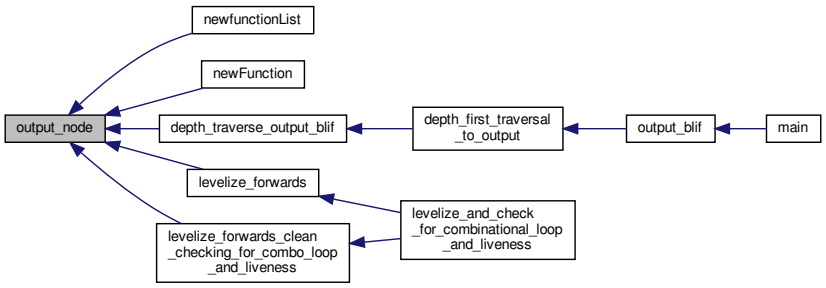


2.14.1.9 output_node()

```
void output_node (
            nnode_t * node,
            short traverse_number,
            FILE * fp )
```

Definition at line 299 of file output_blif.cpp.

Here is the caller graph for this function:



2.15 vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/output_blif.h File Reference

Functions

- void output_blif (char *file_name, netlist_t *netlist)

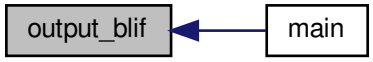
2.15.1 Function Documentation

2.15.1.1 output_blif()

```
void output_blif (
            char * file_name,
            netlist_t * netlist )
```

Definition at line 55 of file output_blif.cpp.

Here is the caller graph for this function:



2.16 vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.cpp File Reference

```
#include <stdlib.h>
#include <string.h>
#include <stdio.h>
#include "globals.h"
#include "read_blif.h"
#include "string_cache.h"
#include "netlist_utils.h"
#include "types.h"
#include "hashtable.h"
#include "netlist_check.h"
#include "simulate_blif.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Data Structures

- struct hard_block_pins
- struct hard_block_ports
- struct hard_block_model
- struct hard_block_models

Macros

- #define TOKENS " \t\n"
- #define GND_NAME "gnd"
- #define VCC_NAME "vcc"
- #define HBPAD_NAME "unconn"
- #define READ_BLIF_BUFFER 1048576

Functions

- void rb_create_top_driver_nets (const char *instance_name_prefix, hashtable_t *output_nets_hash)
- void rb_look_for_clocks ()
- void add_top_input_nodes (FILE *file, hashtable_t *output_nets_hash)
- void rb_create_top_output_nodes (FILE *file)
- int read_tokens (char *buffer, hard_block_models *models, FILE *file, hashtable_t *output_nets_hash)
- void create_internal_node_and_driver (FILE *file, hashtable_t *output_nets_hash)
- short assign_node_type_from_node_name (char *output_name)
- short read_bit_map_find_unknown_gate (int input_count, nnode_t *node, FILE *file)
- void create_latch_node_and_driver (FILE *file, hashtable_t *output_nets_hash)
- void create_hard_block_nodes (hard_block_models *models, FILE *file, hashtable_t *output_nets_hash)
- void hook_up_nets (hashtable_t *output_nets_hash)
- void hook_up_node (nnode_t *node, hashtable_t *output_nets_hash)
- char * search_clock_name (FILE *file)
- void free_hard_block_model (hard_block_model *model)
- char * get_hard_block_port_name (char *name)

- long get_hard_block_pin_number (char *original_name)
- hard_block_ports * get_hard_block_ports (char **pins, int count)
- hashtable_t * index_names (char **names, int count)
- hashtable_t * associate_names (char **names1, char **names2, int count)
- void free_hard_block_pins (hard_block_pins *p)
- void free_hard_block_ports (hard_block_ports *p)
- hard_block_model * get_hard_block_model (char *name, hard_block_ports *ports, hard_block_models *models)
- void add_hard_block_model (hard_block_model *m, hard_block_ports *ports, hard_block_models *models)
- char * generate_hard_block_ports_signature (hard_block_ports *ports)
- int verify_hard_block_ports_against_model (hard_block_ports *ports, hard_block_model *model)
- hard_block_model * read_hard_block_model (char *name_subckt, hard_block_ports *ports, FILE *file)
- void free_hard_block_models (hard_block_models *models)
- hard_block_models * create_hard_block_models ()
- int count_blif_lines (FILE *file)
- void read_blif (char *blif_file)

Variables

- size_t file_line_number
- const char * BLIF_ONE_STRING = "ONE_VCC_CNS"
- const char * BLIF_ZERO_STRING = "ZERO_GND_ZERO"
- const char * BLIF_PAD_STRING = "ZERO_PAD_ZERO"
- const char * DEFAULT_CLOCK_NAME = "top^clock"

2.16.1 Macro Definition Documentation

2.16.1.1 GND_NAME

```
#define GND_NAME "gnd"
```

Definition at line 41 of file read_blif.cpp.

2.16.1.2 HBPAD_NAME

```
#define HBPAD_NAME "unconn"
```

Definition at line 43 of file read_blif.cpp.

2.16.1.3 READ_BLIF_BUFFER

```
#define READ_BLIF_BUFFER 1048576
```

Definition at line 45 of file read_blif.cpp.

2.16.1.4 TOKENS

```
#define TOKENS " \t\n"
```

Definition at line 40 of file read_blif.cpp.

2.16.1.5 VCC_NAME

```
#define VCC_NAME "vcc"
```

Definition at line 42 of file read_blif.cpp.

2.16.2 Function Documentation

2.16.2.1 add_hard_block_model()

```
void add_hard_block_model (
             hard_block_model * m,
             hard_block_ports * ports,
             hard_block_models * models )
```

Definition at line 1572 of file read_blif.cpp.

2.16.2.2 add_top_input_nodes()

```
void add_top_input_nodes (
             FILE * file,
             hashtable_t * output_nets_hash )
```

Definition at line 1021 of file read_blif.cpp.

2.16.2.3 assign_node_type_from_node_name()

```
short assign_node_type_from_node_name (
             char * output_name )
```

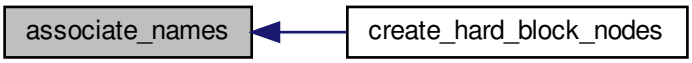
Definition at line 249 of file read_blif.cpp.

2.16.2.4 associate_names()

```
hashtable_t * associate_names (
             char ** names1,
             char ** names2,
             int count )
```

Definition at line 1400 of file read_blif.cpp.

Here is the caller graph for this function:

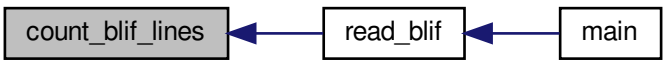


2.16.2.5 count_blif_lines()

```
int count_blif_lines (
             FILE * file )
```

Definition at line 1613 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.6 create_hard_block_models()

```
hard_block_models * create_hard_block_models ( )
```

Definition at line 1599 of file read_blif.cpp.

Here is the caller graph for this function:

2.16.2.7 create_hard_block_nodes()

```
void create_hard_block_nodes (
            hard_block_models * models,
            FILE * file,
            hashtable_t * output_nets_hash )
```

Definition at line 498 of file read_blif.cpp.

2.16.2.8 create_internal_node_and_driver()

```
void create_internal_node_and_driver (
            FILE * file,
            hashtable_t * output_nets_hash )
```

Definition at line 650 of file read_blif.cpp.

2.16.2.9 create_latch_node_and_driver()

```
void create_latch_node_and_driver (
            FILE * file,
            hashtable_t * output_nets_hash )
```

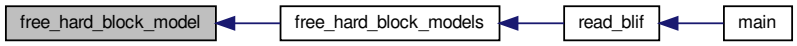
Definition at line 319 of file read_blif.cpp.

2.16.2.10 free_hard_block_model()

```
void free_hard_block_model (
            hard_block_model * model )
```

Definition at line 1646 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.11 free_hard_block_models()

```
void free_hard_block_models (
            hard_block_models * models )
```

Definition at line 1631 of file read_blif.cpp.

Here is the caller graph for this function:

2.16.2.12 free_hard_block_pins()

```
void free_hard_block_pins (
            hard_block_pins * p )
```

Definition at line 1660 of file read_blif.cpp.

Here is the caller graph for this function:

2.16.2.13 free_hard_block_ports()

```
void free_hard_block_ports (
            hard_block_ports * p )
```

Definition at line 1674 of file read_blif.cpp.

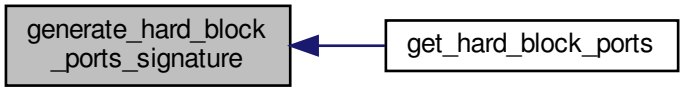
Here is the caller graph for this function:

2.16.2.14 generate_hard_block_ports_signature()

```
char * generate_hard_block_ports_signature (
            hard_block_ports * ports )
```

Definition at line 1508 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.15 get_hard_block_model()

```
hard_block_model * get_hard_block_model (
            char * name,
            hard_block_ports * ports,
            hard_block_models * models )
```

Definition at line 1587 of file read_blif.cpp.

2.16.2.16 get_hard_block_pin_number()

```
long get_hard_block_pin_number (
             char * original_name )
```

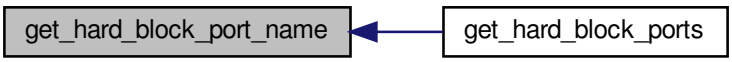
Definition at line 1550 of file read_blif.cpp.

2.16.2.17 get_hard_block_port_name()

```
char * get_hard_block_port_name (
             char * name )
```

Definition at line 1533 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.18 get_hard_block_ports()

```
hard_block_ports * get_hard_block_ports (
             char ** pins,
             int count )
```

Definition at line 1416 of file read_blif.cpp.

2.16.2.19 hook_up_nets()

```
void hook_up_nets (
             hashtable_t * output_nets_hash )
```

Definition at line 1212 of file read_blif.cpp.

2.16.2.20 hook_up_node()

```
void hook_up_node (
            nnode_t * node,
            hashtable_t * output_nets_hash )
```

Definition at line 1235 of file read_blif.cpp.

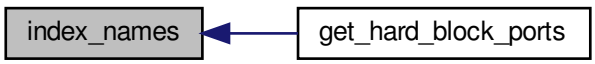
Here is the caller graph for this function:

2.16.2.21 index_names()

```
hashtable_t * index_names (
            char ** names,
            int count )
```

Definition at line 1384 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.22 rb_create_top_driver_nets()

```
void rb_create_top_driver_nets (
            const char * instance_name_prefix,
            hashtable_t * output_nets_hash )
```

Definition at line 1136 of file read_blif.cpp.

Here is the caller graph for this function:

2.16.2.23 rb_create_top_output_nodes()

```
void rb_create_top_output_nodes (
            FILE * file )
```

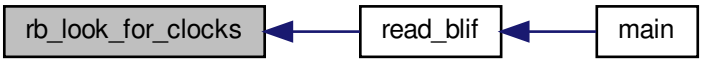
Definition at line 1073 of file read_blif.cpp.

2.16.2.24 rb_look_for_clocks()

```
void rb_look_for_clocks ( )
```

Definition at line 1114 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.25 read_bit_map_find_unknown_gate()

```
short read_bit_map_find_unknown_gate (
            int input_count,
            nnode_t * node,
            FILE * file )
```

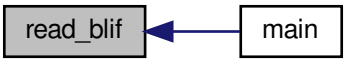
Definition at line 781 of file read_blif.cpp.

2.16.2.26 read_blif()

```
void read_blif (
            char * blif_file )
```

Definition at line 138 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.27 read_hard_block_model()

```
hard_block_model * read_hard_block_model (
            char * name_subckt,
            hard_block_ports * ports,
            FILE * file )
```

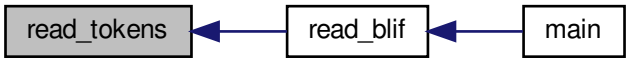
Definition at line 1256 of file read_blif.cpp.

2.16.2.28 read_tokens()

```
int read_tokens (
            char * buffer,
            hard_block_models * models,
            FILE * file,
            hashtable_t * output_nets_hash )
```

Definition at line 191 of file read_blif.cpp.

Here is the caller graph for this function:

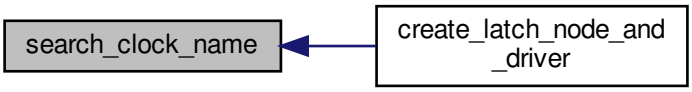


2.16.2.29 search_clock_name()

```
char * search_clock_name (
            FILE * file )
```

Definition at line 430 of file read_blif.cpp.

Here is the caller graph for this function:



2.16.2.30 verify_hard_block_ports_against_model()

```
int verify_hard_block_ports_against_model (
            hard_block_ports * ports,
            hard_block_model * model )
```

Definition at line 1453 of file read_blif.cpp.

2.16.3 Variable Documentation

2.16.3.1 BLIF_ONE_STRING

```
const char* BLIF_ONE_STRING = "ONE_VCC_CNS"
```

Definition at line 49 of file read_blif.cpp.

2.16.3.2 BLIF_PAD_STRING

```
const char* BLIF_PAD_STRING = "ZERO_PAD_ZERO"
```

Definition at line 51 of file read_blif.cpp.

2.16.3.3 BLIF_ZERO_STRING

```
const char* BLIF_ZERO_STRING = "ZERO_GND_ZERO"
```

Definition at line 50 of file read_blif.cpp.

2.16.3.4 DEFAULT_CLOCK_NAME

```
const char* DEFAULT_CLOCK_NAME = "top^clock"
```

Definition at line 52 of file read_blif.cpp.

2.16.3.5 file_line_number

```
size_t file_line_number
```

Definition at line 47 of file read_blif.cpp.

2.17 vtr-verilog-to-routing/ODIN_II/SRC/lib_blif/read_blif.h File Reference

Functions

- void read_blif (char *blif_file)

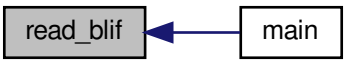
2.17.1 Function Documentation

2.17.1.1 read_blif()

```
void read_blif (
            char * blif_file )
```

Definition at line 138 of file read_blif.cpp.

Here is the caller graph for this function:



2.18 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/adders.cpp File Reference

```
#include <stdlib.h>
#include <assert.h>
#include <stdio.h>
#include <string.h>
#include "types.h"
#include "node_creation_library.h"
#include "adders.h"
#include "netlist_utils.h"
#include "partial_map.h"
#include "read_xml_arch_file.h"
#include "globals.h"
#include "subtractions.h"
#include "vtr_memory.h"
#include "vtr_list.h"
```

Functions

- void record_add_distribution (nnode_t *node)
- void init_split_adder (nnode_t *node, nnode_t *ptr, int a, int sizea, int b, int sizeb, int cin, int cout, int index, int flag, netlist_t *netlist)
- void init_add_distribution ()
- void report_add_distribution ()
- void find_hard_adders ()

- void declare_hard_adder (nnode_t *node)
- void instantiate_hard_adder (nnode_t *node, short mark, netlist_t *)
- void add_the_blackbox_for_adds (FILE *out)
- void define_add_function (nnode_t *node, short, FILE *out)
- void split_adder (nnode_t *nodeo, int a, int b, int sizea, int sizeb, int cin, int cout, int count, netlist_t *netlist)
- void iterate_adders (netlist_t *netlist)
- void clean_adders ()
- void reduce_operations (netlist_t *, operation_list op)
- void traverse_list (operation_list oper, t_linked_vptr *place)
- void match_node (t_linked_vptr *place, operation_list oper)
- int match_ports (nnode_t *node, nnode_t *next_node, operation_list oper)
- void traverse_operation_node (ast_node_t *node, char *component[ ], operation_list op, int *mark)
- void merge_nodes (nnode_t *node, nnode_t *next_node)
- void remove_list_node (t_linked_vptr *pre, t_linked_vptr *next)
- void remove_fanout_pins (nnode_t *node)
- void reallocate_pins (nnode_t *node, nnode_t *next_node)
- void free_op_nodes (nnode_t *node)
- int match_pins (nnode_t *node, nnode_t *next_node)

Variables

- t_model * hard_adders = NULL
- t_linked_vptr * add_list = NULL
- t_linked_vptr * processed_adder_list = NULL
- t_linked_vptr * chain_list = NULL
- int total = 0
- int * adder = NULL
- int min_add = 0
- int min_threshold_adder = 0
- netlist_t * the_netlist
- int adder_chain_count
- int longest_adder_chain
- int total_adders
- double geomean_addsub_length
- double sum_of_addsub_logs
- int total_addsub_chain_count

2.18.1 Function Documentation

2.18.1.1 add_the_blackbox_for_adds()

```
void add_the_blackbox_for_adds (
             FILE * out )
```

Definition at line 230 of file adders.cpp.

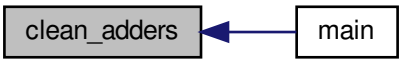
Here is the caller graph for this function:

2.18.1.2 clean_adders()

```
void clean_adders ( )
```

Definition at line 971 of file adders.cpp.

Here is the caller graph for this function:



2.18.1.3 declare_hard_adder()

```
void declare_hard_adder (
             nnode_t * node )
```

Definition at line 152 of file adders.cpp.

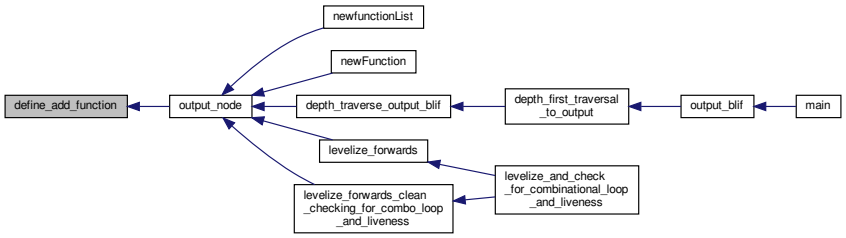
Here is the caller graph for this function:

2.18.1.4 define_add_function()

```
void define_add_function (
             nnode_t * node,
             short ,
             FILE * out )
```

Definition at line 329 of file adders.cpp.

Here is the caller graph for this function:



2.18.1.5 find_hard_adders()

```
void find_hard_adders ( )
```

Definition at line 126 of file adders.cpp.

Here is the caller graph for this function:

2.18.1.6 free_op_nodes()

```
void free_op_nodes (
            nnode_t * node )
```

Definition at line 1252 of file adders.cpp.

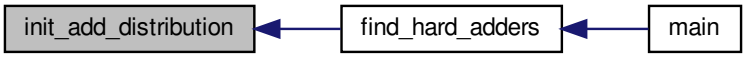
Here is the caller graph for this function:

2.18.1.7 init_add_distribution()

```
void init_add_distribution ( )
```

Definition at line 63 of file adders.cpp.

Here is the caller graph for this function:

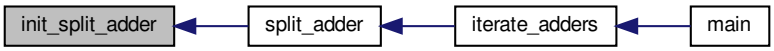


2.18.1.8 init_split_adder()

```
void init_split_adder (
            nnode_t * node,
            nnode_t * ptr,
            int a,
            int sizea,
            int b,
            int sizeb,
            int cin,
            int cout,
            int index,
            int flag,
            netlist_t * netlist )
```

Definition at line 413 of file adders.cpp.

Here is the caller graph for this function:

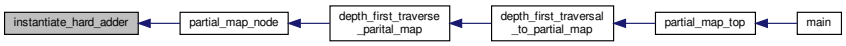


2.18.1.9 instantiate_hard_adder()

```
void instantiate_hard_adder (
             nnode_t * node,
             short mark,
             netlist_t *  )
```

Definition at line 190 of file adders.cpp.

Here is the caller graph for this function:



2.18.1.10 iterate_adders()

```
void iterate_adders (
             netlist_t * netlist )
```

Definition at line 911 of file adders.cpp.

Here is the caller graph for this function:

2.18.1.11 match_node()

```
void match_node (
             t_linked_vptr * place,
             operation_list oper )
```

Definition at line 1032 of file adders.cpp.

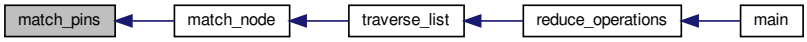
Here is the caller graph for this function:

2.18.1.12 match_pins()

```
int match_pins (
             nnode_t * node,
             nnode_t * next_node )
```

Definition at line 1268 of file adders.cpp.

Here is the caller graph for this function:

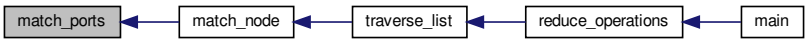


2.18.1.13 match_ports()

```
int match_ports (
             nnode_t * node,
             nnode_t * next_node,
             operation_list oper )
```

Definition at line 1078 of file adders.cpp.

Here is the caller graph for this function:

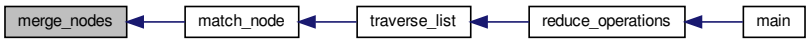


2.18.1.14 merge_nodes()

```
void merge_nodes (
             nnode_t * node,
             nnode_t * next_node )
```

Definition at line 1175 of file adders.cpp.

Here is the caller graph for this function:



2.18.1.15 reallocate_pins()

```
void reallocate_pins (
             nnode_t * node,
             nnode_t * next_node )
```

Definition at line 1225 of file adders.cpp.

Here is the caller graph for this function:

2.18.1.16 record_add_distribution()

```
void record_add_distribution (
             nnode_t * node )
```

Definition at line 77 of file adders.cpp.

2.18.1.17 reduce_operations()

```
void reduce_operations (
             netlist_t * ,
             operation_list op )
```

Definition at line 984 of file adders.cpp.

Here is the caller graph for this function:

2.18.1.18 remove_fanout_pins()

```
void remove_fanout_pins (
             nnode_t * node )
```

Definition at line 1200 of file adders.cpp.

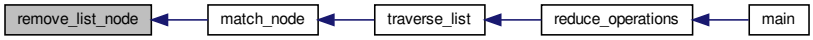
Here is the caller graph for this function:

2.18.1.19 remove_list_node()

```
void remove_list_node (
             t_linked_vptr * pre,
             t_linked_vptr * next )
```

Definition at line 1187 of file adders.cpp.

Here is the caller graph for this function:



2.18.1.20 report_add_distribution()

```
void report_add_distribution ( )
```

Definition at line 98 of file adders.cpp.

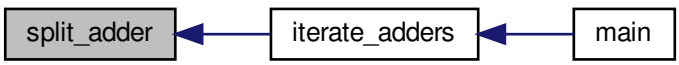
Here is the caller graph for this function:

2.18.1.21 split_adder()

```
void split_adder (
             nnode_t * nodeo,
             int a,
             int b,
             int sizea,
             int sizeb,
             int cin,
             int cout,
             int count,
             netlist_t * netlist )
```

Definition at line 707 of file adders.cpp.

Here is the caller graph for this function:

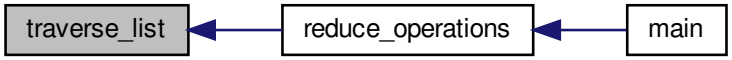


2.18.1.22 traverse_list()

```
void traverse_list (
            operation_list oper,
            t_linked_vptr * place )
```

Definition at line 1020 of file adders.cpp.

Here is the caller graph for this function:

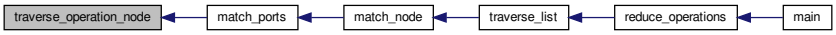


2.18.1.23 traverse_operation_node()

```
void traverse_operation_node (
            ast_node_t * node,
            char * component[],
            operation_list op,
            int * mark )
```

Definition at line 1141 of file adders.cpp.

Here is the caller graph for this function:



2.18.2 Variable Documentation

2.18.2.1 add_list

```
t_linked_vptr* add_list = NULL
```

Definition at line 45 of file adders.cpp.

2.18.2.2 adder

```
int* adder = NULL
```

Definition at line 49 of file adders.cpp.

2.18.2.3 adder_chain_count

```
int adder_chain_count
```

Definition at line 180 of file netlist_cleanup.cpp.

2.18.2.4 chain_list

```
t_linked_vptr* chain_list = NULL
```

Definition at line 47 of file adders.cpp.

2.18.2.5 geomean_addsub_length

```
double geomean_addsub_length
```

Definition at line 188 of file netlist_cleanup.cpp.

2.18.2.6 hard_adders

```
t_model* hard_adders = NULL
```

Definition at line 44 of file adders.cpp.

2.18.2.7 longest_adder_chain

```
int longest_adder_chain
```

Definition at line 181 of file netlist_cleanup.cpp.

2.18.2.8 min_add

```
int min_add = 0
```

Definition at line 50 of file adders.cpp.

2.18.2.9 min_threshold_adder

```
int min_threshold_adder = 0
```

Definition at line 51 of file adders.cpp.

2.18.2.10 processed_adder_list

```
t_linked_vptr* processed_adder_list = NULL
```

Definition at line 46 of file adders.cpp.

2.18.2.11 sum_of_addsub_logs

```
double sum_of_addsub_logs
```

Definition at line 189 of file netlist_cleanup.cpp.

2.18.2.12 the_netlist

```
netlist_t* the_netlist
```

Definition at line 53 of file adders.cpp.

2.18.2.13 total

```
int total = 0
```

Definition at line 48 of file adders.cpp.

2.18.2.14 total_adders

```
int total_adders
```

Definition at line 182 of file netlist_cleanup.cpp.

2.18.2.15 total_addsub_chain_count

```
int total_addsub_chain_count
```

Definition at line 190 of file netlist_cleanup.cpp.

2.19 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/adders.h File Reference

```
#include "read_xml_arch_file.h"
```

Data Structures

- struct s_adder
- struct adder_signals

Typedefs

- typedef struct s_adder t_adder

Functions

- void init_add_distribution ()
- void report_add_distribution ()
- void declare_hard_adder (nnode_t *node)
- void instantiate_hard_adder (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_simple_soft_adder (nnode_t *node, short mark, netlist_t *netlist)
- void find_hard_adders ()
- void add_the_blackbox_for_adds (FILE *out)
- void define_add_function (nnode_t *node, short type, FILE *out)
- void split_adder (nnode_t *node, int a, int b, int sizea, int sizeb, int cin, int cout, int count, netlist_t *netlist)
- void iterate_adders (netlist_t *netlist)
- void clean_adders ()
- void reduce_operations (netlist_t *netlist, operation_list op)
- void traverse_list (operation_list oper, vtr::t_linked_vptr *place)
- void match_node (vtr::t_linked_vptr *place, operation_list oper)
- int match_ports (nnode_t *node, nnode_t *next_node, operation_list oper)
- void traverse_operation_node (ast_node_t *node, char *component[ ], operation_list op, int *mark)
- void merge_nodes (nnode_t *node, nnode_t *next_node)
- void remove_list_node (vtr::t_linked_vptr *node, vtr::t_linked_vptr *place)
- void remove_fanout_pins (nnode_t *node)
- void reallocate_pins (nnode_t *node, nnode_t *next_node)
- void free_op_nodes (nnode_t *node)
- int match_pins (nnode_t *node, nnode_t *next_node)

Variables

- t_model * hard_adders
- vtr::t_linked_vptr * add_list
- vtr::t_linked_vptr * chain_list
- vtr::t_linked_vptr * processed_adder_list
- int total
- int min_add
- int min_threshold_adder

2.19.1 Typedef Documentation

2.19.1.1 t_adder

```
typedef struct s_adder t_adder
```

2.19.2 Function Documentation

2.19.2.1 add_the_blackbox_for_adds()

```
void add_the_blackbox_for_adds (
             FILE * out )
```

Definition at line 230 of file adders.cpp.

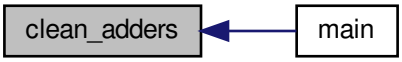
Here is the caller graph for this function:

2.19.2.2 clean_adders()

```
void clean_adders ( )
```

Definition at line 971 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.3 declare_hard_adder()

```
void declare_hard_adder (
            nnode_t * node )
```

Definition at line 152 of file adders.cpp.

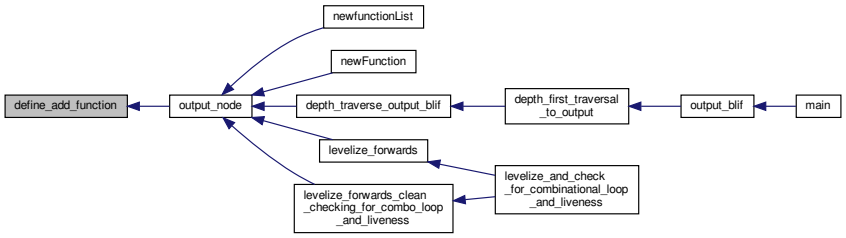
Here is the caller graph for this function:

2.19.2.4 define_add_function()

```
void define_add_function (
            nnode_t * node,
            short type,
            FILE * out )
```

Definition at line 329 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.5 find_hard_adders()

```
void find_hard_adders ( )
```

Definition at line 126 of file adders.cpp.

Here is the caller graph for this function:

2.19.2.6 free_op_nodes()

```
void free_op_nodes (
            nnode_t * node )
```

Definition at line 1252 of file adders.cpp.

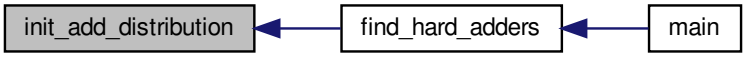
Here is the caller graph for this function:

2.19.2.7 init_add_distribution()

```
void init_add_distribution ( )
```

Definition at line 63 of file adders.cpp.

Here is the caller graph for this function:

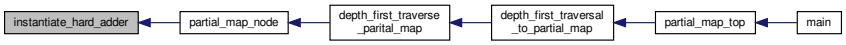


2.19.2.8 instantiate_hard_adder()

```
void instantiate_hard_adder (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

Definition at line 190 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.9 instantiate_simple_soft_adder()

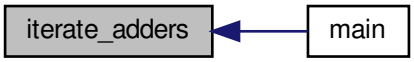
```
void instantiate_simple_soft_adder (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

2.19.2.10 iterate_adders()

```
void iterate_adders (
             netlist_t * netlist )
```

Definition at line 911 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.11 match_node()

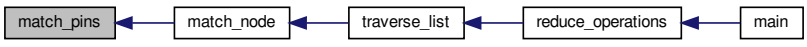
```
void match_node (
             vtr::t_linked_vptr * place,
             operation_list oper )
```

2.19.2.12 match_pins()

```
int match_pins (
             nnode_t * node,
             nnode_t * next_node )
```

Definition at line 1268 of file adders.cpp.

Here is the caller graph for this function:

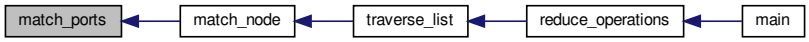


2.19.2.13 match_ports()

```
int match_ports (
            nnode_t * node,
            nnode_t * next_node,
            operation_list oper )
```

Definition at line 1078 of file adders.cpp.

Here is the caller graph for this function:

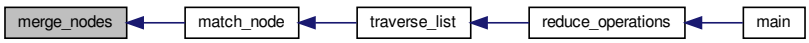


2.19.2.14 merge_nodes()

```
void merge_nodes (
            nnode_t * node,
            nnode_t * next_node )
```

Definition at line 1175 of file adders.cpp.

Here is the caller graph for this function:

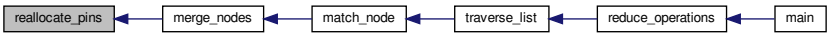


2.19.2.15 reallocate_pins()

```
void reallocate_pins (
            nnode_t * node,
            nnode_t * next_node )
```

Definition at line 1225 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.16 reduce_operations()

```
void reduce_operations (
             netlist_t * netlist,
             operation_list op )
```

Definition at line 984 of file adders.cpp.

Here is the caller graph for this function:

2.19.2.17 remove_fanout_pins()

```
void remove_fanout_pins (
             nnode_t * node )
```

Definition at line 1200 of file adders.cpp.

Here is the caller graph for this function:

2.19.2.18 remove_list_node()

```
void remove_list_node (
             vtr::t_linked_vptr * node,
             vtr::t_linked_vptr * place )
```

2.19.2.19 report_add_distribution()

```
void report_add_distribution ( )
```

Definition at line 98 of file adders.cpp.

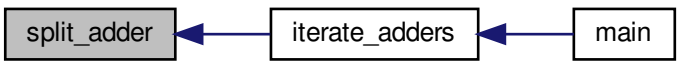
Here is the caller graph for this function:

2.19.2.20 split_adder()

```
void split_adder (
             nnode_t * node,
             int a,
             int b,
             int sizea,
             int sizeb,
             int cin,
             int cout,
             int count,
             netlist_t * netlist )
```

Definition at line 707 of file adders.cpp.

Here is the caller graph for this function:



2.19.2.21 traverse_list()

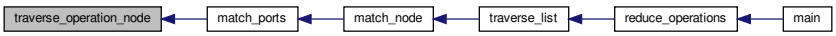
```
void traverse_list (
            operation_list oper,
            vtr::t_linked_vptr * place )
```

2.19.2.22 traverse_operation_node()

```
void traverse_operation_node (
            ast_node_t * node,
            char * component[],
            operation_list op,
            int * mark )
```

Definition at line 1141 of file adders.cpp.

Here is the caller graph for this function:



2.19.3 Variable Documentation

2.19.3.1 add_list

```
vtr::t_linked_vptr* add_list
```

Definition at line 45 of file adders.cpp.

2.19.3.2 chain_list

```
vtr::t_linked_vptr* chain_list
```

Definition at line 47 of file adders.cpp.

2.19.3.3 hard_adders

```
t_model* hard_adders
```

Definition at line 44 of file adders.cpp.

2.19.3.4 min_add

```
int min_add
```

Definition at line 50 of file adders.cpp.

2.19.3.5 min_threshold_adder

```
int min_threshold_adder
```

Definition at line 51 of file adders.cpp.

2.19.3.6 processed_adder_list

```
vtr::t_linked_vptr* processed_adder_list
```

Definition at line 46 of file adders.cpp.

2.19.3.7 total

```
int total
```

Definition at line 48 of file adders.cpp.

2.20 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/hard_blocks.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include "types.h"
#include "globals.h"
#include "hard_blocks.h"
#include "memories.h"
```

Functions

- void cache_hard_block_names ()
- t_model_ports * get_model_port (t_model_ports *ports, const char *name)
- void register_hard_blocks ()
- void deregister_hard_blocks ()
- t_model * find_hard_block (const char *name)
- void define_hard_block (nnode_t *node, short, FILE *out)
- void output_hard_blocks (FILE *out)
- void instantiate_hard_block (nnode_t *node, short mark, netlist_t *)
- int hard_block_port_size (t_model *hb, char *pname)
- enum PORTS hard_block_port_direction (t_model *hb, char *pname)

Variables

- STRING_CACHE * hard_block_names = NULL

2.20.1 Function Documentation

2.20.1.1 cache_hard_block_names()

```
void cache_hard_block_names ( )
```

Definition at line 49 of file hard_blocks.cpp.

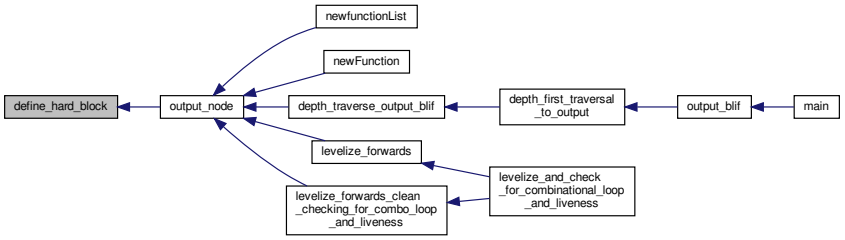
Here is the caller graph for this function:

2.20.1.2 define_hard_block()

```
void define_hard_block (
             nnode_t * node,
             short ,
             FILE * out )
```

Definition at line 132 of file hard_blocks.cpp.

Here is the caller graph for this function:



2.20.1.3 deregister_hard_blocks()

```
void deregister_hard_blocks ( )
```

Definition at line 112 of file hard_blocks.cpp.

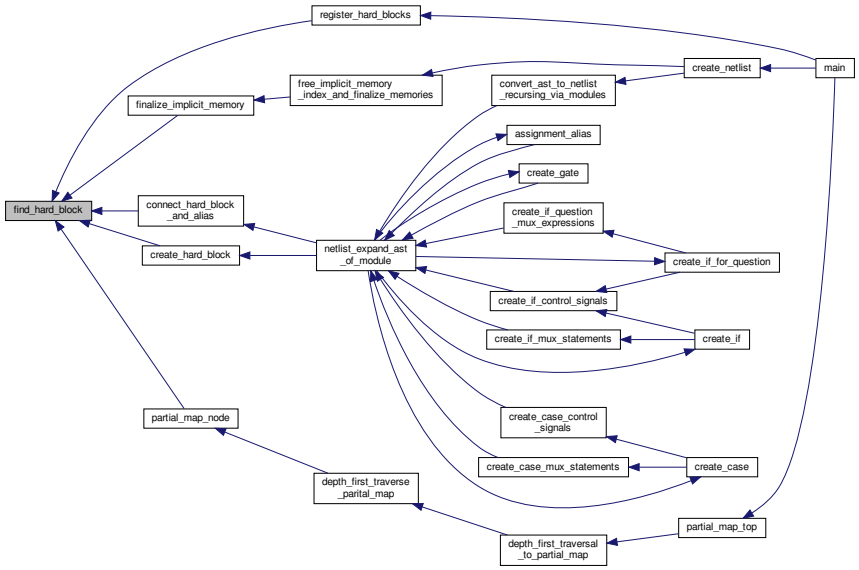
Here is the caller graph for this function:

2.20.1.4 find_hard_block()

```
t_model* find_hard_block (
            const char * name )
```

Definition at line 118 of file hard_blocks.cpp.

Here is the caller graph for this function:

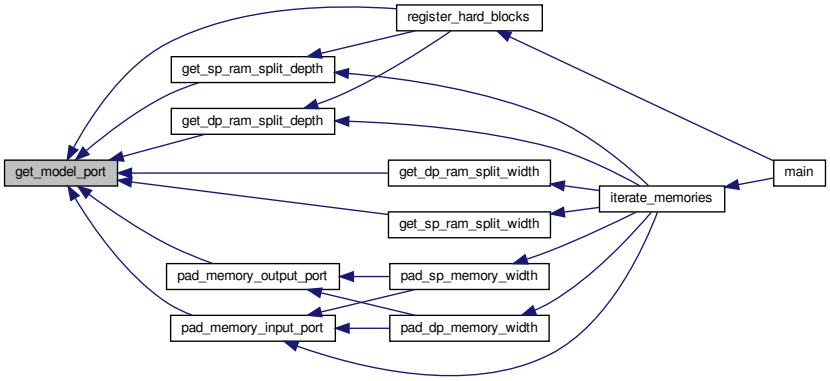


2.20.1.5 get_model_port()

```
t_model_ports* get_model_port (
            t_model_ports * ports,
            const char * name )
```

Definition at line 41 of file hard_blocks.cpp.

Here is the caller graph for this function:

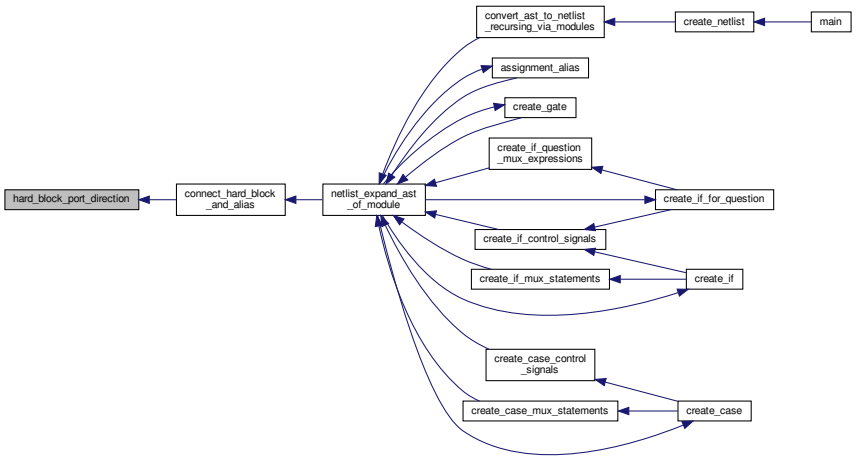


2.20.1.6 hard_block_port_direction()

```
enum PORTS hard_block_port_direction (
            t_model * hb,
            char * pname )
```

Definition at line 343 of file hard_blocks.cpp.

Here is the caller graph for this function:

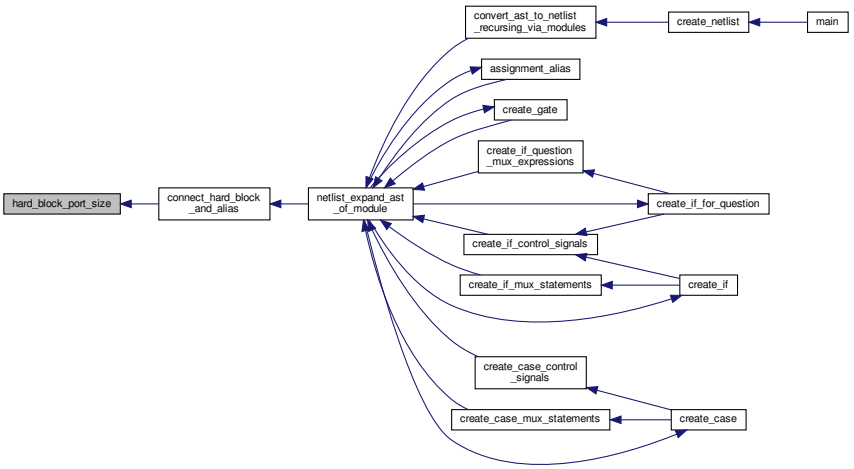


2.20.1.7 hard_block_port_size()

```
int hard_block_port_size (
            t_model * hb,
            char * pname )
```

Definition at line 308 of file hard_blocks.cpp.

Here is the caller graph for this function:

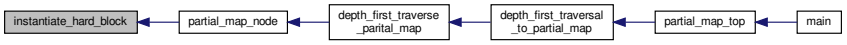


2.20.1.8 instantiate_hard_block()

```
void instantiate_hard_block (
            nnode_t * node,
            short mark,
            netlist_t *  )
```

Definition at line 284 of file hard_blocks.cpp.

Here is the caller graph for this function:

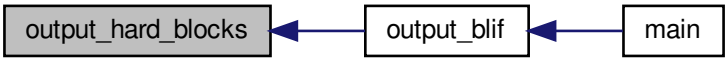


2.20.1.9 output_hard_blocks()

```
void output_hard_blocks (
             FILE * out )
```

Definition at line 215 of file hard_blocks.cpp.

Here is the caller graph for this function:



2.20.1.10 register_hard_blocks()

```
void register_hard_blocks ( )
```

Definition at line 63 of file hard_blocks.cpp.

Here is the caller graph for this function:

2.20.2 Variable Documentation

2.20.2.1 hard_block_names

```
STRING_CACHE* hard_block_names = NULL
```

Definition at line 37 of file hard_blocks.cpp.

2.21 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/hard_blocks.h File Reference

```
#include "types.h"
```

Functions

- void register_hard_blocks ()
- void deregister_hard_blocks ()
- t_model ∗ find_hard_block (const char ∗name)
- void define_hard_block (nnode_t ∗node, short type, FILE ∗out)
- void output_hard_blocks (FILE ∗out)
- int hard_block_port_size (t_model ∗hb, char ∗pname)
- enum PORTS hard_block_port_direction (t_model ∗hb, char ∗pname)
- void instantiate_hard_block (nnode_t ∗node, short mark, netlist_t ∗netlist)
- t_model_ports ∗ get_model_port (t_model_ports ∗ports, const char ∗name)

Variables

- STRING_CACHE ∗ hard_block_names

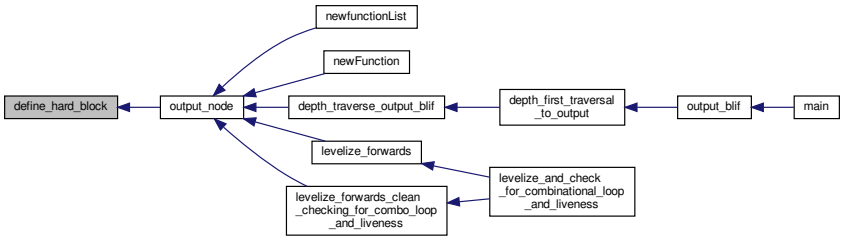
2.21.1 Function Documentation

2.21.1.1 define_hard_block()

```
void define_hard_block (
             nnode_t * node,
             short type,
             FILE * out )
```

Definition at line 132 of file hard_blocks.cpp.

Here is the caller graph for this function:



2.21.1.2 deregister_hard_blocks()

```
void deregister_hard_blocks ( )
```

Definition at line 112 of file hard_blocks.cpp.

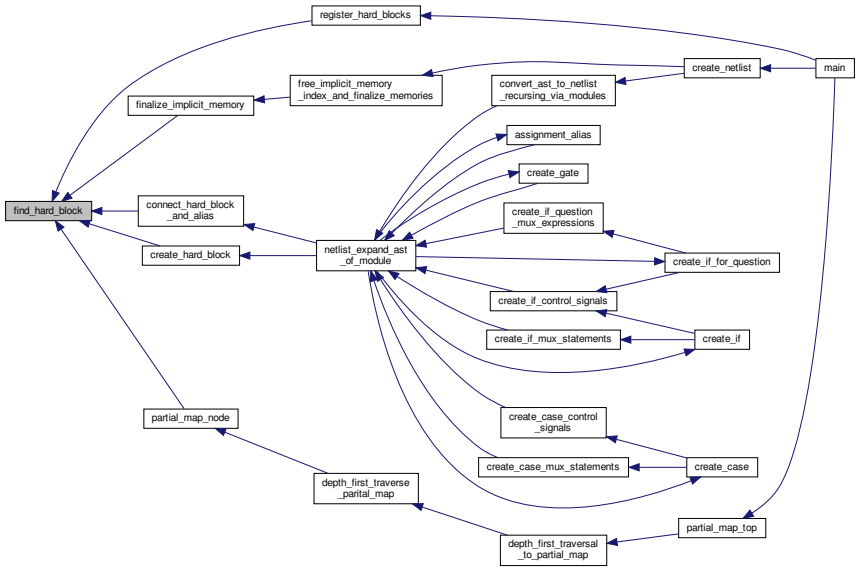
Here is the caller graph for this function:

2.21.1.3 find_hard_block()

```
t_model* find_hard_block (
             const char * name )
```

Definition at line 118 of file hard_blocks.cpp.

Here is the caller graph for this function:

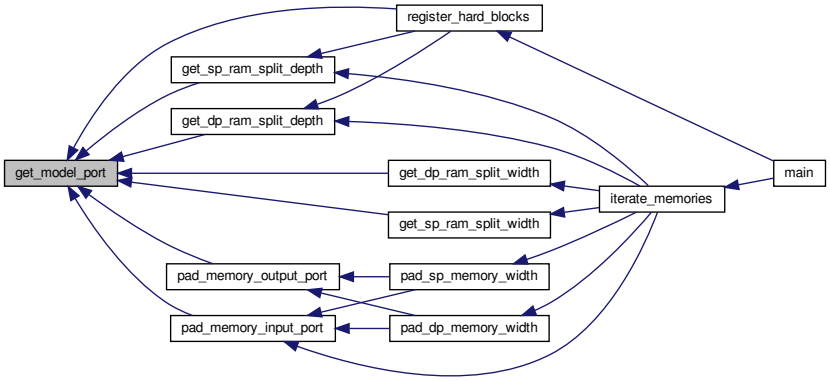


2.21.1.4 get_model_port()

```
t_model_ports* get_model_port (
            t_model_ports * ports,
            const char * name )
```

Definition at line 41 of file hard_blocks.cpp.

Here is the caller graph for this function:

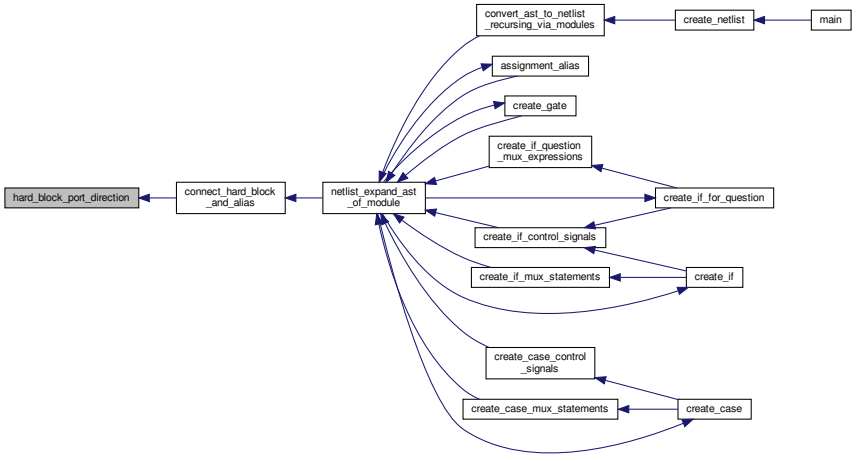


2.21.1.5 hard_block_port_direction()

```
enum PORTS hard_block_port_direction (
            t_model * hb,
            char * pname )
```

Definition at line 343 of file hard_blocks.cpp.

Here is the caller graph for this function:

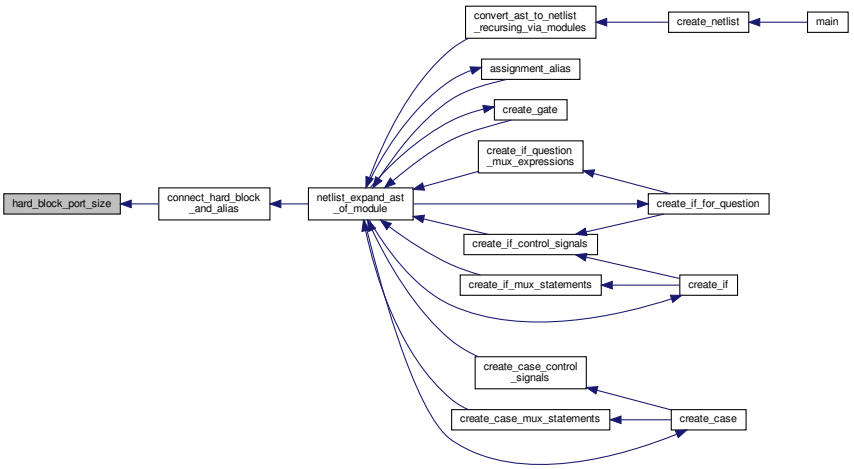


2.21.1.6 hard_block_port_size()

```
int hard_block_port_size (
            t_model * hb,
            char * pname )
```

Definition at line 308 of file hard_blocks.cpp.

Here is the caller graph for this function:

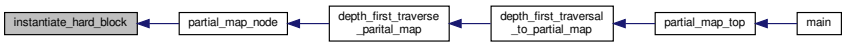


2.21.1.7 instantiate_hard_block()

```
void instantiate_hard_block (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 284 of file hard_blocks.cpp.

Here is the caller graph for this function:

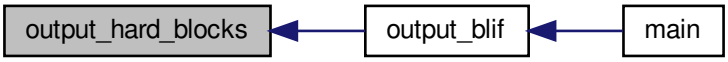


2.21.1.8 output_hard_blocks()

```
void output_hard_blocks (
             FILE * out )
```

Definition at line 215 of file hard_blocks.cpp.

Here is the caller graph for this function:



2.21.1.9 register_hard_blocks()

```
void register_hard_blocks ( )
```

Definition at line 63 of file hard_blocks.cpp.

Here is the caller graph for this function:

2.21.2 Variable Documentation

2.21.2.1 hard_block_names

```
STRING_CACHE* hard_block_names
```

Definition at line 37 of file hard_blocks.cpp.

2.22 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/implicit_memory.cpp File Reference

```
#include "types.h"
#include "hashtable.h"
#include "implicit_memory.h"
#include "node_creation_library.h"
#include "odin_util.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- void finalize_implicit_memory (implicit_memory *memory)
- void add_dummy_output_port_to_implicit_memory (implicit_memory *memory, int size, const char *port_name)
- void add_dummy_input_port_to_implicit_memory (implicit_memory *memory, int size, const char *port_name)
- void collapse_implicit_memory_to_single_port_ram (implicit_memory *memory)
- implicit_memory * lookup_implicit_memory (char *instance_name_prefix, char *identifier)
- implicit_memory * lookup_implicit_memory_reference_ast (char *instance_name_prefix, ast_node_t *node)
- char is_valid_implicit_memory_reference_ast (char *instance_name_prefix, ast_node_t *node)
- implicit_memory * create_implicit_memory_block (int data_width, long long words, char *name, char *instance_name_prefix)
- void add_input_port_to_implicit_memory (implicit_memory *memory, signal_list_t *signals, const char *port_name)
- void add_output_port_to_implicit_memory (implicit_memory *memory, signal_list_t *signals, const char *port_name)
- implicit_memory * lookup_implicit_memory_input (char *name)
- void register_implicit_memory_input (char *name, implicit_memory *memory)
- void init_implicit_memory_index ()
- void free_implicit_memory_index_and_finalize_memories ()

Variables

- hashtable_t * implicit_memories
- hashtable_t * implicit_memory_inputs

2.22.1 Function Documentation

2.22.1.1 add_dummy_input_port_to_implicit_memory()

```
void add_dummy_input_port_to_implicit_memory (
            implicit_memory * memory,
            int size,
            const char * port_name )
```

Definition at line 194 of file implicit_memory.cpp.

Here is the caller graph for this function:

2.22.1.2 add_dummy_output_port_to_implicit_memory()

```
void add_dummy_output_port_to_implicit_memory (
            implicit_memory * memory,
            int size,
            const char * port_name )
```

Definition at line 210 of file implicit_memory.cpp.

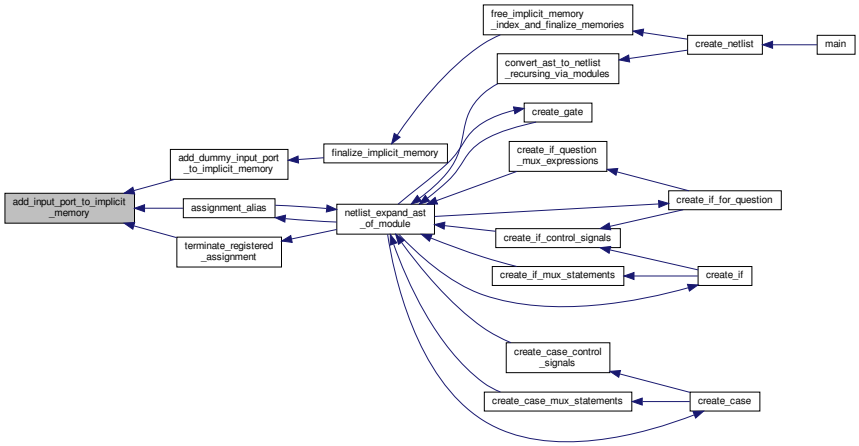
Here is the caller graph for this function:

2.22.1.3 add_input_port_to_implicit_memory()

```
void add_input_port_to_implicit_memory (
            implicit_memory * memory,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 117 of file implicit_memory.cpp.

Here is the caller graph for this function:

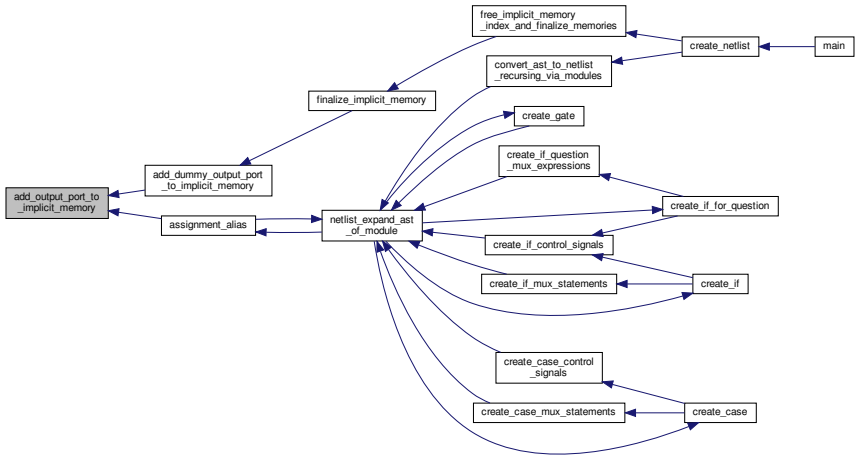


2.22.1.4 add_output_port_to_implicit_memory()

```
void add_output_port_to_implicit_memory (
            implicit_memory * memory,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 127 of file implicit_memory.cpp.

Here is the caller graph for this function:



2.22.1.5 collapse_implicit_memory_to_single_port_ram()

```
void collapse_implicit_memory_to_single_port_ram (
            implicit_memory * memory )
```

Definition at line 330 of file implicit_memory.cpp.

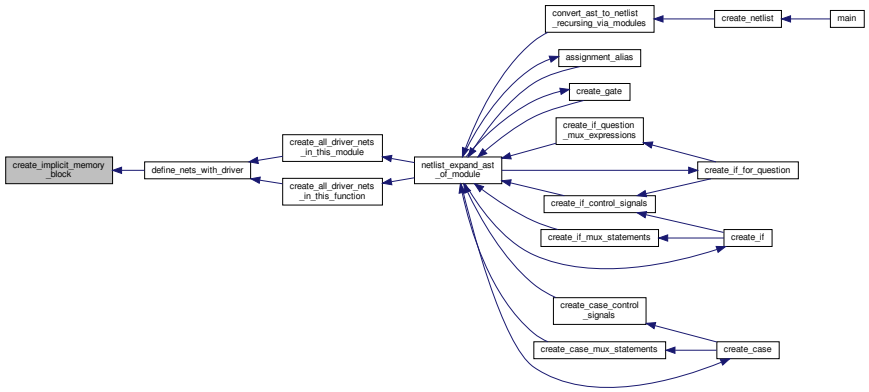
Here is the caller graph for this function:

2.22.1.6 create_implicit_memory_block()

```
implicit_memory* create_implicit_memory_block (
            int data_width,
            long long words,
            char * name,
            char * instance_name_prefix )
```

Definition at line 79 of file implicit_memory.cpp.

Here is the caller graph for this function:

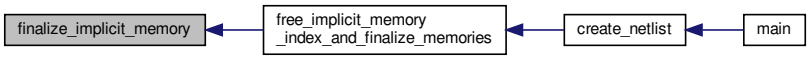


2.22.1.7 finalize_implicit_memory()

```
void finalize_implicit_memory (
            implicit_memory * memory )
```

Definition at line 233 of file implicit_memory.cpp.

Here is the caller graph for this function:

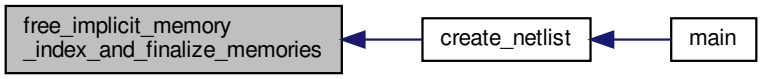


2.22.1.8 free_implicit_memory_index_and_finalize_memories()

```
void free_implicit_memory_index_and_finalize_memories ( )
```

Definition at line 168 of file implicit_memory.cpp.

Here is the caller graph for this function:

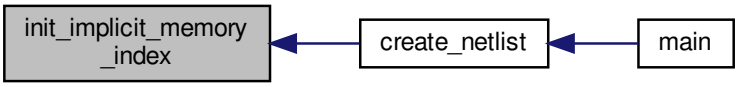


2.22.1.9 init_implicit_memory_index()

```
void init_implicit_memory_index ( )
```

Definition at line 157 of file implicit_memory.cpp.

Here is the caller graph for this function:

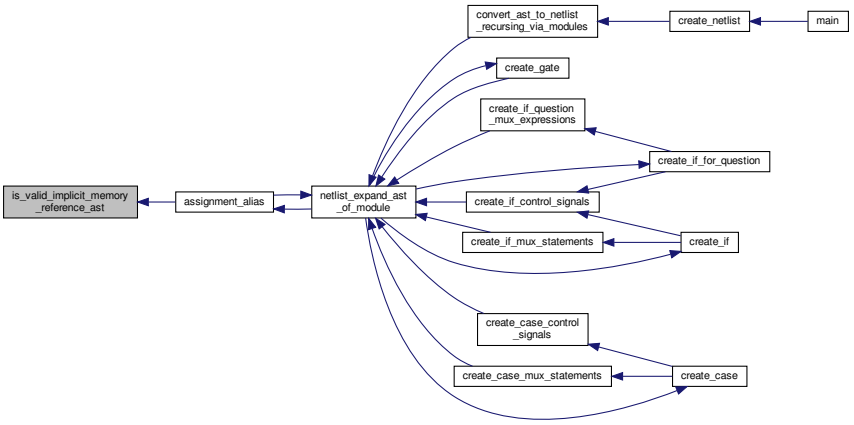


2.22.1.10 is_valid_implicit_memory_reference_ast()

```
char is_valid_implicit_memory_reference_ast (
            char * instance_name_prefix,
            ast_node_t * node )
```

Definition at line 67 of file implicit_memory.cpp.

Here is the caller graph for this function:

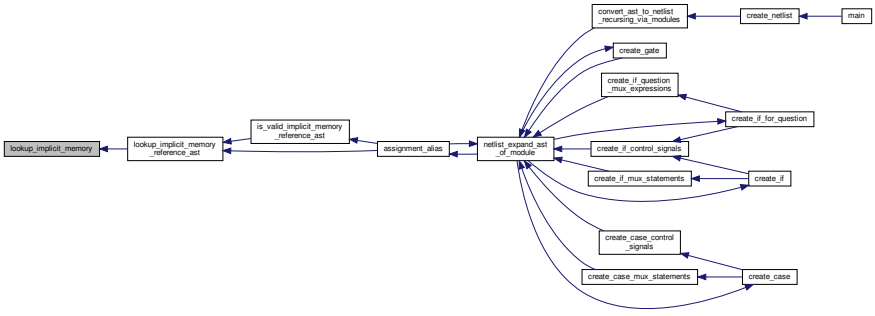


2.22.1.11 lookup_implicit_memory()

```
implicit_memory * lookup_implicit_memory (
            char * instance_name_prefix,
            char * identifier )
```

Definition at line 45 of file implicit_memory.cpp.

Here is the caller graph for this function:

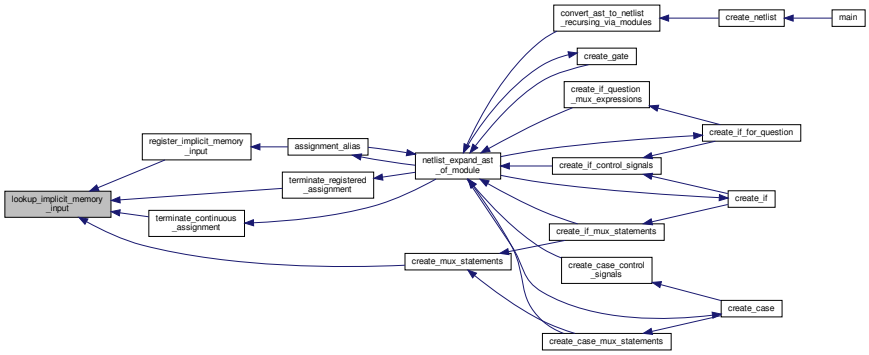


2.22.1.12 lookup_implicit_memory_input()

```
implicit_memory* lookup_implicit_memory_input (
            char * name )
```

Definition at line 137 of file implicit_memory.cpp.

Here is the caller graph for this function:

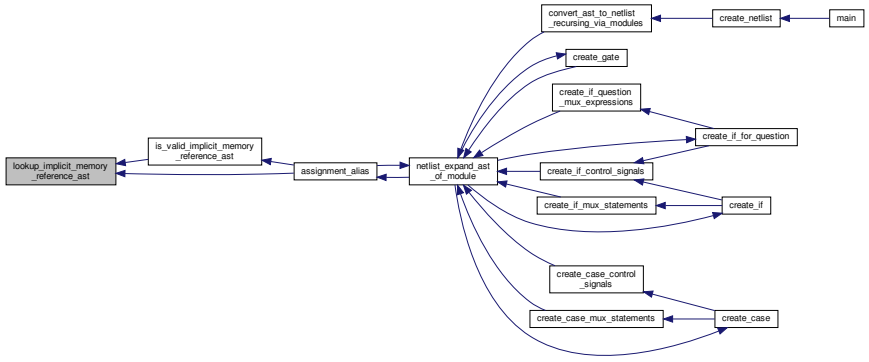


2.22.1.13 lookup_implicit_memory_reference_ast()

```
implicit_memory* lookup_implicit_memory_reference_ast (
            char * instance_name_prefix,
            ast_node_t * node )
```

Definition at line 54 of file implicit_memory.cpp.

Here is the caller graph for this function:

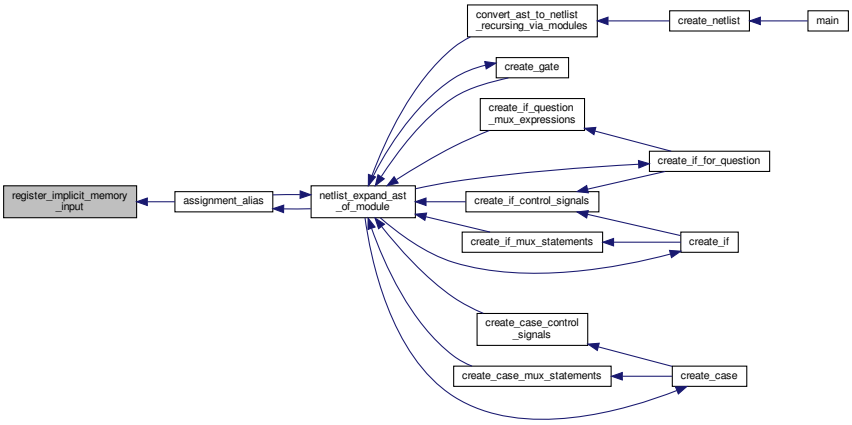


2.22.1.14 register_implicit_memory_input()

```
void register_implicit_memory_input (
            char * name,
            implicit_memory * memory )
```

Definition at line 146 of file implicit_memory.cpp.

Here is the caller graph for this function:



2.22.2 Variable Documentation

2.22.2.1 implicit_memories

```
hashtable_t* implicit_memories
```

Definition at line 32 of file implicit_memory.cpp.

2.22.2.2 implicit_memory_inputs

```
hashtable_t* implicit_memory_inputs
```

Definition at line 34 of file implicit_memory.cpp.

2.23 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/implicit_memory.h File Reference

Data Structures

- struct implicit_memory

Functions

- void add_input_port_to_implicit_memory (implicit_memory *memory, signal_list_t *signals, const char *port_name)
- void add_output_port_to_implicit_memory (implicit_memory *memory, signal_list_t *signals, const char *port_name)
- implicit_memory * lookup_implicit_memory_reference_ast (char *instance_name_prefix, ast_node_t *node)
- char is_valid_implicit_memory_reference_ast (char *instance_name_prefix, ast_node_t *node)
- implicit_memory * create_implicit_memory_block (int data_width, long long words, char *name, char *instance_name_prefix)
- implicit_memory * lookup_implicit_memory_input (char *name)
- void register_implicit_memory_input (char *name, implicit_memory *memory)
- void init_implicit_memory_index ()
- void free_implicit_memory_index_and_finalize_memories ()

Variables

- hashtable_t * implicit_memories
- hashtable_t * implicit_memory_inputs

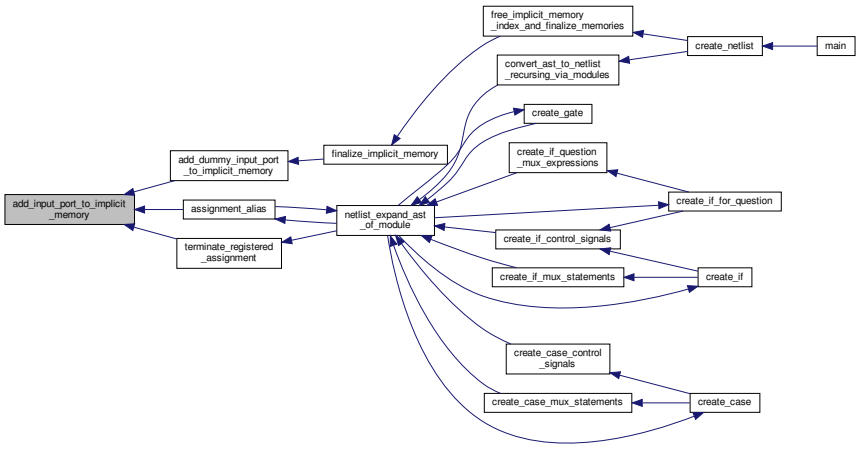
2.23.1 Function Documentation

2.23.1.1 add_input_port_to_implicit_memory()

```
void add_input_port_to_implicit_memory (
            implicit_memory * memory,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 117 of file implicit_memory.cpp.

Here is the caller graph for this function:

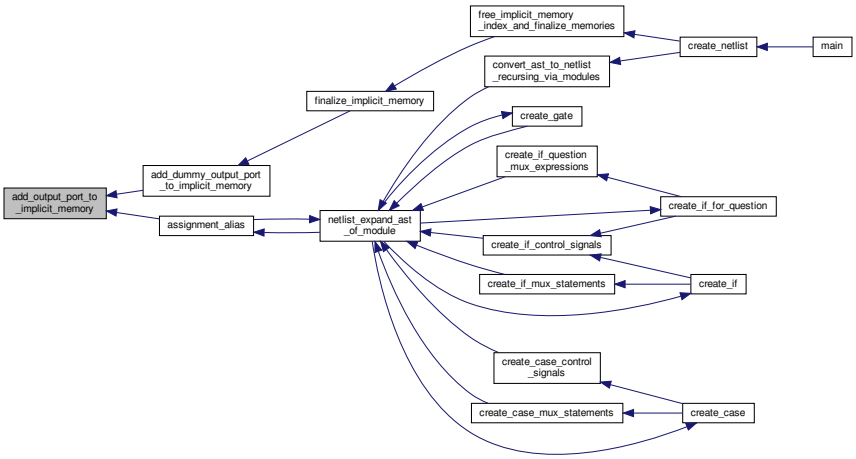


2.23.1.2 add_output_port_to_implicit_memory()

```
void add_output_port_to_implicit_memory (
            implicit_memory * memory,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 127 of file implicit_memory.cpp.

Here is the caller graph for this function:

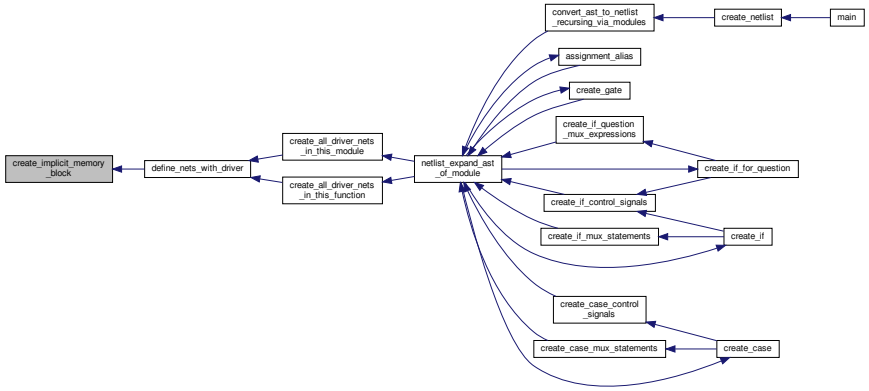


2.23.1.3 create_implicit_memory_block()

```
implicit_memory* create_implicit_memory_block (
            int data_width,
            long long words,
            char * name,
            char * instance_name_prefix )
```

Definition at line 79 of file implicit_memory.cpp.

Here is the caller graph for this function:

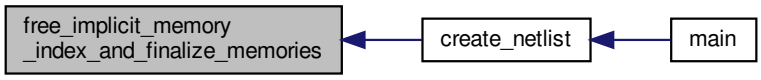


2.23.1.4 free_implicit_memory_index_and_finalize_memories()

```
void free_implicit_memory_index_and_finalize_memories ( )
```

Definition at line 168 of file implicit_memory.cpp.

Here is the caller graph for this function:

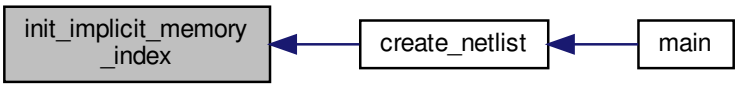


2.23.1.5 init_implicit_memory_index()

```
void init_implicit_memory_index ( )
```

Definition at line 157 of file implicit_memory.cpp.

Here is the caller graph for this function:

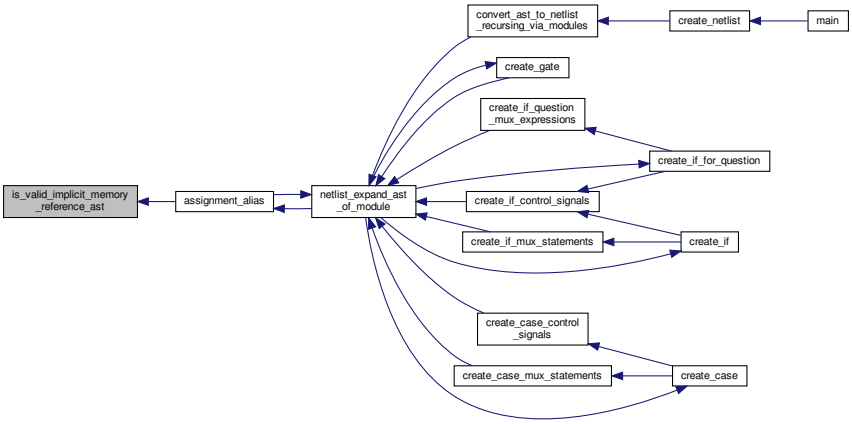


2.23.1.6 is_valid_implicit_memory_reference_ast()

```
char is_valid_implicit_memory_reference_ast (
            char * instance_name_prefix,
            ast_node_t * node )
```

Definition at line 67 of file implicit_memory.cpp.

Here is the caller graph for this function:

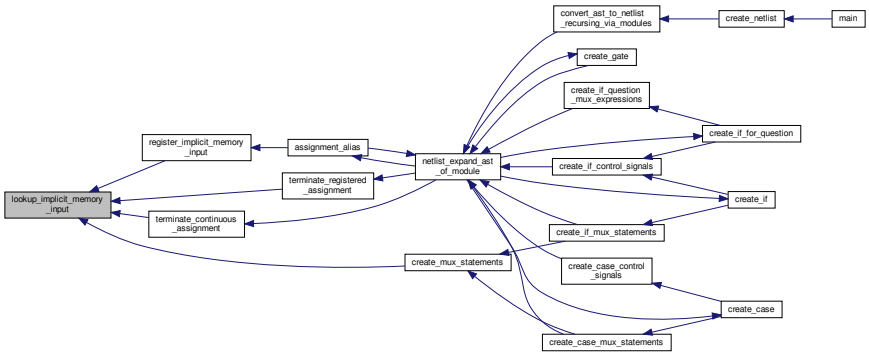


2.23.1.7 lookup_implicit_memory_input()

```
implicit_memory* lookup_implicit_memory_input (
            char * name )
```

Definition at line 137 of file implicit_memory.cpp.

Here is the caller graph for this function:

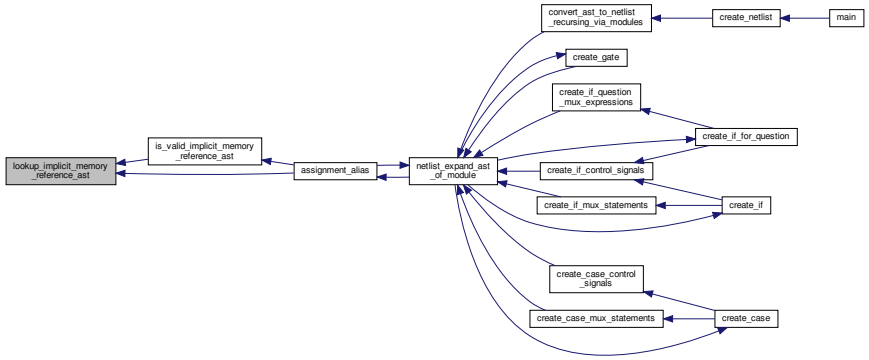


2.23.1.8 lookup_implicit_memory_reference_ast()

```
implicit_memory* lookup_implicit_memory_reference_ast (
            char * instance_name_prefix,
            ast_node_t * node )
```

Definition at line 54 of file implicit_memory.cpp.

Here is the caller graph for this function:

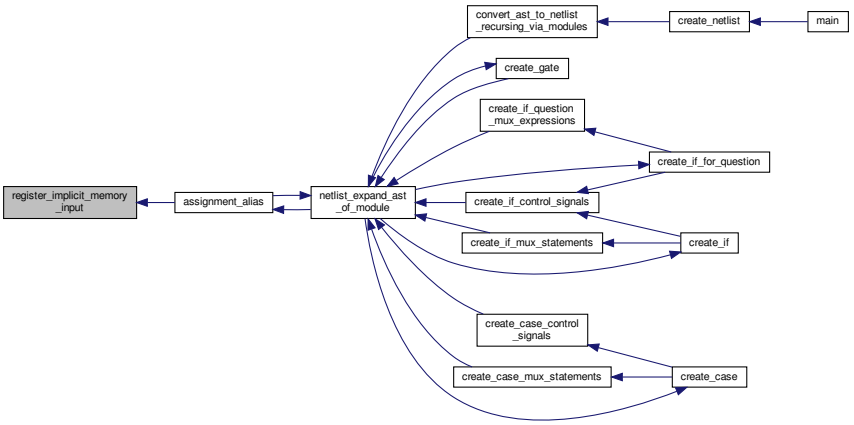


2.23.1.9 register_implicit_memory_input()

```
void register_implicit_memory_input (
            char * name,
            implicit_memory * memory )
```

Definition at line 146 of file implicit_memory.cpp.

Here is the caller graph for this function:



2.23.2 Variable Documentation

2.23.2.1 implicit_memories

```
hashtable_t* implicit_memories
```

Definition at line 32 of file implicit_memory.cpp.

2.23.2.2 implicit_memory_inputs

```
hashtable_t* implicit_memory_inputs
```

Definition at line 34 of file implicit_memory.cpp.

2.24 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.cpp File Reference

```
#include <string.h>
#include <math.h>
#include "globals.h"
#include "netlist_utils.h"
#include "node_creation_library.h"
#include "hard_blocks.h"
#include "memories.h"
#include "partial_map.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- void pad_dp_memory_width (nnode_t *node, netlist_t *netlist)
- void pad_sp_memory_width (nnode_t *node, netlist_t *netlist)
- void pad_memory_output_port (nnode_t *node, netlist_t *netlist, t_model *model, const char *port_name)
- void pad_memory_input_port (nnode_t *node, netlist_t *netlist, t_model *model, const char *port_name)
- void copy_input_port_to_memory (nnode_t *node, signal_list_t *signals, const char *port_name)
- void copy_output_port_to_memory (nnode_t *node, signal_list_t *signals, const char *port_name)
- void remap_input_port_to_memory (nnode_t *node, signal_list_t *signals, const char *port_name)
- void remap_output_port_to_memory (nnode_t *node, signal_list_t *signalsvar, char *port_name)
- int get_sp_ram_split_width ()
- int get_dp_ram_split_width ()
- void filter_memories_by_soft_logic_cutoff ()
- int get_sp_ram_depth (nnode_t *node)
- int get_dp_ram_depth (nnode_t *node)
- int get_sp_ram_width (nnode_t *node)
- int get_dp_ram_width (nnode_t *node)
- int get_memory_port_size (const char *name)
- void add_input_port_to_memory (nnode_t *node, signal_list_t *signalsvar, const char *port_name)
- void add_output_port_to_memory (nnode_t *node, signal_list_t *signals, const char *port_name)
- void check_memories_and_report_distribution ()
- void split_sp_memory_depth (nnode_t *node, int split_size)
- void split_dp_memory_depth (nnode_t *node, int split_size)
- void split_sp_memory_width (nnode_t *node, int target_size)
- void split_dp_memory_width (nnode_t *node, int target_size)
- int get_sp_ram_split_depth ()
- int get_dp_ram_split_depth ()
- void iterate_memories (netlist_t *netlist)
- void free_memory_lists ()
- char is_sp_ram (nnode_t *node)
- char is_dp_ram (nnode_t *node)
- char is_ast_sp_ram (ast_node_t *node)
- char is_ast_dp_ram (ast_node_t *node)
- sp_ram_signals * get_sp_ram_signals (nnode_t *node)
- void free_sp_ram_signals (sp_ram_signals *signalsvar)
- dp_ram_signals * get_dp_ram_signals (nnode_t *node)
- void free_dp_ram_signals (dp_ram_signals *signalsvar)
- void instantiate_soft_single_port_ram (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_soft_dual_port_ram (nnode_t *node, short mark, netlist_t *netlist)
- signal_list_t * create_decoder (nnode_t *node, short mark, signal_list_t *input_list)

Variables

- t_model * single_port_rams = NULL
- t_model * dual_port_rams = NULL
- t_linked_vptr * sp_memory_list
- t_linked_vptr * dp_memory_list
- t_linked_vptr * split_list
- t_linked_vptr * memory_instances = NULL
- t_linked_vptr * memory_port_size_list = NULL

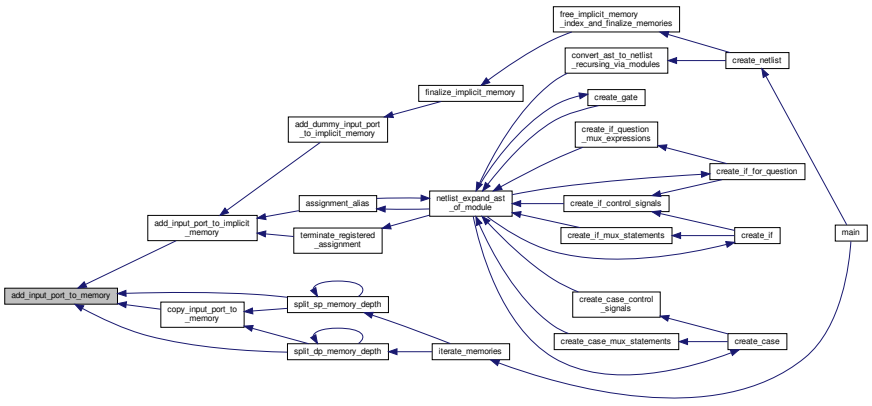
2.24.1 Function Documentation

2.24.1.1 add_input_port_to_memory()

```
void add_input_port_to_memory (
            nnode_t * node,
            signal_list_t * signalsvar,
            const char * port_name )
```

Definition at line 160 of file memories.cpp.

Here is the caller graph for this function:

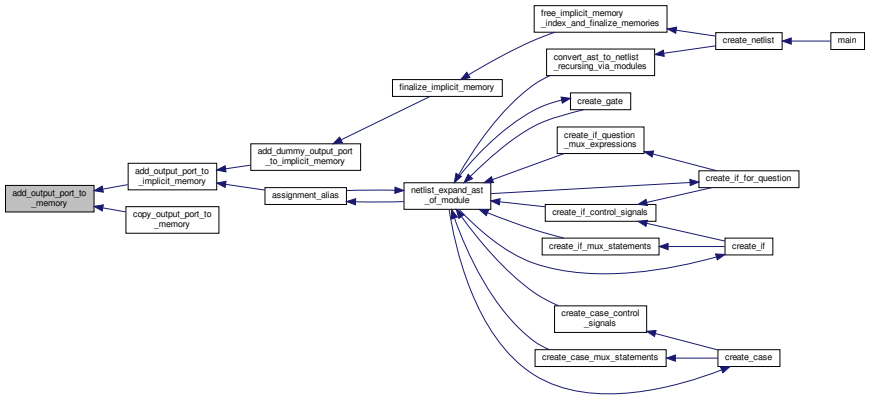


2.24.1.2 add_output_port_to_memory()

```
void add_output_port_to_memory (
            nnode_t * node,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 231 of file memories.cpp.

Here is the caller graph for this function:

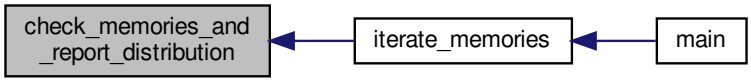


2.24.1.3 check_memories_and_report_distribution()

```
void check_memories_and_report_distribution ( )
```

Definition at line 265 of file memories.cpp.

Here is the caller graph for this function:

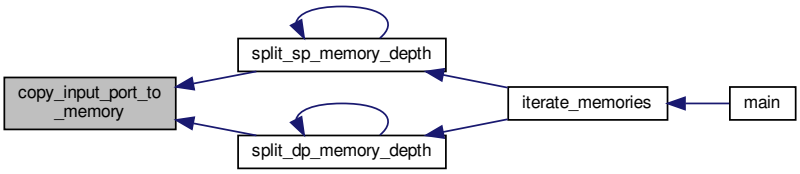


2.24.1.4 copy_input_port_to_memory()

```
void copy_input_port_to_memory (
             nnode_t * node,
             signal_list_t * signals,
             const char * port_name )
```

Definition at line 109 of file memories.cpp.

Here is the caller graph for this function:



2.24.1.5 copy_output_port_to_memory()

```
void copy_output_port_to_memory (
             nnode_t * node,
             signal_list_t * signals,
             const char * port_name )
```

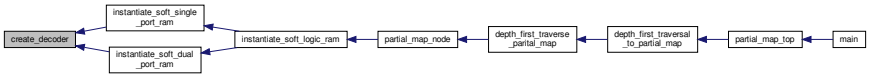
Definition at line 116 of file memories.cpp.

2.24.1.6 create_decoder()

```
signal_list_t* create_decoder (
             nnode_t * node,
             short mark,
             signal_list_t * input_list )
```

Definition at line 1676 of file memories.cpp.

Here is the caller graph for this function:

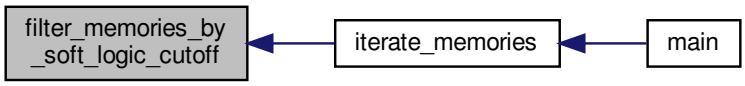


2.24.1.7 filter_memories_by_soft_logic_cutoff()

```
void filter_memories_by_soft_logic_cutoff ( )
```

Definition at line 995 of file memories.cpp.

Here is the caller graph for this function:

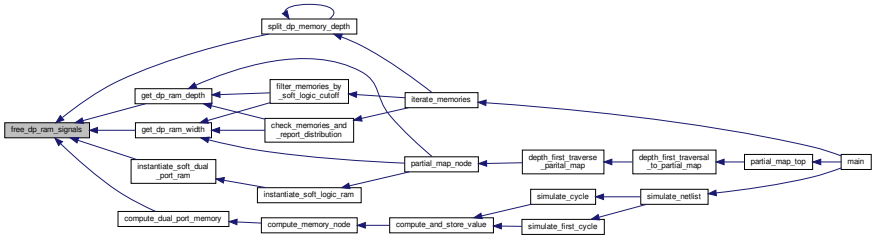


2.24.1.8 free_dp_ram_signals()

```
void free_dp_ram_signals (
            dp_ram_signals * signalsvar )
```

Definition at line 1437 of file memories.cpp.

Here is the caller graph for this function:



2.24.1.9 free_memory_lists()

```
void free_memory_lists ( )
```

Definition at line 1151 of file memories.cpp.

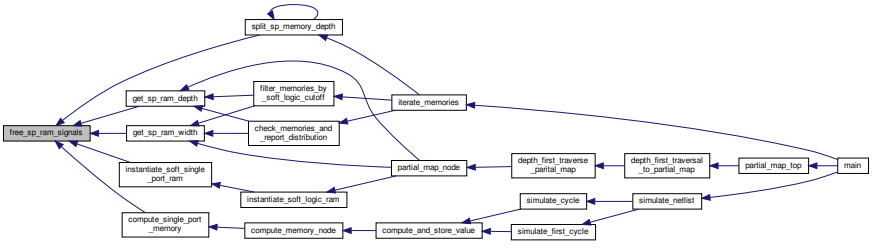
Here is the caller graph for this function:

2.24.1.10 free_sp_ram_signals()

```
void free_sp_ram_signals (
            sp_ram_signals * signalsvar )
```

Definition at line 1357 of file memories.cpp.

Here is the caller graph for this function:

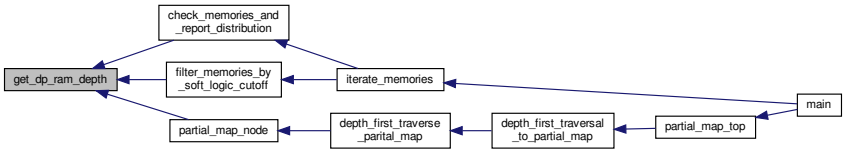


2.24.1.11 get_dp_ram_depth()

```
int get_dp_ram_depth (
            nnode_t * node )
```

Definition at line 69 of file memories.cpp.

Here is the caller graph for this function:

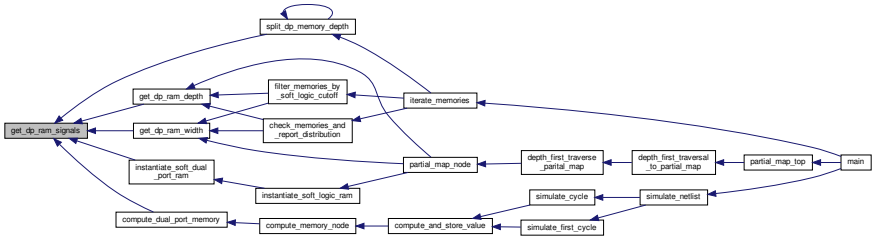


2.24.1.12 get_dp_ram_signals()

```
dp_ram_signals* get_dp_ram_signals (
            nnode_t * node )
```

Definition at line 1366 of file memories.cpp.

Here is the caller graph for this function:

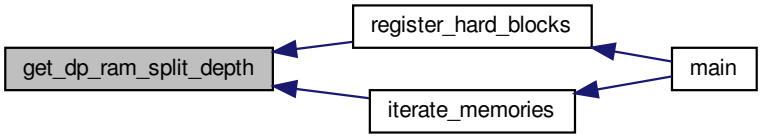


2.24.1.13 get_dp_ram_split_depth()

```
int get_dp_ram_split_depth ( )
```

Definition at line 934 of file memories.cpp.

Here is the caller graph for this function:

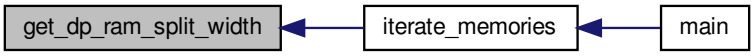


2.24.1.14 get_dp_ram_split_width()

```
int get_dp_ram_split_width ( )
```

Definition at line 975 of file memories.cpp.

Here is the caller graph for this function:

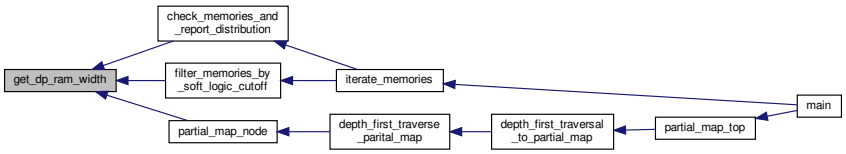


2.24.1.15 get_dp_ram_width()

```
int get_dp_ram_width (
             nnode_t * node )
```

Definition at line 86 of file memories.cpp.

Here is the caller graph for this function:

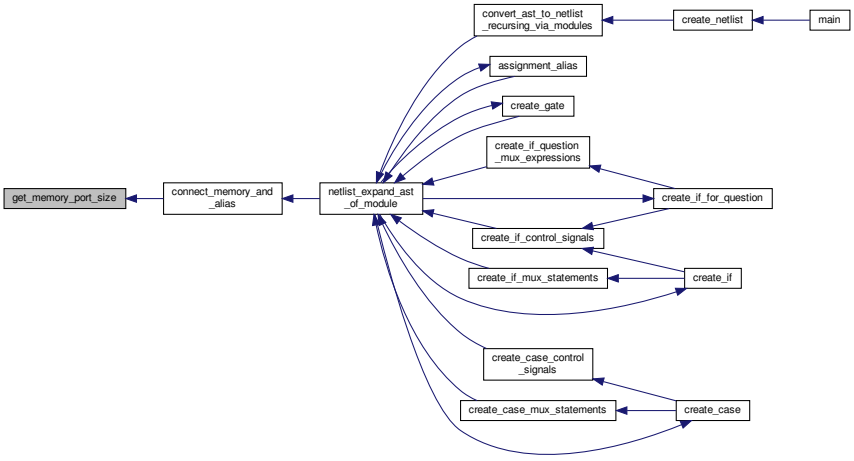


2.24.1.16 get_memory_port_size()

```
int get_memory_port_size (
            const char * name )
```

Definition at line 95 of file memories.cpp.

Here is the caller graph for this function:

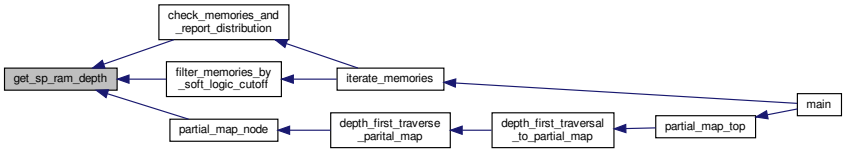


2.24.1.17 get_sp_ram_depth()

```
int get_sp_ram_depth (
            nnode_t * node )
```

Definition at line 61 of file memories.cpp.

Here is the caller graph for this function:

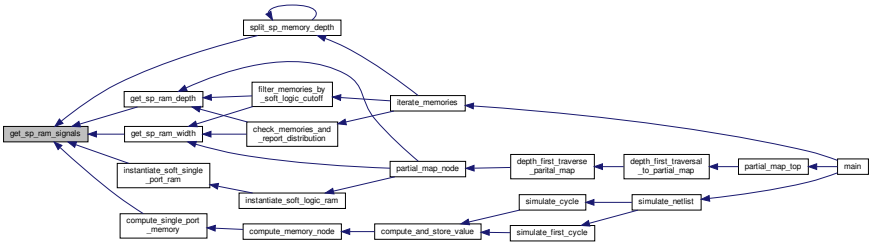


2.24.1.18 get_sp_ram_signals()

```
sp_ram_signals* get_sp_ram_signals (
            nnode_t * node )
```

Definition at line 1303 of file memories.cpp.

Here is the caller graph for this function:

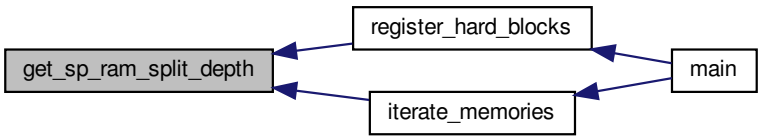


2.24.1.19 get_sp_ram_split_depth()

```
int get_sp_ram_split_depth ( )
```

Definition at line 912 of file memories.cpp.

Here is the caller graph for this function:

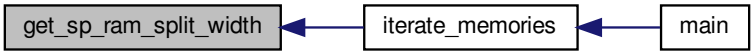


2.24.1.20 get_sp_ram_split_width()

```
int get_sp_ram_split_width ( )
```

Definition at line 956 of file memories.cpp.

Here is the caller graph for this function:

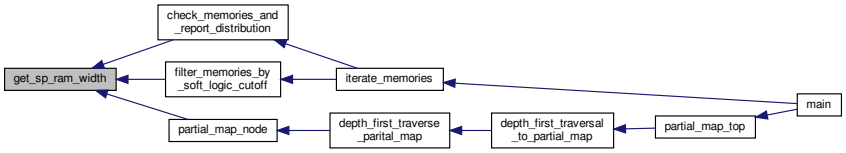


2.24.1.21 get_sp_ram_width()

```
int get_sp_ram_width (
            nnode_t * node )
```

Definition at line 78 of file memories.cpp.

Here is the caller graph for this function:



2.24.1.22 instantiate_soft_dual_port_ram()

```
void instantiate_soft_dual_port_ram (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 1541 of file memories.cpp.

Here is the caller graph for this function:

2.24.1.23 instantiate_soft_single_port_ram()

```
void instantiate_soft_single_port_ram (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

Definition at line 1452 of file memories.cpp.

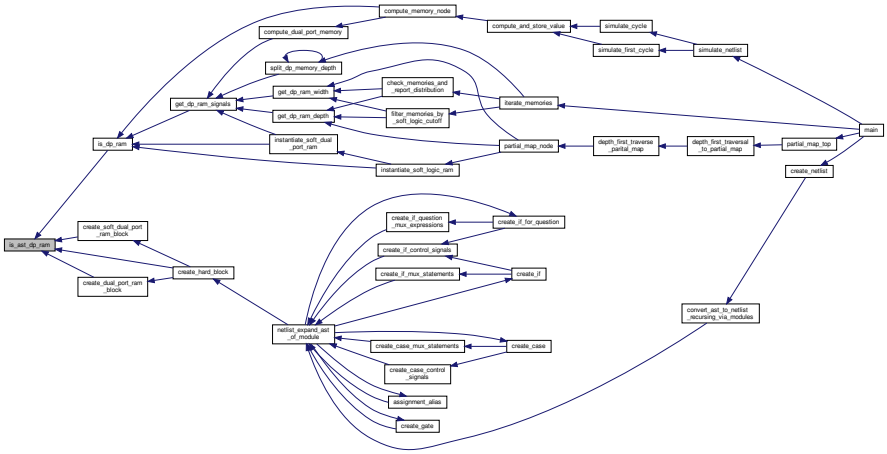
Here is the caller graph for this function:

2.24.1.24 is_ast_dp_ram()

```
char is_ast_dp_ram (
             ast_node_t * node )
```

Definition at line 1294 of file memories.cpp.

Here is the caller graph for this function:

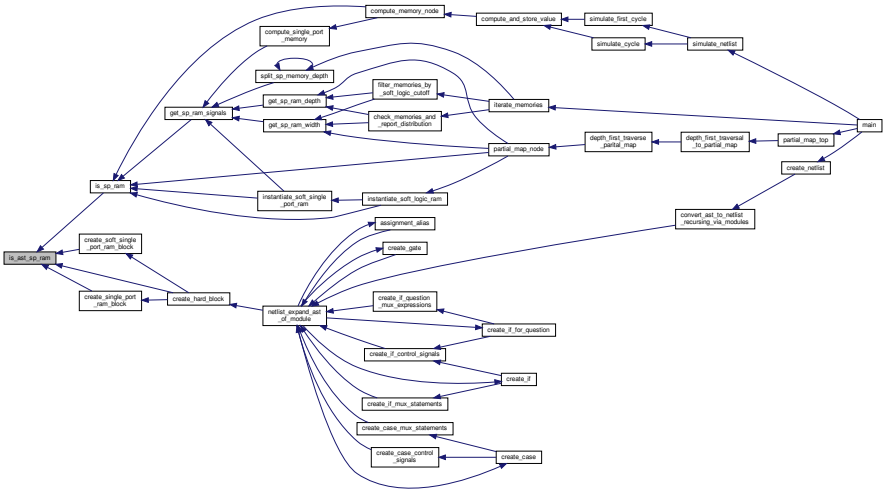


2.24.1.25 is_ast_sp_ram()

```
char is_ast_sp_ram (
            ast_node_t * node )
```

Definition at line 1285 of file memories.cpp.

Here is the caller graph for this function:

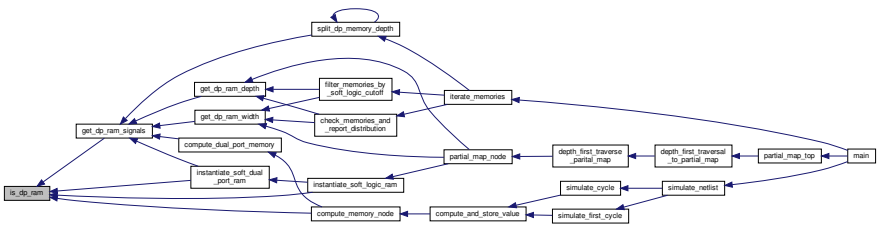


2.24.1.26 is_dp_ram()

```
char is_dp_ram (
            nnode_t * node )
```

Definition at line 1278 of file memories.cpp.

Here is the caller graph for this function:

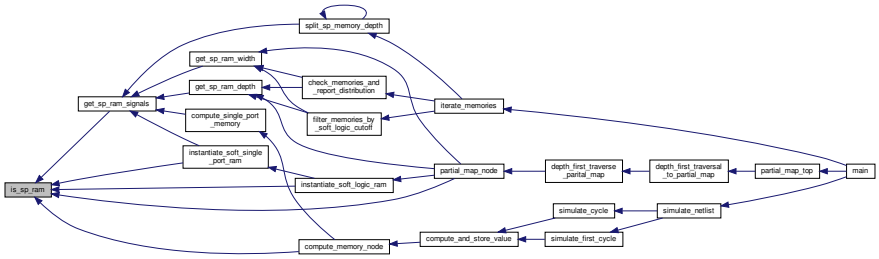


2.24.1.27 is_sp_ram()

```
char is_sp_ram (
            nnode_t * node )
```

Definition at line 1271 of file memories.cpp.

Here is the caller graph for this function:



2.24.1.28 iterate_memories()

```
void iterate_memories (
            netlist_t * netlist )
```

Definition at line 1045 of file memories.cpp.

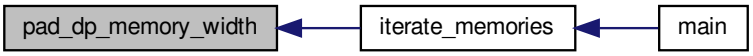
Here is the caller graph for this function:

2.24.1.29 pad_dp_memory_width()

```
void pad_dp_memory_width (
             nnode_t * node,
             netlist_t * netlist )
```

Definition at line 1162 of file memories.cpp.

Here is the caller graph for this function:

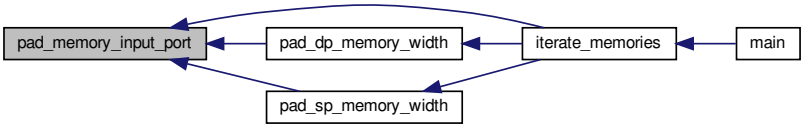


2.24.1.30 pad_memory_input_port()

```
void pad_memory_input_port (
             nnode_t * node,
             netlist_t * netlist,
             t_model * model,
             const char * port_name )
```

Definition at line 1233 of file memories.cpp.

Here is the caller graph for this function:

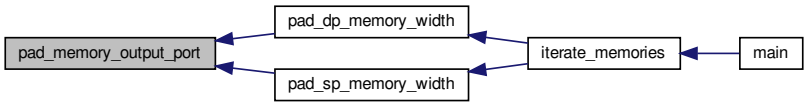


2.24.1.31 pad_memory_output_port()

```
void pad_memory_output_port (
             nnode_t * node,
             netlist_t * netlist,
             t_model * model,
             const char * port_name )
```

Definition at line 1194 of file memories.cpp.

Here is the caller graph for this function:

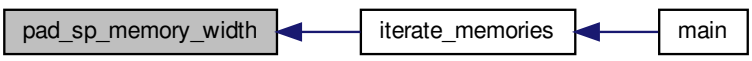


2.24.1.32 pad_sp_memory_width()

```
void pad_sp_memory_width (
             nnode_t * node,
             netlist_t * netlist )
```

Definition at line 1179 of file memories.cpp.

Here is the caller graph for this function:

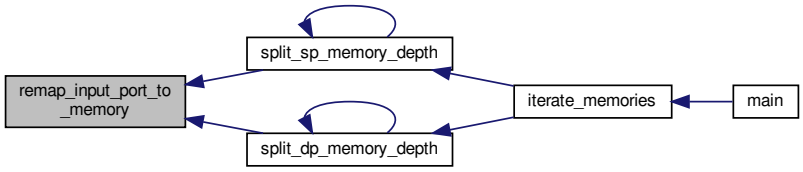


2.24.1.33 remap_input_port_to_memory()

```
void remap_input_port_to_memory (
            nnode_t * node,
            signal_list_t * signals,
            const char * port_name )
```

Definition at line 126 of file memories.cpp.

Here is the caller graph for this function:



2.24.1.34 remap_output_port_to_memory()

```
void remap_output_port_to_memory (
            nnode_t * node,
            signal_list_t * signalsvar,
            char * port_name )
```

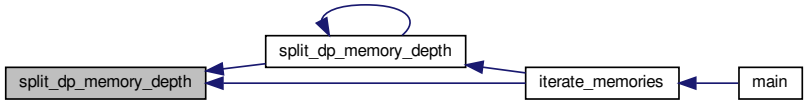
Definition at line 197 of file memories.cpp.

2.24.1.35 split_dp_memory_depth()

```
void split_dp_memory_depth (
            nnode_t * node,
            int split_size )
```

Definition at line 466 of file memories.cpp.

Here is the caller graph for this function:

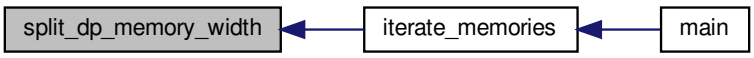


2.24.1.36 split_dp_memory_width()

```
void split_dp_memory_width (
             nnode_t * node,
             int target_size )
```

Definition at line 736 of file memories.cpp.

Here is the caller graph for this function:

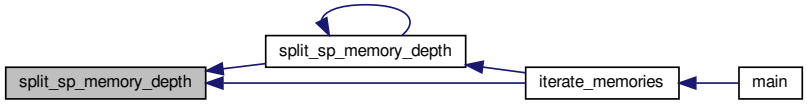


2.24.1.37 split_sp_memory_depth()

```
void split_sp_memory_depth (
             nnode_t * node,
             int split_size )
```

Definition at line 349 of file memories.cpp.

Here is the caller graph for this function:

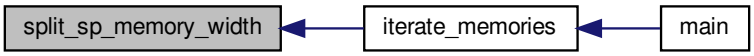


2.24.1.38 split_sp_memory_width()

```
void split_sp_memory_width (
            nnode_t * node,
            int target_size )
```

Definition at line 632 of file memories.cpp.

Here is the caller graph for this function:



2.24.2 Variable Documentation

2.24.2.1 dp_memory_list

```
t_linked_vptr* dp_memory_list
```

Definition at line 42 of file memories.cpp.

2.24.2.2 dual_port_rams

```
t_model* dual_port_rams = NULL
```

Definition at line 39 of file memories.cpp.

2.24.2.3 memory_instances

```
t_linked_vptr* memory_instances = NULL
```

Definition at line 44 of file memories.cpp.

2.24.2.4 memory_port_size_list

```
t_linked_vptr* memory_port_size_list = NULL
```

Definition at line 45 of file memories.cpp.

2.24.2.5 single_port_rams

```
t_model* single_port_rams = NULL
```

Definition at line 38 of file memories.cpp.

2.24.2.6 sp_memory_list

```
t_linked_vptr* sp_memory_list
```

Definition at line 41 of file memories.cpp.

2.24.2.7 split_list

```
t_linked_vptr* split_list
```

Definition at line 43 of file memories.cpp.

2.25 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/memories.h File Reference

Data Structures

- struct s_memory
- struct s_memory_port_sizes
- struct sp_ram_signals
- struct dp_ram_signals

Macros

- #define MEMORY_DEPTH_LIMIT 25

Typedefs

- typedef struct s_memory t_memory
- typedef struct s_memory_port_sizes t_memory_port_sizes

Functions

- int get_sp_ram_split_depth ()
- int get_dp_ram_split_depth ()
- sp_ram_signals * get_sp_ram_signals (nnode_t *node)
- void free_sp_ram_signals (sp_ram_signals *signalsvar)
- dp_ram_signals * get_dp_ram_signals (nnode_t *node)
- void free_dp_ram_signals (dp_ram_signals *signalsvar)
- char is_sp_ram (nnode_t *node)
- char is_dp_ram (nnode_t *node)
- char is_ast_sp_ram (ast_node_t *node)
- char is_ast_dp_ram (ast_node_t *node)
- void init_memory_distribution ()
- void check_memories_and_report_distribution ()
- int get_memory_port_size (const char *name)
- int get_sp_ram_depth (nnode_t *node)
- int get_dp_ram_depth (nnode_t *node)
- int get_sp_ram_width (nnode_t *node)
- int get_dp_ram_width (nnode_t *node)
- void split_sp_memory_depth (nnode_t *node, int split_size)
- void split_dp_memory_depth (nnode_t *node, int split_size)
- void split_sp_memory_width (nnode_t *node, int target_size)
- void split_dp_memory_width (nnode_t *node, int target_size)
- void iterate_memories (netlist_t *netlist)
- void free_memory_lists ()
- void instantiate_soft_single_port_ram (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_soft_dual_port_ram (nnode_t *node, short mark, netlist_t *netlist)
- signal_list_t * create_decoder (nnode_t *node, short mark, signal_list_t *input_list)
- void add_input_port_to_memory (nnode_t *node, signal_list_t *signalsvar, const char *port_name)
- void add_output_port_to_memory (nnode_t *node, signal_list_t *signalsvar, const char *port_name)

Variables

- vtr::t_linked_vptr * sp_memory_list
- vtr::t_linked_vptr * dp_memory_list
- vtr::t_linked_vptr * memory_instances
- vtr::t_linked_vptr * memory_port_size_list
- t_model * single_port_rams
- t_model * dual_port_rams

2.25.1 Macro Definition Documentation

2.25.1.1 MEMORY_DEPTH_LIMIT

```
#define MEMORY_DEPTH_LIMIT 25
```

Definition at line 34 of file memories.h.

2.25.2 Typedef Documentation

2.25.2.1 t_memory

```
typedef struct s_memory t_memory
```

2.25.2.2 t_memory_port_sizes

```
typedef struct s_memory_port_sizes t_memory_port_sizes
```

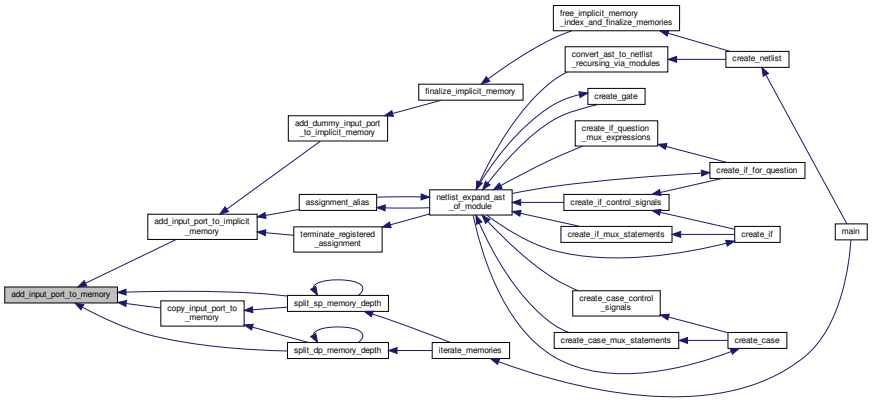
2.25.3 Function Documentation

2.25.3.1 add_input_port_to_memory()

```
void add_input_port_to_memory (
            nnode_t * node,
            signal_list_t * signalsvar,
            const char * port_name )
```

Definition at line 160 of file memories.cpp.

Here is the caller graph for this function:

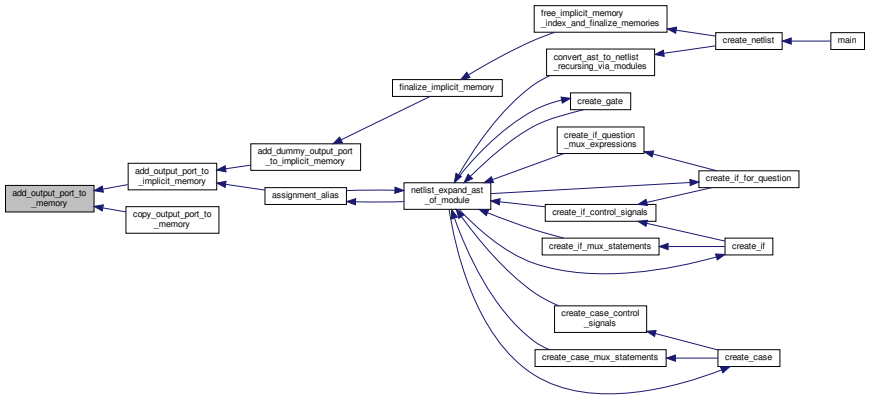


2.25.3.2 add_output_port_to_memory()

```
void add_output_port_to_memory (
            nnode_t * node,
            signal_list_t * signalsvar,
            const char * port_name )
```

Definition at line 231 of file memories.cpp.

Here is the caller graph for this function:

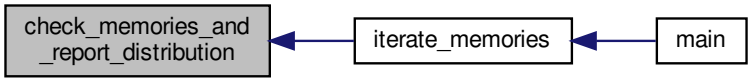


2.25.3.3 check_memories_and_report_distribution()

```
void check_memories_and_report_distribution ( )
```

Definition at line 265 of file memories.cpp.

Here is the caller graph for this function:

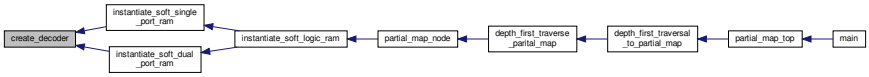


2.25.3.4 create_decoder()

```
signal_list_t* create_decoder (
            nnode_t * node,
            short mark,
            signal_list_t * input_list )
```

Definition at line 1676 of file memories.cpp.

Here is the caller graph for this function:

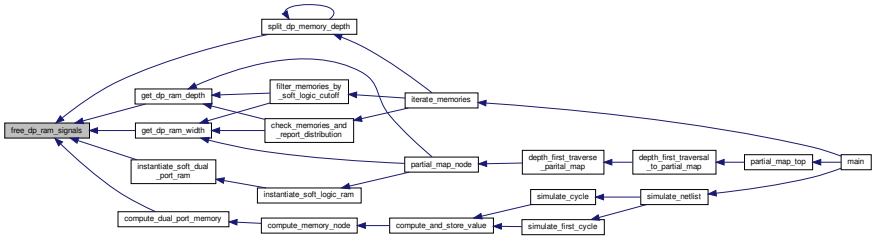


2.25.3.5 free_dp_ram_signals()

```
void free_dp_ram_signals (
            dp_ram_signals * signalsvar )
```

Definition at line 1437 of file memories.cpp.

Here is the caller graph for this function:



2.25.3.6 free_memory_lists()

```
void free_memory_lists ( )
```

Definition at line 1151 of file memories.cpp.

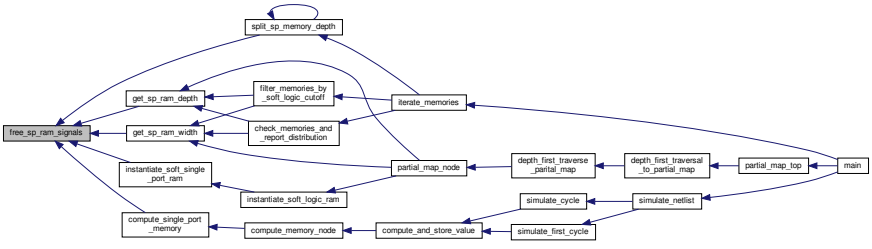
Here is the caller graph for this function:

2.25.3.7 free_sp_ram_signals()

```
void free_sp_ram_signals (
            sp_ram_signals * signalsvar )
```

Definition at line 1357 of file memories.cpp.

Here is the caller graph for this function:

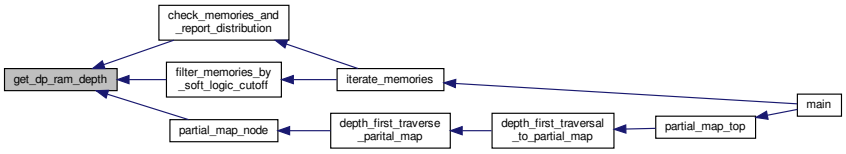


2.25.3.8 get_dp_ram_depth()

```
int get_dp_ram_depth (
            nnode_t * node )
```

Definition at line 69 of file memories.cpp.

Here is the caller graph for this function:

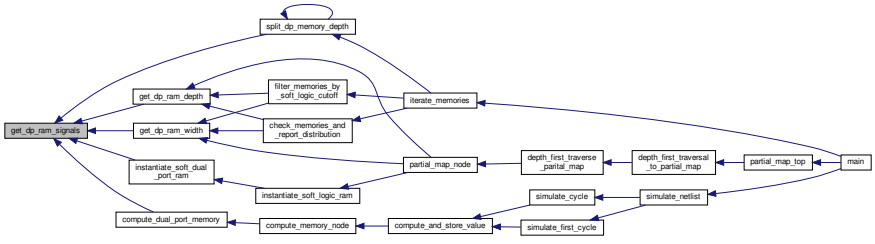


2.25.3.9 get_dp_ram_signals()

```
dp_ram_signals* get_dp_ram_signals (
            nnode_t * node )
```

Definition at line 1366 of file memories.cpp.

Here is the caller graph for this function:

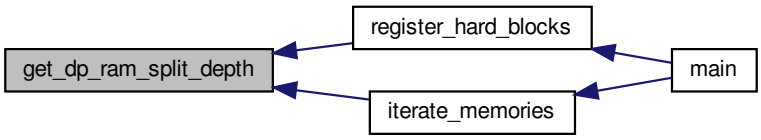


2.25.3.10 get_dp_ram_split_depth()

```
int get_dp_ram_split_depth ( )
```

Definition at line 934 of file memories.cpp.

Here is the caller graph for this function:

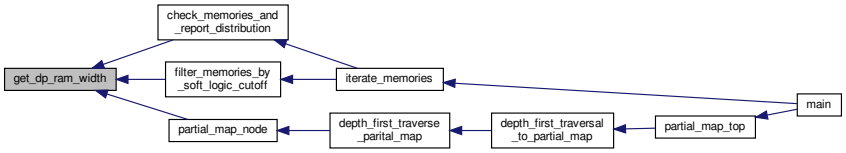


2.25.3.11 get_dp_ram_width()

```
int get_dp_ram_width (
            nnode_t * node )
```

Definition at line 86 of file memories.cpp.

Here is the caller graph for this function:

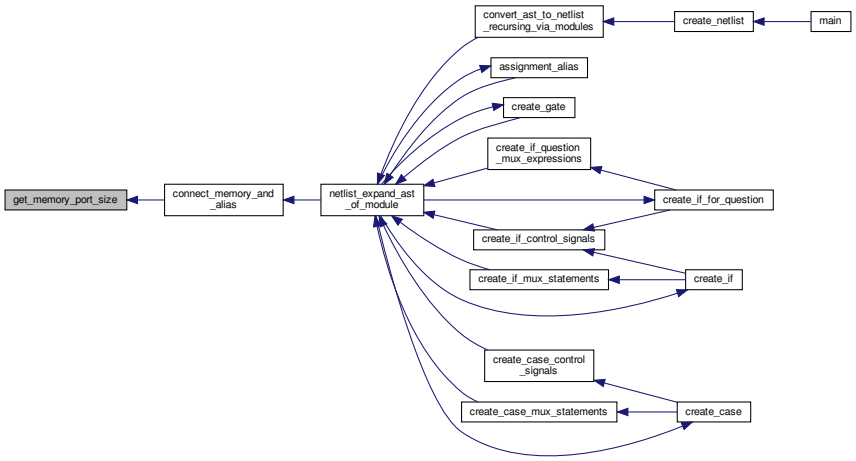


2.25.3.12 get_memory_port_size()

```
int get_memory_port_size (
            const char * name )
```

Definition at line 95 of file memories.cpp.

Here is the caller graph for this function:

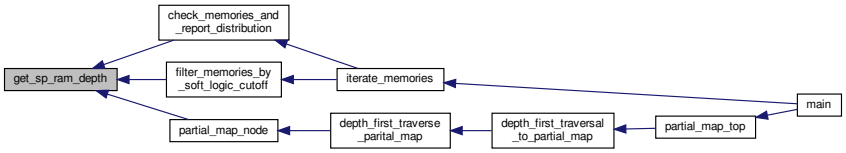


2.25.3.13 get_sp_ram_depth()

```
int get_sp_ram_depth (
            nnode_t * node )
```

Definition at line 61 of file memories.cpp.

Here is the caller graph for this function:

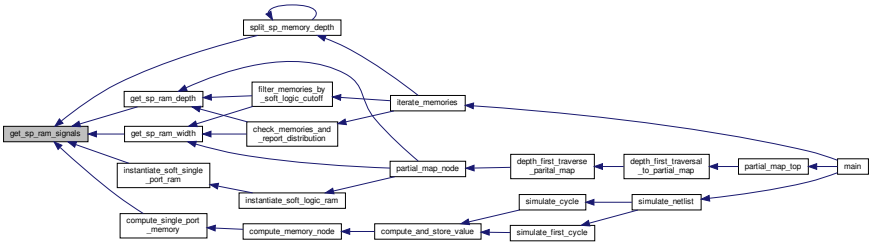


2.25.3.14 get_sp_ram_signals()

```
sp_ram_signals* get_sp_ram_signals (
            nnode_t * node )
```

Definition at line 1303 of file memories.cpp.

Here is the caller graph for this function:

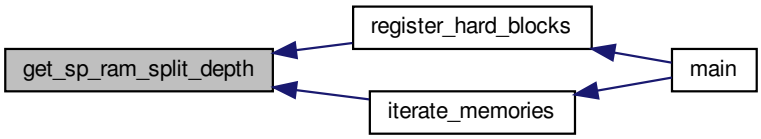


2.25.3.15 get_sp_ram_split_depth()

```
int get_sp_ram_split_depth ( )
```

Definition at line 912 of file memories.cpp.

Here is the caller graph for this function:

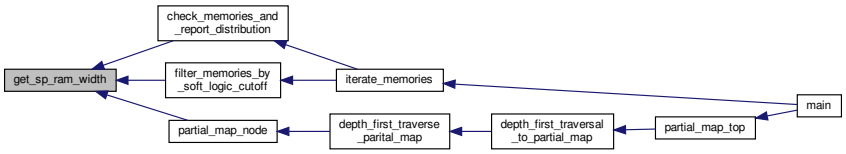


2.25.3.16 get_sp_ram_width()

```
int get_sp_ram_width (
            nnode_t * node )
```

Definition at line 78 of file memories.cpp.

Here is the caller graph for this function:



2.25.3.17 init_memory_distribution()

```
void init_memory_distribution ( )
```

2.25.3.18 instantiate_soft_dual_port_ram()

```
void instantiate_soft_dual_port_ram (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 1541 of file memories.cpp.

Here is the caller graph for this function:

2.25.3.19 instantiate_soft_single_port_ram()

```
void instantiate_soft_single_port_ram (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 1452 of file memories.cpp.

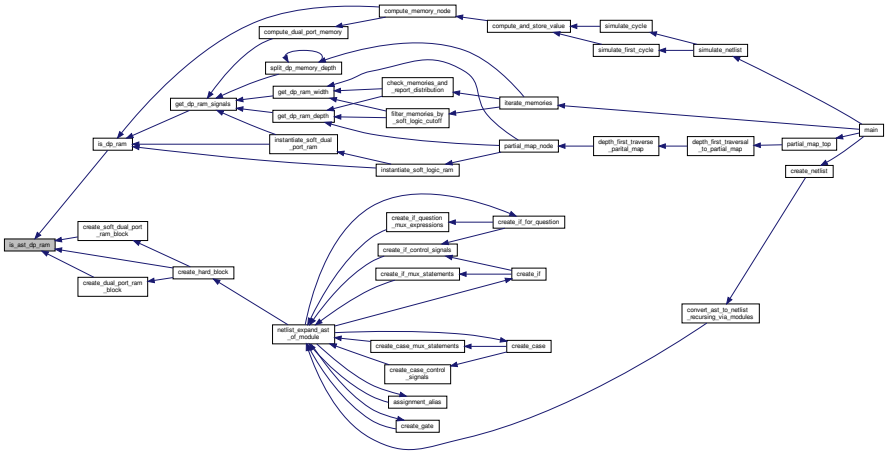
Here is the caller graph for this function:

2.25.3.20 is_ast_dp_ram()

```
char is_ast_dp_ram (
            ast_node_t * node )
```

Definition at line 1294 of file memories.cpp.

Here is the caller graph for this function:

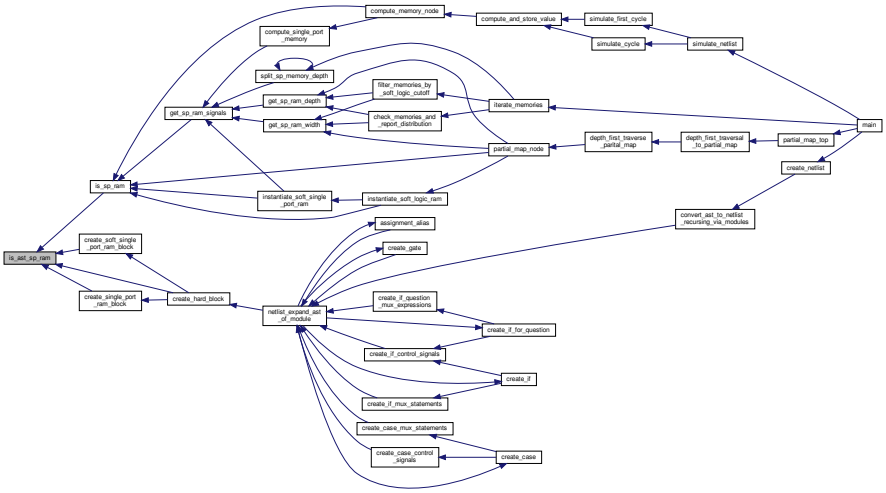


2.25.3.21 is_ast_sp_ram()

```
char is_ast_sp_ram (
            ast_node_t * node )
```

Definition at line 1285 of file memories.cpp.

Here is the caller graph for this function:

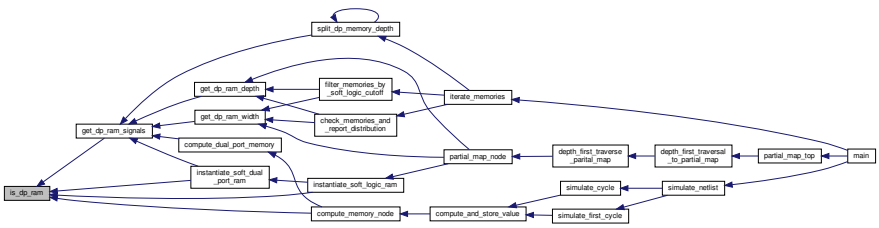


2.25.3.22 is_dp_ram()

```
char is_dp_ram (
            nnode_t * node )
```

Definition at line 1278 of file memories.cpp.

Here is the caller graph for this function:

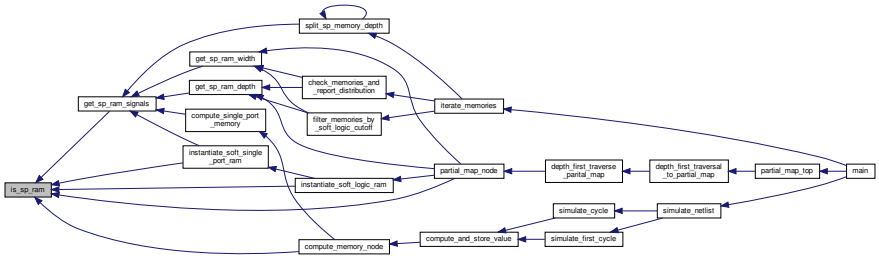


2.25.3.23 is_sp_ram()

```
char is_sp_ram (
            nnode_t * node )
```

Definition at line 1271 of file memories.cpp.

Here is the caller graph for this function:



2.25.3.24 iterate_memories()

```
void iterate_memories (
            netlist_t * netlist )
```

Definition at line 1045 of file memories.cpp.

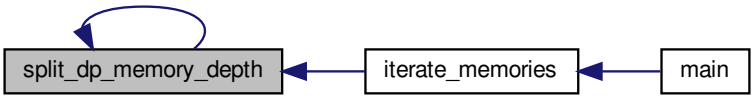
Here is the caller graph for this function:

2.25.3.25 split_dp_memory_depth()

```
void split_dp_memory_depth (
             nnode_t * node,
             int split_size )
```

Definition at line 466 of file memories.cpp.

Here is the caller graph for this function:

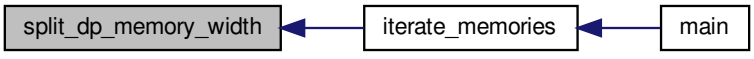


2.25.3.26 split_dp_memory_width()

```
void split_dp_memory_width (
             nnode_t * node,
             int target_size )
```

Definition at line 736 of file memories.cpp.

Here is the caller graph for this function:

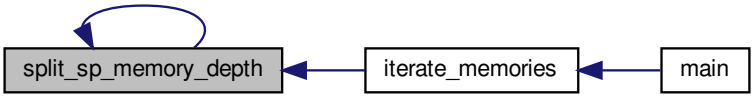


2.25.3.27 split_sp_memory_depth()

```
void split_sp_memory_depth (
             nnode_t * node,
             int split_size )
```

Definition at line 349 of file memories.cpp.

Here is the caller graph for this function:

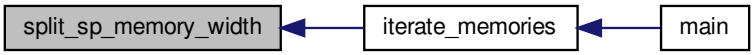


2.25.3.28 split_sp_memory_width()

```
void split_sp_memory_width (
             nnode_t * node,
             int target_size )
```

Definition at line 632 of file memories.cpp.

Here is the caller graph for this function:



2.25.4 Variable Documentation

2.25.4.1 dp_memory_list

```
vtr::t_linked_vptr* dp_memory_list
```

Definition at line 42 of file memories.cpp.

2.25.4.2 dual_port_rams

```
t_model* dual_port_rams
```

Definition at line 39 of file memories.cpp.

2.25.4.3 memory_instances

```
vtr::t_linked_vptr* memory_instances
```

Definition at line 44 of file memories.cpp.

2.25.4.4 memory_port_size_list

```
vtr::t_linked_vptr* memory_port_size_list
```

Definition at line 45 of file memories.cpp.

2.25.4.5 single_port_rams

```
t_model* single_port_rams
```

Definition at line 38 of file memories.cpp.

2.25.4.6 sp_memory_list

```
vtr::t_linked_vptr* sp_memory_list
```

Definition at line 41 of file memories.cpp.

2.26 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/multipliers.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include "types.h"
#include "node_creation_library.h"
#include "multipliers.h"
#include "netlist_utils.h"
#include "partial_map.h"
#include "read_xml_arch_file.h"
#include "globals.h"
#include "adders.h"
#include "vtr_memory.h"
#include "vtr_list.h"
```

Functions

- void record_mult_distribution (nnode_t *node)
- void init_split_multiplier (nnode_t *node, nnode_t *ptr, int offa, int a, int offb, int b)
- void init_cascade_adder (nnode_t *node, nnode_t *a, int b)
- void split_multiplier_a (nnode_t *node, int a0, int a1, int b)
- void split_multiplier_b (nnode_t *node, int a, int b1, int b0)
- void pad_multiplier (nnode_t *node, netlist_t *netlist)
- void instantiate_simple_soft_multiplier (nnode_t *node, short mark, netlist_t *netlist)
- void init_mult_distribution ()
- void report_mult_distribution ()
- void find_hard_multipliers ()
- void declare_hard_multiplier (nnode_t *node)
- void instantiate_hard_multiplier (nnode_t *node, short mark, netlist_t *)
- void add_the_blackbox_for_mults (FILE *out)
- void define_mult_function (nnode_t *node, short, FILE *out)
- void split_multiplier (nnode_t *node, int a0, int b0, int a1, int b1)
- void iterate_multipliers (netlist_t *netlist)
- void clean_multipliers ()

Variables

- t_model * hard_multipliers = NULL
- t_linked_vptr * mult_list = NULL
- int min_mult = 0
- int * mults = NULL

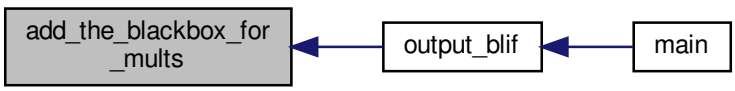
2.26.1 Function Documentation

2.26.1.1 add_the_blackbox_for_mults()

```
void add_the_blackbox_for_mults (
             FILE * out )
```

Definition at line 427 of file multipliers.cpp.

Here is the caller graph for this function:

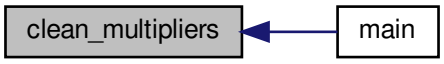


2.26.1.2 clean_multipliers()

```
void clean_multipliers ( )
```

Definition at line 1166 of file multipliers.cpp.

Here is the caller graph for this function:



2.26.1.3 declare_hard_multiplier()

```
void declare_hard_multiplier (
             nnode_t * node )
```

Definition at line 343 of file multipliers.cpp.

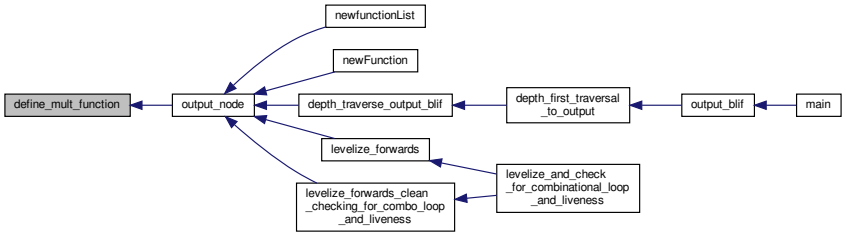
Here is the caller graph for this function:

2.26.1.4 define_mult_function()

```
void define_mult_function (
             nnode_t * node,
             short ,
             FILE * out )
```

Definition at line 508 of file multipliers.cpp.

Here is the caller graph for this function:



2.26.1.5 find_hard_multipliers()

```
void find_hard_multipliers ( )
```

Definition at line 320 of file multipliers.cpp.

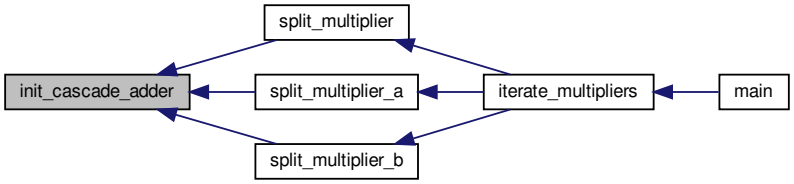
Here is the caller graph for this function:

2.26.1.6 init_cascade_adder()

```
void init_cascade_adder (
            nnode_t * node,
            nnode_t * a,
            int b )
```

Definition at line 651 of file multipliers.cpp.

Here is the caller graph for this function:

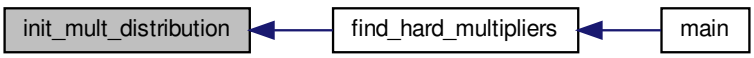


2.26.1.7 init_mult_distribution()

```
void init_mult_distribution ( )
```

Definition at line 259 of file multipliers.cpp.

Here is the caller graph for this function:

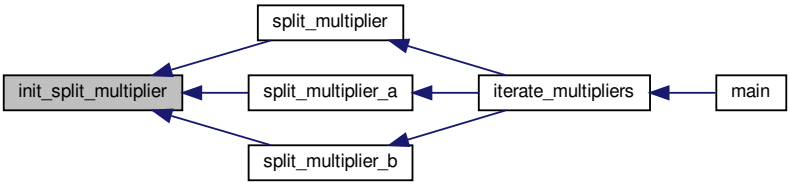


2.26.1.8 init_split_multiplier()

```
void init_split_multiplier (
             nnode_t * node,
             nnode_t * ptr,
             int offa,
             int a,
             int offb,
             int b )
```

Definition at line 603 of file multipliers.cpp.

Here is the caller graph for this function:

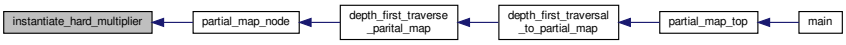


2.26.1.9 instantiate_hard_multiplier()

```
void instantiate_hard_multiplier (
            nnode_t * node,
            short mark,
            netlist_t *  )
```

Definition at line 384 of file multipliers.cpp.

Here is the caller graph for this function:

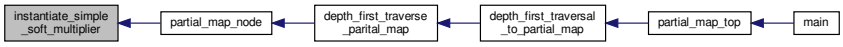


2.26.1.10 instantiate_simple_soft_multiplier()

```
void instantiate_simple_soft_multiplier (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 76 of file multipliers.cpp.

Here is the caller graph for this function:

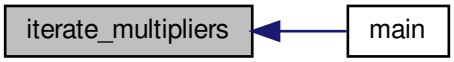


2.26.1.11 iterate_multipliers()

```
void iterate_multipliers (
             netlist_t * netlist )
```

Definition at line 1080 of file multipliers.cpp.

Here is the caller graph for this function:

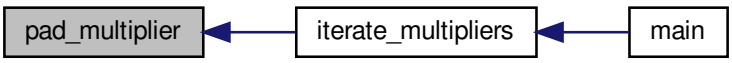


2.26.1.12 pad_multiplier()

```
void pad_multiplier (
             nnode_t * node,
             netlist_t * netlist )
```

Definition at line 964 of file multipliers.cpp.

Here is the caller graph for this function:



2.26.1.13 record_mult_distribution()

```
void record_mult_distribution (
            nnode_t * node )
```

Definition at line 274 of file multipliers.cpp.

Here is the caller graph for this function:

2.26.1.14 report_mult_distribution()

```
void report_mult_distribution ( )
```

Definition at line 291 of file multipliers.cpp.

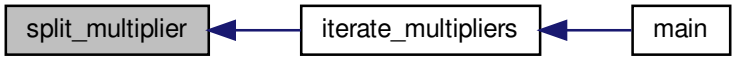
Here is the caller graph for this function:

2.26.1.15 split_multiplier()

```
void split_multiplier (
            nnode_t * node,
            int a0,
            int b0,
            int a1,
            int b1 )
```

Definition at line 715 of file multipliers.cpp.

Here is the caller graph for this function:

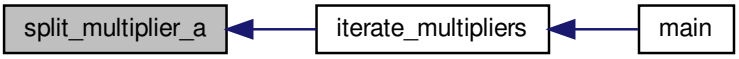


2.26.1.16 split_multiplier_a()

```
void split_multiplier_a (
             nnode_t * node,
             int a0,
             int a1,
             int b )
```

Definition at line 821 of file multipliers.cpp.

Here is the caller graph for this function:

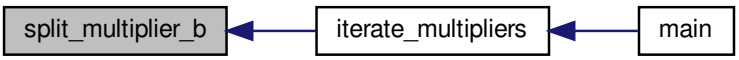


2.26.1.17 split_multiplier_b()

```
void split_multiplier_b (
             nnode_t * node,
             int a,
             int b1,
             int b0 )
```

Definition at line 897 of file multipliers.cpp.

Here is the caller graph for this function:



2.26.2 Variable Documentation

2.26.2.1 hard_multipliers

```
t_model* hard_multipliers = NULL
```

Definition at line 44 of file multipliers.cpp.

2.26.2.2 min_mult

```
int min_mult = 0
```

Definition at line 46 of file multipliers.cpp.

2.26.2.3 mult_list

```
t_linked_vptr* mult_list = NULL
```

Definition at line 45 of file multipliers.cpp.

2.26.2.4 mults

```
int* mults = NULL
```

Definition at line 47 of file multipliers.cpp.

2.27 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/multipliers.h File Reference

```
#include "read_xml_arch_file.h"
```

Data Structures

- struct s_multiplier

Typedefs

- typedef struct s_multiplier t_multiplier

Functions

- void init_mult_distribution ()
- void report_mult_distribution ()
- void declare_hard_multiplier (nnode_t *node)
- void instantiate_hard_multiplier (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_simple_soft_multiplier (nnode_t *node, short mark, netlist_t *netlist)
- void find_hard_multipliers ()
- void add_the_blackbox_for_mults (FILE *out)
- void define_mult_function (nnode_t *node, short type, FILE *out)
- void split_multiplier (nnode_t *node, int a0, int b0, int a1, int b1)
- void iterate_multipliers (netlist_t *netlist)
- void clean_multipliers ()

Variables

- t_model * hard_multipliers
- vtr::t_linked_vptr * mult_list
- int min_mult

2.27.1 Typedef Documentation

2.27.1.1 t_multiplier

```
typedef struct s_multiplier t_multiplier
```

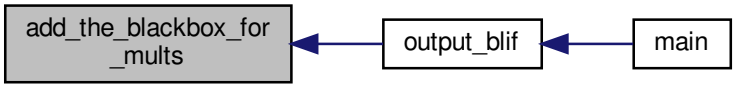
2.27.2 Function Documentation

2.27.2.1 add_the_blackbox_for_mults()

```
void add_the_blackbox_for_mults (
             FILE * out )
```

Definition at line 427 of file multipliers.cpp.

Here is the caller graph for this function:

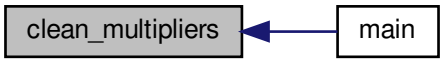


2.27.2.2 clean_multipliers()

```
void clean_multipliers ( )
```

Definition at line 1166 of file multipliers.cpp.

Here is the caller graph for this function:



2.27.2.3 declare_hard_multiplier()

```
void declare_hard_multiplier (
             nnode_t * node )
```

Definition at line 343 of file multipliers.cpp.

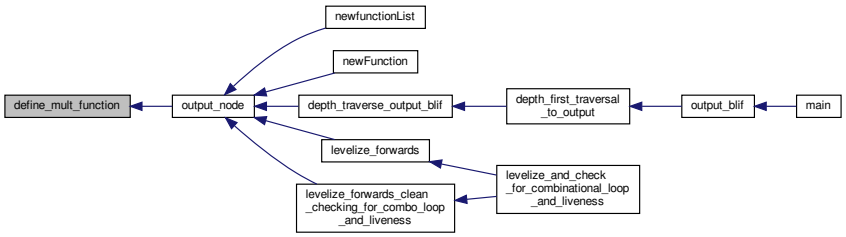
Here is the caller graph for this function:

2.27.2.4 define_mult_function()

```
void define_mult_function (
             nnode_t * node,
             short type,
             FILE * out )
```

Definition at line 508 of file multipliers.cpp.

Here is the caller graph for this function:



2.27.2.5 find_hard_multipliers()

```
void find_hard_multipliers ( )
```

Definition at line 320 of file multipliers.cpp.

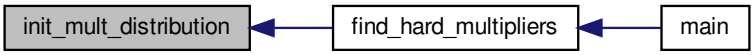
Here is the caller graph for this function:

2.27.2.6 init_mult_distribution()

```
void init_mult_distribution ( )
```

Definition at line 259 of file multipliers.cpp.

Here is the caller graph for this function:

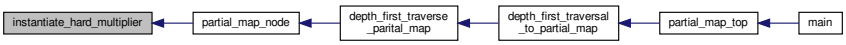


2.27.2.7 instantiate_hard_multiplier()

```
void instantiate_hard_multiplier (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 384 of file multipliers.cpp.

Here is the caller graph for this function:

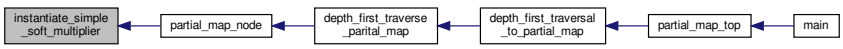


2.27.2.8 instantiate_simple_soft_multiplier()

```
void instantiate_simple_soft_multiplier (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 76 of file multipliers.cpp.

Here is the caller graph for this function:

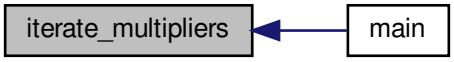


2.27.2.9 iterate_multipliers()

```
void iterate_multipliers (
             netlist_t * netlist )
```

Definition at line 1080 of file multipliers.cpp.

Here is the caller graph for this function:



2.27.2.10 report_mult_distribution()

```
void report_mult_distribution ( )
```

Definition at line 291 of file multipliers.cpp.

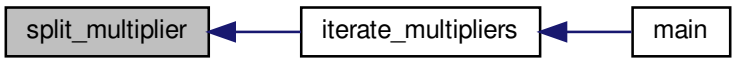
Here is the caller graph for this function:

2.27.2.11 split_multiplier()

```
void split_multiplier (
             nnode_t * node,
             int a0,
             int b0,
             int a1,
             int b1 )
```

Definition at line 715 of file multipliers.cpp.

Here is the caller graph for this function:



2.27.3 Variable Documentation

2.27.3.1 hard_multipliers

```
t_model* hard_multipliers
```

Definition at line 44 of file multipliers.cpp.

2.27.3.2 min_mult

```
int min_mult
```

Definition at line 46 of file multipliers.cpp.

2.27.3.3 mult_list

```
vtr::t_linked_vptr* mult_list
```

Definition at line 45 of file multipliers.cpp.

2.28 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/subtractions.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include "types.h"
#include "node_creation_library.h"
#include "adders.h"
#include "subtractions.h"
#include "netlist_utils.h"
#include "partial_map.h"
#include "read_xml_arch_file.h"
#include "globals.h"
#include "vtr_memory.h"
#include "vtr_util.h"
```

Functions

- void init_split_adder_for_sub (nnode_t *node, nnode_t *ptr, int a, int sizea, int b, int sizeb, int cin, int cout, int index, int flag)
- void report_sub_distribution ()
- void declare_hard_adder_for_sub (nnode_t *node)
- void instantiate_hard_adder_subtraction (nnode_t *node, short mark, netlist_t *)
- void split_adder_for_sub (nnode_t *nodeo, int a, int b, int sizea, int sizeb, int cin, int cout, int count, netlist_t *netlist)
- void iterate_adders_for_sub (netlist_t *netlist)
- void clean_adders_for_sub ()

Variables

- t_linked_vptr * sub_list = NULL
- t_linked_vptr * sub_chain_list = NULL
- int subchaintotal = 0
- int * sub = NULL
- int subtractor_chain_count
- int longest_subtractor_chain
- int total_subtractors

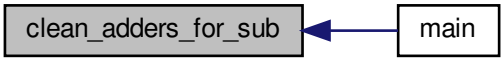
2.28.1 Function Documentation

2.28.1.1 clean_adders_for_sub()

```
void clean_adders_for_sub ( )
```

Definition at line 732 of file subtractions.cpp.

Here is the caller graph for this function:



2.28.1.2 declare_hard_adder_for_sub()

```
void declare_hard_adder_for_sub (
             nnode_t * node )
```

Definition at line 84 of file subtractions.cpp.

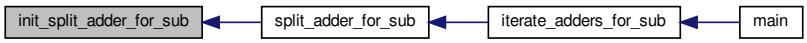
Here is the caller graph for this function:

2.28.1.3 init_split_adder_for_sub()

```
void init_split_adder_for_sub (
             nnode_t * node,
             nnode_t * ptr,
             int a,
             int sizea,
             int b,
             int sizeb,
             int cin,
             int cout,
             int index,
             int flag )
```

Definition at line 164 of file subtractions.cpp.

Here is the caller graph for this function:

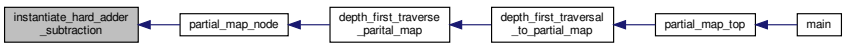


2.28.1.4 instantiate_hard_adder_subtraction()

```
void instantiate_hard_adder_subtraction (
            nnode_t * node,
            short mark,
            netlist_t *  )
```

Definition at line 122 of file subtractions.cpp.

Here is the caller graph for this function:

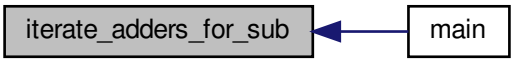


2.28.1.5 iterate_adders_for_sub()

```
void iterate_adders_for_sub (
            netlist_t * netlist )
```

Definition at line 661 of file subtractions.cpp.

Here is the caller graph for this function:



2.28.1.6 report_sub_distribution()

```
void report_sub_distribution ( )
```

Definition at line 59 of file subtractions.cpp.

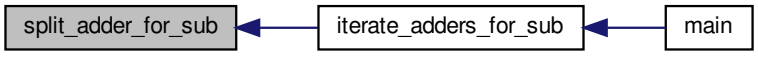
Here is the caller graph for this function:

2.28.1.7 split_adder_for_sub()

```
void split_adder_for_sub (
             nnode_t * nodeo,
             int a,
             int b,
             int sizea,
             int sizeb,
             int cin,
             int cout,
             int count,
             netlist_t * netlist )
```

Definition at line 361 of file subtractions.cpp.

Here is the caller graph for this function:



2.28.2 Variable Documentation

2.28.2.1 longest_subtractor_chain

```
int longest_subtractor_chain
```

Definition at line 185 of file netlist_cleanup.cpp.

2.28.2.2 sub

```
int* sub = NULL
```

Definition at line 46 of file subtractions.cpp.

2.28.2.3 sub_chain_list

```
t_linked_vptr* sub_chain_list = NULL
```

Definition at line 44 of file subtractions.cpp.

2.28.2.4 sub_list

```
t_linked_vptr* sub_list = NULL
```

Definition at line 43 of file subtractions.cpp.

2.28.2.5 subchaintotal

```
int subchaintotal = 0
```

Definition at line 45 of file subtractions.cpp.

2.28.2.6 subtractor_chain_count

```
int subtractor_chain_count
```

Definition at line 184 of file netlist_cleanup.cpp.

2.28.2.7 total_subtractors

```
int total_subtractors
```

Definition at line 186 of file netlist_cleanup.cpp.

2.29 vtr-verilog-to-routing/ODIN_II/SRC/lib_blocks/subtractions.h File Reference

```
#include "read_xml_arch_file.h"
#include "adders.h"
```

Functions

- void init_sub_distribution ()
- void report_sub_distribution ()
- void declare_hard_adder_for_sub (nnode_t *node)
- void instantiate_hard_adder_subtraction (nnode_t *node, short mark, netlist_t *netlist)
- void split_adder_for_sub (nnode_t *node, int a, int b, int sizea, int sizeb, int cin, int cout, int count, netlist_t *netlist)
- void iterate_adders_for_sub (netlist_t *netlist)
- void clean_adders_for_sub ()

Variables

- vtr::t_linked_vptr * sub_list
- vtr::t_linked_vptr * sub_chain_list

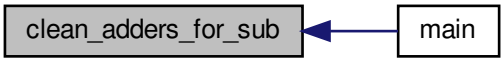
2.29.1 Function Documentation

2.29.1.1 clean_adders_for_sub()

```
void clean_adders_for_sub ( )
```

Definition at line 732 of file subtractions.cpp.

Here is the caller graph for this function:



2.29.1.2 declare_hard_adder_for_sub()

```
void declare_hard_adder_for_sub (
            nnode_t * node )
```

Definition at line 84 of file subtractions.cpp.

Here is the caller graph for this function:

2.29.1.3 init_sub_distribution()

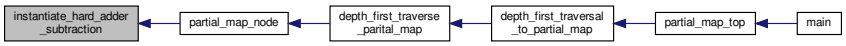
```
void init_sub_distribution ( )
```

2.29.1.4 instantiate_hard_adder_subtraction()

```
void instantiate_hard_adder_subtraction (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 122 of file subtractions.cpp.

Here is the caller graph for this function:

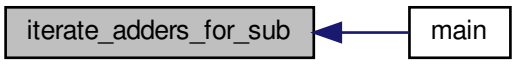


2.29.1.5 iterate_adders_for_sub()

```
void iterate_adders_for_sub (
             netlist_t * netlist )
```

Definition at line 661 of file subtractions.cpp.

Here is the caller graph for this function:



2.29.1.6 report_sub_distribution()

```
void report_sub_distribution ( )
```

Definition at line 59 of file subtractions.cpp.

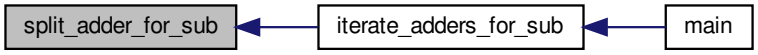
Here is the caller graph for this function:

2.29.1.7 split_adder_for_sub()

```
void split_adder_for_sub (
             nnode_t * node,
             int a,
             int b,
             int sizea,
             int sizeb,
             int cin,
             int cout,
             int count,
             netlist_t * netlist )
```

Definition at line 361 of file subtractions.cpp.

Here is the caller graph for this function:



2.29.2 Variable Documentation

2.29.2.1 sub_chain_list

```
vtr::t_linked_vptr* sub_chain_list
```

Definition at line 44 of file subtractions.cpp.

2.29.2.2 sub_list

```
vtr::t_linked_vptr* sub_list
```

Definition at line 43 of file subtractions.cpp.

2.30 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_check.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "ast_util.h"
#include "string_cache.h"
#include "netlist_check.h"
#include "netlist_visualizer.h"
#include "vtr_memory.h"
```

Functions

- void levelize_backwards (netlist_t *netlist)
- void levelize_backwards_clean_checking_for_liveness (short ast_based, netlist_t *netlist)
- void levelize_forwards (netlist_t *netlist)
- void levelize_forwards_clean_checking_for_combo_loop_and_liveness (short ast_based, netlist_t *netlist)
- nnode_t * find_node_at_top_of_combo_loop (nnode_t *start_node)
- void depth_first_traversal_check_if_forward_leveled (short marker_value, netlist_t *netlist)
- void depth_first_traverse_check_if_forward_leveled (nnode_t *node, int traverse_mark_number)
- void sequential_levelized_dfs (short marker_value, netlist_t *netlist)
- void depth_first_traverse_until_next_ff_or_output (nnode_t *node, nnode_t *calling_node, int traverse_mark_↩ number, int seq_level, netlist_t *netlist)
- void check_netlist (netlist_t *netlist)
- void depth_traverse_check_combinational_loop (nnode_t *node, short start, STRING_CACHE *in_path)
- void levelize_and_check_for_combinational_loop_and_liveness (short ast_based, netlist_t *netlist)

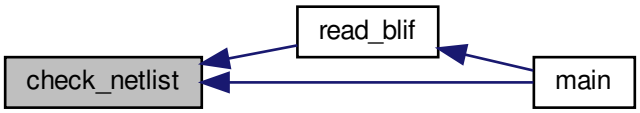
2.30.1 Function Documentation

2.30.1.1 check_netlist()

```
void check_netlist (
            netlist_t * netlist )
```

Definition at line 53 of file netlist_check.cpp.

Here is the caller graph for this function:

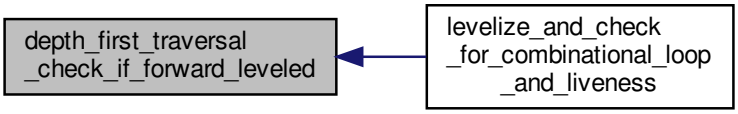


2.30.1.2 depth_first_traversal_check_if_forward_leveled()

```
void depth_first_traversal_check_if_forward_leveled (
             short marker_value,
             netlist_t * netlist )
```

Definition at line 244 of file netlist_check.cpp.

Here is the caller graph for this function:

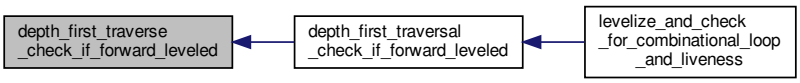


2.30.1.3 depth_first_traverse_check_if_forward_leveled()

```
void depth_first_traverse_check_if_forward_leveled (
             nnode_t * node,
             int traverse_mark_number )
```

Definition at line 266 of file netlist_check.cpp.

Here is the caller graph for this function:

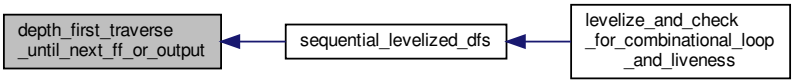


2.30.1.4 depth_first_traverse_until_next_ff_or_output()

```
void depth_first_traverse_until_next_ff_or_output (
            nnode_t * node,
            nnode_t * calling_node,
            int traverse_mark_number,
            int seq_level,
            netlist_t * netlist )
```

Definition at line 166 of file netlist_check.cpp.

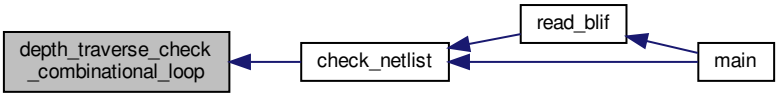
Here is the caller graph for this function:



2.30.1.5 depth_traverse_check_combinational_loop()

```
void depth_traverse_check_combinational_loop (
            nnode_t * node,
            short start,
            STRING_CACHE * in_path )
```

Here is the caller graph for this function:

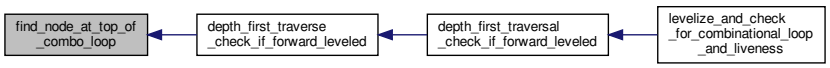


2.30.1.6 find_node_at_top_of_combo_loop()

```
nnode_t * find_node_at_top_of_combo_loop (
             nnode_t * start_node )
```

Definition at line 793 of file netlist_check.cpp.

Here is the caller graph for this function:



2.30.1.7 levelize_and_check_for_combinational_loop_and_liveness()

```
void levelize_and_check_for_combinational_loop_and_liveness (
             short ast_based,
             netlist_t * netlist )
```

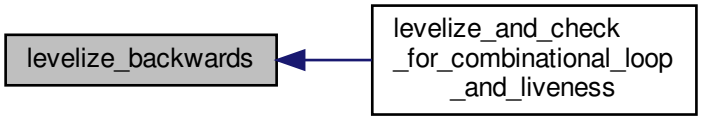
Definition at line 67 of file netlist_check.cpp.

2.30.1.8 levelize_backwards()

```
void levelize_backwards (
             netlist_t * netlist )
```

Definition at line 577 of file netlist_check.cpp.

Here is the caller graph for this function:

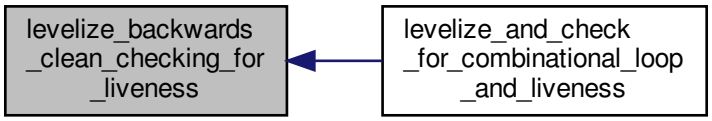


2.30.1.9 levelize_backwards_clean_checking_for_liveness()

```
void levelize_backwards_clean_checking_for_liveness (
             short ast_based,
             netlist_t * netlist )
```

Definition at line 709 of file netlist_check.cpp.

Here is the caller graph for this function:

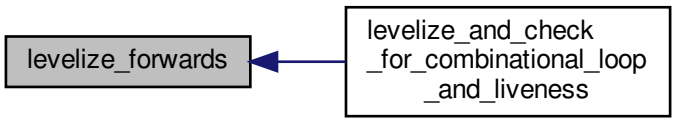


2.30.1.10 levelize_forwards()

```
void levelize_forwards (
             netlist_t * netlist )
```

Definition at line 315 of file netlist_check.cpp.

Here is the caller graph for this function:

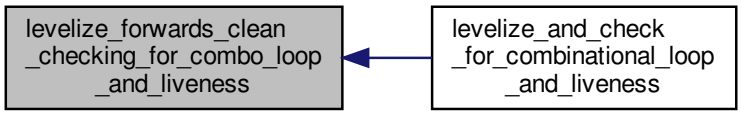


2.30.1.11 levelize_forwards_clean_checking_for_combo_loop_and_liveness()

```
void levelize_forwards_clean_checking_for_combo_loop_and_liveness (
             short ast_based,
             netlist_t * netlist )
```

Definition at line 476 of file netlist_check.cpp.

Here is the caller graph for this function:

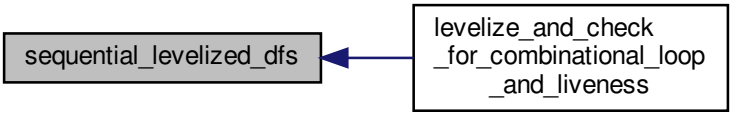


2.30.1.12 sequential_levelized_dfs()

```
void sequential_levelized_dfs (
             short marker_value,
             netlist_t * netlist )
```

Definition at line 90 of file netlist_check.cpp.

Here is the caller graph for this function:



2.31 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_check.h File Reference

Functions

- void check_netlist (netlist_t *netlist)
- void levelize_and_check_for_combinational_loop_and_liveness (short ast_based, netlist_t *netlist)

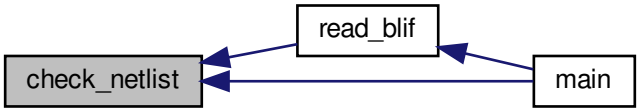
2.31.1 Function Documentation

2.31.1.1 check_netlist()

```
void check_netlist (
            netlist_t * netlist )
```

Definition at line 53 of file netlist_check.cpp.

Here is the caller graph for this function:



2.31.1.2 levelize_and_check_for_combinational_loop_and_liveness()

```
void levelize_and_check_for_combinational_loop_and_liveness (
            short ast_based,
            netlist_t * netlist )
```

Definition at line 67 of file netlist_check.cpp.

2.32 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_cleanup.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "vtr_memory.h"
```

Data Structures

- struct node_list_t_t

Macros

- #define VISITED_FORWARD ((void∗)&_visited_forward)
- #define VISITED_BACKWARD ((void∗)&_visited_backward)
- #define VISITED_REMOVAL ((void∗)&_visited_removal)

Typedefs

- typedef struct node_list_t_t node_list_t

Functions

- node_list_t ∗ insert_node_list (node_list_t ∗node_list, nnode_t ∗node)
- void traverse_backward (nnode_t ∗node)
- void traverse_forward (nnode_t ∗node, int toplevel, int remove_me)
- void mark_output_dependencies (netlist_t ∗netlist)
- void identify_unused_nodes (netlist_t ∗netlist)
- void remove_unused_nodes (node_list_t ∗remove)
- void calculate_addsub_statistics (node_list_t ∗addsub)
- void remove_unused_logic (netlist_t ∗netlist)

Variables

- int _visited_forward
- int _visited_backward
- int _visited_removal
- node_list_t useless_nodes
- node_list_t ∗ removal_list_next = &useless_nodes
- node_list_t addsub_nodes
- node_list_t ∗ addsub_list_next = &addsub_nodes
- int adder_chain_count = 0
- int longest_adder_chain = 0
- int total_adders = 0
- int subtractor_chain_count = 0
- int longest_subtractor_chain = 0
- int total_subtractors = 0
- double geomean_addsub_length = 0.0
- double sum_of_addsub_logs = 0.0
- int total_addsub_chain_count = 0

2.32.1 Macro Definition Documentation

2.32.1.1 VISITED_BACKWARD

```
#define VISITED_BACKWARD ((void*)&_visited_backward)
```

Definition at line 37 of file netlist_cleanup.cpp.

2.32.1.2 VISITED_FORWARD

```
#define VISITED_FORWARD ((void*)&_visited_forward)
```

Definition at line 36 of file netlist_cleanup.cpp.

2.32.1.3 VISITED_REMOVAL

```
#define VISITED_REMOVAL ((void*)&_visited_removal)
```

Definition at line 38 of file netlist_cleanup.cpp.

2.32.2 Typedef Documentation

2.32.2.1 node_list_t

```
typedef struct node_list_t_t node_list_t
```

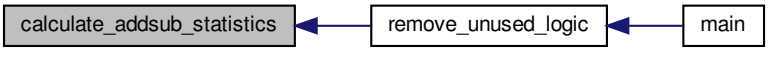
2.32.3 Function Documentation

2.32.3.1 calculate_addsub_statistics()

```
void calculate_addsub_statistics (
            node_list_t * addsub )
```

Definition at line 192 of file netlist_cleanup.cpp.

Here is the caller graph for this function:

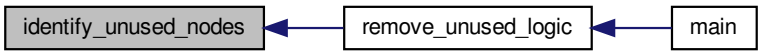


2.32.3.2 identify_unused_nodes()

```
void identify_unused_nodes (
             netlist_t * netlist )
```

Definition at line 146 of file netlist_cleanup.cpp.

Here is the caller graph for this function:

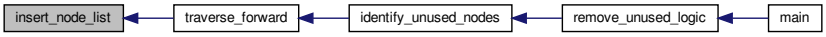


2.32.3.3 insert_node_list()

```
node_list_t * insert_node_list (
             node_list_t * node_list,
             nnode_t * node )
```

Definition at line 67 of file netlist_cleanup.cpp.

Here is the caller graph for this function:

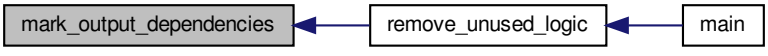


2.32.3.4 mark_output_dependencies()

```
void mark_output_dependencies (
             netlist_t * netlist )
```

Definition at line 137 of file netlist_cleanup.cpp.

Here is the caller graph for this function:



2.32.3.5 remove_unused_logic()

```
void remove_unused_logic (
            netlist_t * netlist )
```

Definition at line 232 of file netlist_cleanup.cpp.

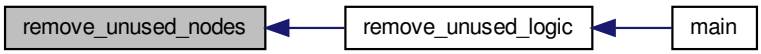
Here is the caller graph for this function:

2.32.3.6 remove_unused_nodes()

```
void remove_unused_nodes (
            node_list_t * remove )
```

Definition at line 165 of file netlist_cleanup.cpp.

Here is the caller graph for this function:

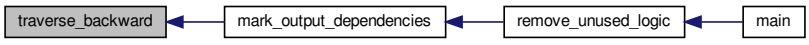


2.32.3.7 traverse_backward()

```
void traverse_backward (
            nnode_t * node )
```

Definition at line 74 of file netlist_cleanup.cpp.

Here is the caller graph for this function:

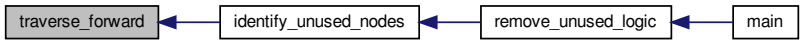


2.32.3.8 traverse_forward()

```
void traverse_forward (
             nnode_t * node,
             int toplevel,
             int remove_me )
```

Definition at line 92 of file netlist_cleanup.cpp.

Here is the caller graph for this function:



2.32.4 Variable Documentation

2.32.4.1 _visited_backward

```
int _visited_backward
```

Definition at line 35 of file netlist_cleanup.cpp.

2.32.4.2 _visited_forward

```
int _visited_forward
```

Definition at line 35 of file netlist_cleanup.cpp.

2.32.4.3 _visited_removal

```
int _visited_removal
```

Definition at line 35 of file netlist_cleanup.cpp.

2.32.4.4 adder_chain_count

```
int adder_chain_count = 0
```

Definition at line 180 of file netlist_cleanup.cpp.

2.32.4.5 addsub_list_next

```
node_list_t* addsub_list_next = &addsub_nodes
```

Definition at line 51 of file netlist_cleanup.cpp.

2.32.4.6 addsub_nodes

```
node_list_t addsub_nodes
```

Definition at line 50 of file netlist_cleanup.cpp.

2.32.4.7 geomean_addsub_length

```
double geomean_addsub_length = 0.0
```

Definition at line 188 of file netlist_cleanup.cpp.

2.32.4.8 longest_adder_chain

```
int longest_adder_chain = 0
```

Definition at line 181 of file netlist_cleanup.cpp.

2.32.4.9 longest_subtractor_chain

```
int longest_subtractor_chain = 0
```

Definition at line 185 of file netlist_cleanup.cpp.

2.32.4.10 removal_list_next

```
node_list_t* removal_list_next = &useless_nodes
```

Definition at line 48 of file netlist_cleanup.cpp.

2.32.4.11 subtractor_chain_count

```
int subtractor_chain_count = 0
```

Definition at line 184 of file netlist_cleanup.cpp.

2.32.4.12 sum_of_addsub_logs

```
double sum_of_addsub_logs = 0.0
```

Definition at line 189 of file netlist_cleanup.cpp.

2.32.4.13 total_adders

```
int total_adders = 0
```

Definition at line 182 of file netlist_cleanup.cpp.

2.32.4.14 total_addsub_chain_count

```
int total_addsub_chain_count = 0
```

Definition at line 190 of file netlist_cleanup.cpp.

2.32.4.15 total_subtractors

```
int total_subtractors = 0
```

Definition at line 186 of file netlist_cleanup.cpp.

2.32.4.16 useless_nodes

```
node_list_t useless_nodes
```

Definition at line 47 of file netlist_cleanup.cpp.

2.33 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_cleanup.h File Reference

Functions

- void remove_unused_logic (netlist_t *netlist)

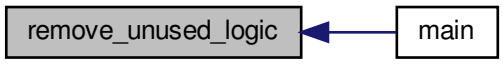
2.33.1 Function Documentation

2.33.1.1 remove_unused_logic()

```
void remove_unused_logic (
            netlist_t * netlist )
```

Definition at line 232 of file netlist_cleanup.cpp.

Here is the caller graph for this function:



2.34 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_create_from_ast.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "ast_util.h"
#include "netlist_create_from_ast.h"
#include "string_cache.h"
```

```
#include "netlist_visualizer.h"
#include "parse_making_ast.h"
#include "node_creation_library.h"
#include "multipliers.h"
#include "hard_blocks.h"
#include "memories.h"
#include "implicit_memory.h"
#include "adders.h"
#include "subtractions.h"
#include "ast_elaborate.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Macros

- #define INSTANTIATE_DRIVERS 1
- #define ALIAS_INPUTS 2
- #define COMBINATIONAL 1
- #define SEQUENTIAL 2

Functions

- void create_param_table_for_module (ast_node_t *parent_parameter_list, ast_node_t *module_items, char *module_name)
- void convert_ast_to_netlist_recursing_via_modules (ast_node_t *current_module, char *instance_name, int level)
- signal_list_t * netlist_expand_ast_of_module (ast_node_t *node, char *instance_name_prefix)
- void create_all_driver_nets_in_this_module (char *instance_name_prefix)
- void create_all_driver_nets_in_this_function (char *instance_name_prefix)
- void create_top_driver_nets (ast_node_t *module, char *instance_name_prefix)
- void create_top_output_nodes (ast_node_t *module, char *instance_name_prefix)
- nnet_t * define_nets_with_driver (ast_node_t *var_declare, char *instance_name_prefix)
- nnet_t * define_nodes_and_nets_with_driver (ast_node_t *var_declare, char *instance_name_prefix)
- void connect_hard_block_and_alias (ast_node_t *module_instance, char *instance_name_prefix, int outport_size)
- void connect_module_instantiation_and_alias (short PASS, ast_node_t *module_instance, char *instance_name_prefix)
- signal_list_t * connect_function_instantiation_and_alias (short PASS, ast_node_t *module_instance, char *instance_name_prefix)
- void create_symbol_table_for_module (ast_node_t *module_items, char *module_name)
- void create_symbol_table_for_function (ast_node_t *module_items, char *module_name)
- int check_for_initial_reg_value (ast_node_t *var_declare, long long *value)
- void define_latchs_initial_value_inside_initial_statement (ast_node_t *initial_node, char *instance_name_prefix)
- signal_list_t * concatenate_signal_lists (signal_list_t **signal_lists, int num_signal_lists)
- signal_list_t * create_gate (ast_node_t *gate, char *instance_name_prefix)
- signal_list_t * create_hard_block (ast_node_t *block, char *instance_name_prefix)
- signal_list_t * create_pins (ast_node_t *var_declare, char *name, char *instance_name_prefix)
- signal_list_t * create_output_pin (ast_node_t *var_declare, char *instance_name_prefix)
- signal_list_t * assignment_alias (ast_node_t *assignment, char *instance_name_prefix)

- signal_list_t * create_operation_node (ast_node_t *op, signal_list_t **input_lists, int list_size, char *instance_↩ name_prefix)
- void terminate_continuous_assignment (ast_node_t *node, signal_list_t *assignment, char *instance_name_↩ prefix)
- void terminate_registered_assignment (ast_node_t *always_node, signal_list_t *assignment, signal_list_↩ t *potential_clocks, char *instance_name_prefix)
- signal_list_t * create_case (ast_node_t *case_ast, char *instance_name_prefix)
- void create_case_control_signals (ast_node_t *case_list_of_items, ast_node_t *compare_against, nnode_↩ t *case_node, char *instance_name_prefix)
- signal_list_t * create_case_mux_statements (ast_node_t *case_list_of_items, nnode_t *case_node, char *instance_name_prefix)
- signal_list_t * create_if (ast_node_t *if_ast, char *instance_name_prefix)
- void create_if_control_signals (ast_node_t *if_expression, nnode_t *if_node, char *instance_name_prefix)
- signal_list_t * create_if_mux_statements (ast_node_t *if_ast, nnode_t *if_node, char *instance_name_prefix)
- signal_list_t * create_if_for_question (ast_node_t *if_ast, char *instance_name_prefix)
- signal_list_t * create_if_question_mux_expressions (ast_node_t *if_ast, nnode_t *if_node, char *instance_↩ name_prefix)
- signal_list_t * create_mux_statements (signal_list_t **statement_lists, nnode_t *case_node, int num_↩ statement_lists, char *instance_name_prefix)
- signal_list_t * create_mux_expressions (signal_list_t **expression_lists, nnode_t *mux_node, int num_↩ expression_lists, char *instance_name_prefix)
- signal_list_t * evaluate_sensitivity_list (ast_node_t *delay_control, char *instance_name_prefix)
- int alias_output_assign_pins_to_inputs (char_list_t *output_list, signal_list_t *input_list, ast_node_t *node)
- int find_smallest_non_numerical (ast_node_t *node, signal_list_t **input_list, int num_input_lists)
- void pad_with_zeros (ast_node_t *node, signal_list_t *list, int pad_size, char *instance_name_prefix)
- signal_list_t * create_dual_port_ram_block (ast_node_t *block, char *instance_name_prefix, t_model *hb_↩ model)
- signal_list_t * create_single_port_ram_block (ast_node_t *block, char *instance_name_prefix, t_model *hb_↩ model)
- signal_list_t * create_soft_single_port_ram_block (ast_node_t *block, char *instance_name_prefix)
- signal_list_t * create_soft_dual_port_ram_block (ast_node_t *block, char *instance_name_prefix)
- void look_for_clocks (netlist_t *netlist)
- void create_netlist ()
- ast_node_t * find_top_module ()
- void connect_memory_and_alias (ast_node_t *hb_instance, char *instance_name_prefix)

Variables

- STRING_CACHE * output_nets_sc
- STRING_CACHE * input_nets_sc
- STRING_CACHE * local_symbol_table_sc
- STRING_CACHE * function_local_symbol_table_sc
- STRING_CACHE * global_param_table_sc
- ast_node_t ** local_symbol_table
- ast_node_t ** function_local_symbol_table
- int num_local_symbol_table
- int function_num_local_symbol_table
- signal_list_t * local_clock_list
- short local_clock_found
- int local_clock_idx

- char * one_string
- char * zero_string
- char * pad_string
- ast_node_t * top_module
- netlist_t * verilog_netlist
- int netlist_create_line_number = -2
- int type_of_circuit

2.34.1 Macro Definition Documentation

2.34.1.1 ALIAS_INPUTS

```
#define ALIAS_INPUTS 2
```

Definition at line 55 of file netlist_create_from_ast.cpp.

2.34.1.2 COMBINATIONAL

```
#define COMBINATIONAL 1
```

Definition at line 57 of file netlist_create_from_ast.cpp.

2.34.1.3 INSTANTIATE_DRIVERS

```
#define INSTANTIATE_DRIVERS 1
```

Definition at line 54 of file netlist_create_from_ast.cpp.

2.34.1.4 SEQUENTIAL

```
#define SEQUENTIAL 2
```

Definition at line 58 of file netlist_create_from_ast.cpp.

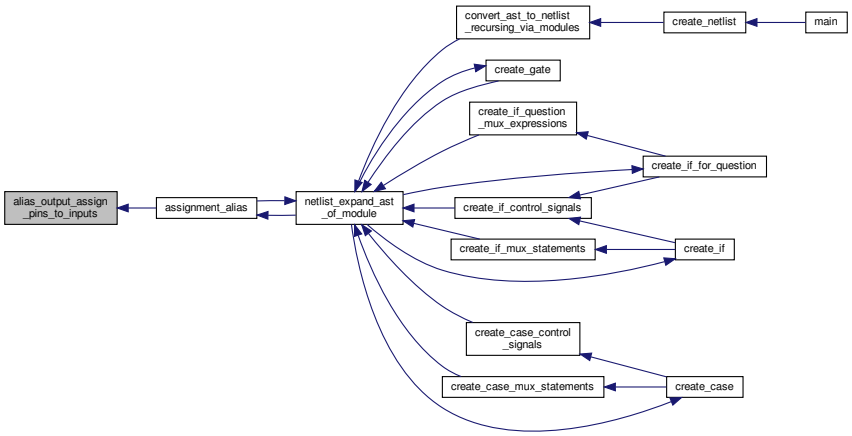
2.34.2 Function Documentation

2.34.2.1 alias_output_assign_pins_to_inputs()

```
int alias_output_assign_pins_to_inputs (
            char_list_t * output_list,
            signal_list_t * input_list,
            ast_node_t * node )
```

Definition at line 3484 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

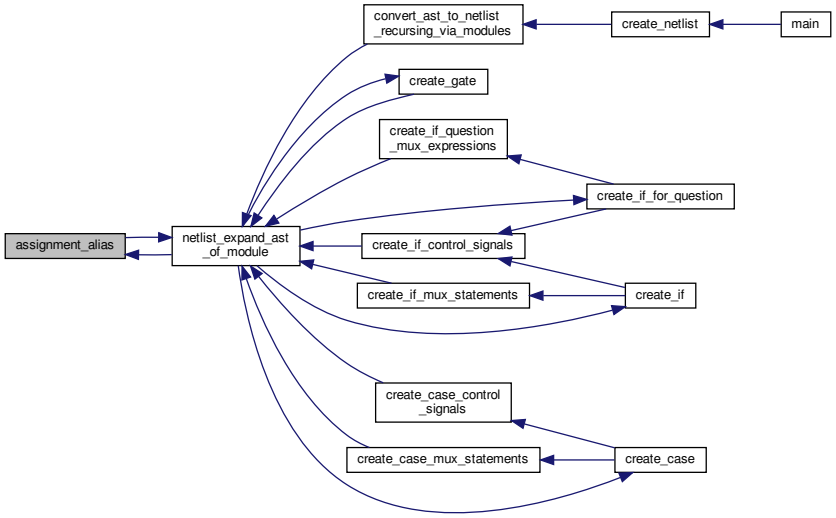


2.34.2.2 assignment_alias()

```
signal_list_t * assignment_alias (
            ast_node_t * assignment,
            char * instance_name_prefix )
```

Definition at line 2880 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

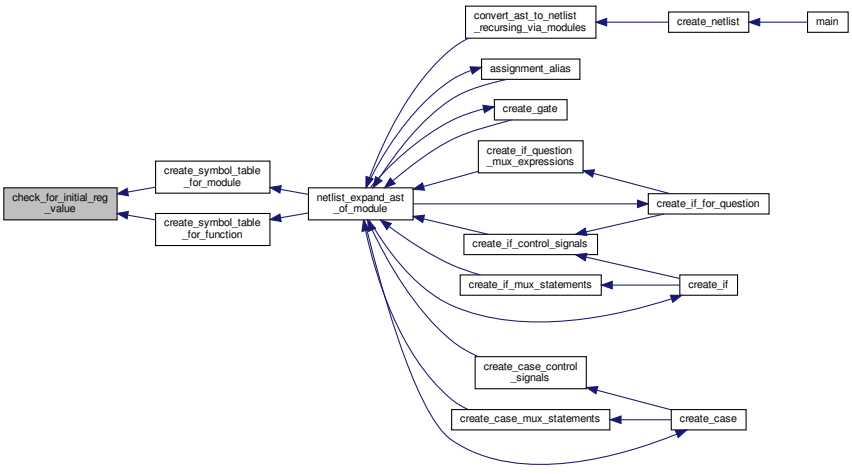


2.34.2.3 check_for_initial_reg_value()

```
int check_for_initial_reg_value (
            ast_node_t * var_declare,
            long long * value )
```

Definition at line 1817 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

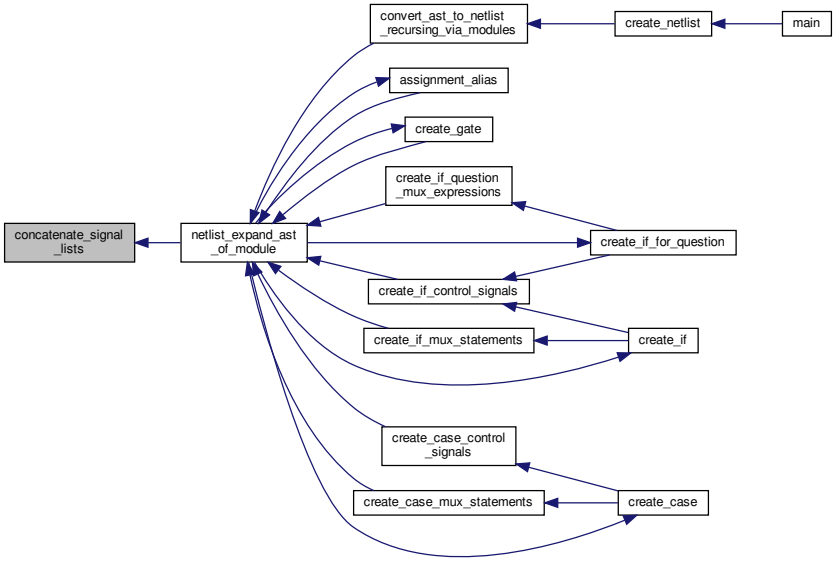


2.34.2.4 concatenate_signal_lists()

```
signal_list_t * concatenate_signal_lists (
            signal_list_t ** signal_lists,
            int num_signal_lists )
```

Definition at line 976 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

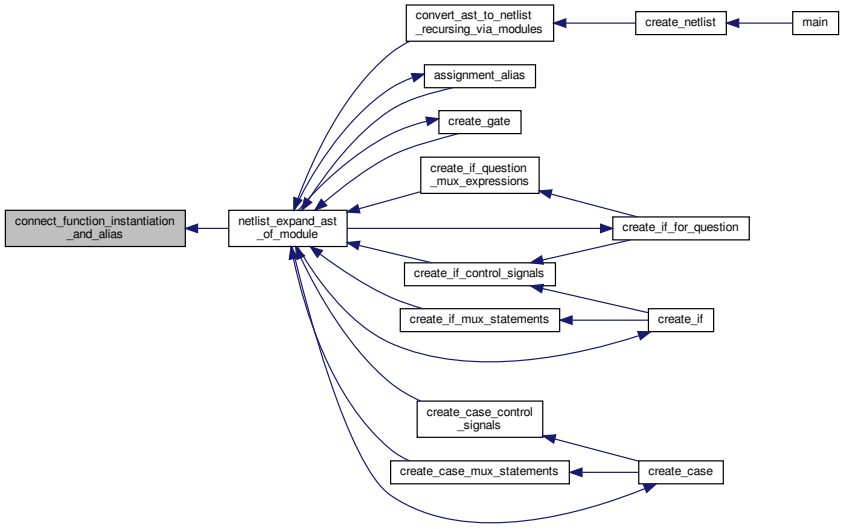


2.34.2.5 connect_function_instantiation_and_alias()

```
signal_list_t * connect_function_instantiation_and_alias (
            short PASS,
            ast_node_t * module_instance,
            char * instance_name_prefix )
```

Definition at line 2423 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

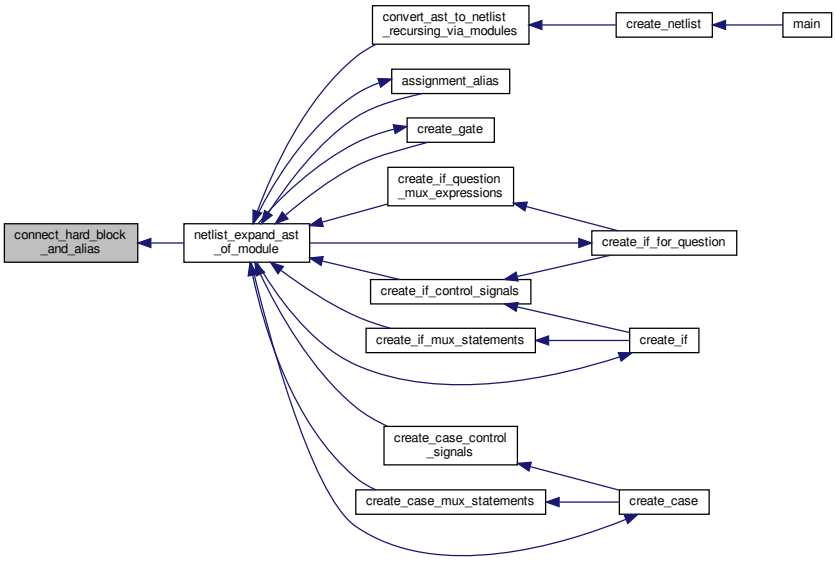


2.34.2.6 connect_hard_block_and_alias()

```
void connect_hard_block_and_alias (
            ast_node_t * module_instance,
            char * instance_name_prefix,
            int outport_size )
```

Definition at line 1974 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

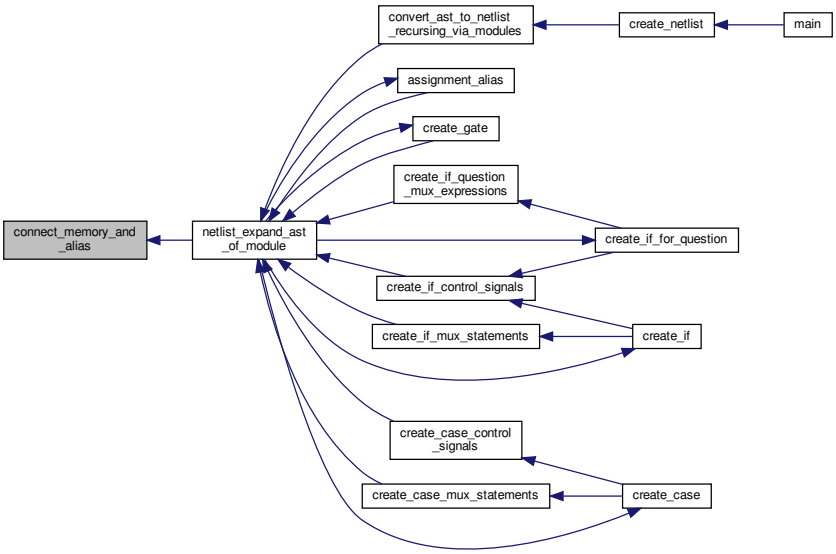


2.34.2.7 connect_memory_and_alias()

```
void connect_memory_and_alias (
            ast_node_t * hb_instance,
            char * instance_name_prefix )
```

Definition at line 1836 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

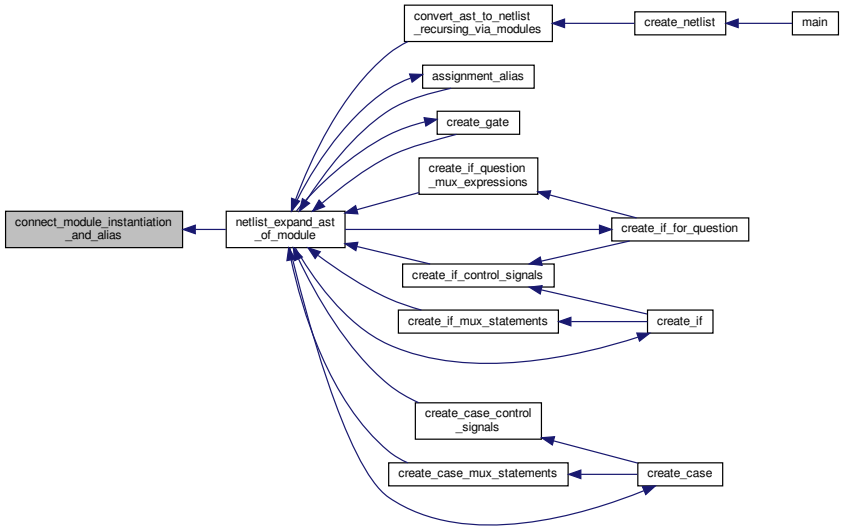


2.34.2.8 connect_module_instantiation_and_alias()

```
void connect_module_instantiation_and_alias (
            short PASS,
            ast_node_t * module_instance,
            char * instance_name_prefix )
```

Definition at line 2127 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

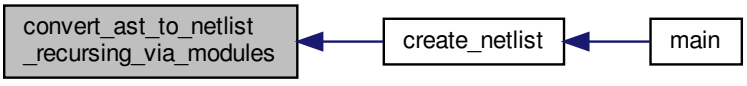


2.34.2.9 convert_ast_to_netlist_recursing_via_modules()

```
void convert_ast_to_netlist_recursing_via_modules (
            ast_node_t * current_module,
            char * instance_name,
            int level )
```

Definition at line 481 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

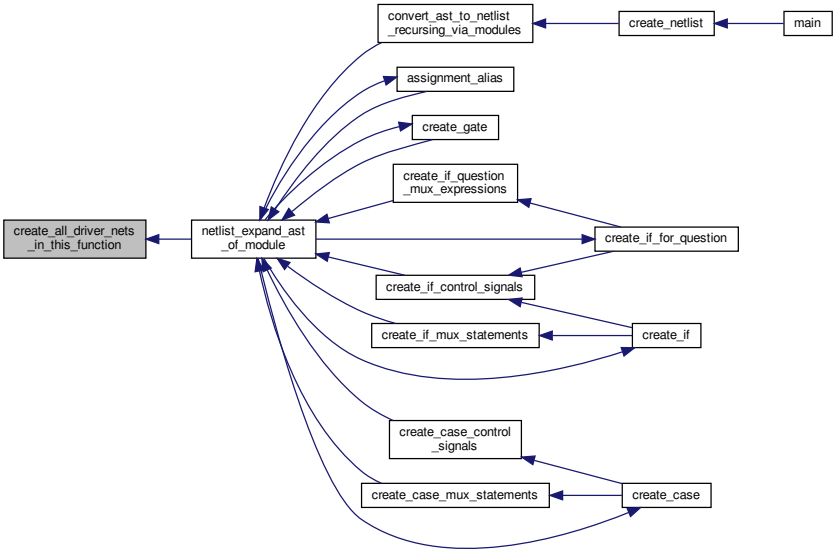


2.34.2.10 create_all_driver_nets_in_this_function()

```
void create_all_driver_nets_in_this_function (
            char * instance_name_prefix )
```

Definition at line 1043 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

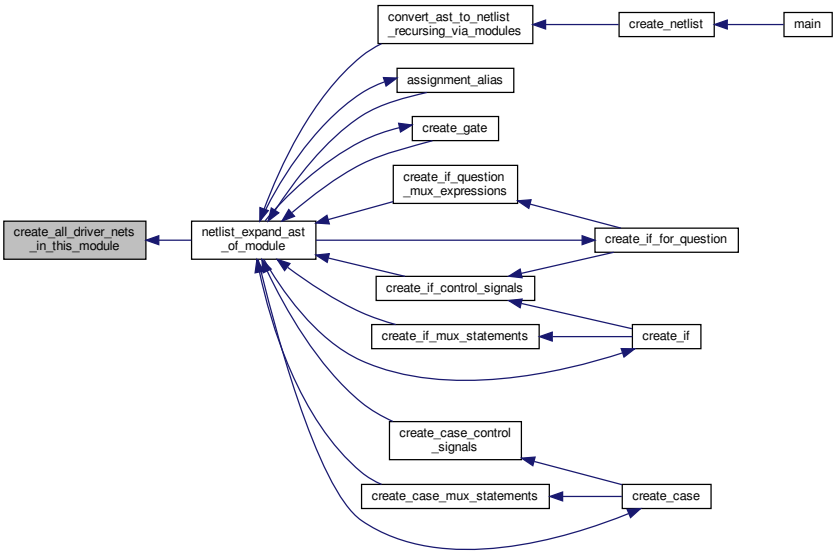


2.34.2.11 create_all_driver_nets_in_this_module()

```
void create_all_driver_nets_in_this_module (
            char * instance_name_prefix )
```

Definition at line 1005 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

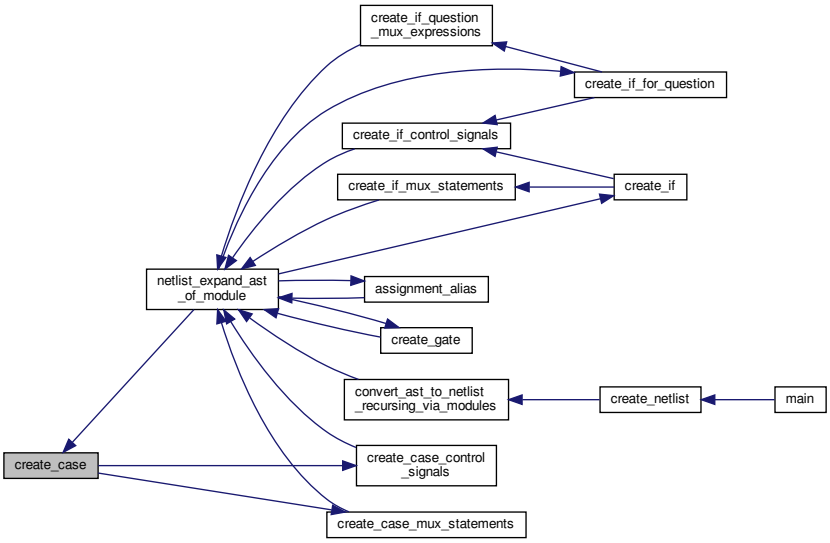


2.34.2.12 create_case()

```
signal_list_t * create_case (
            ast_node_t * case_ast,
            char * instance_name_prefix )
```

Definition at line 4093 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

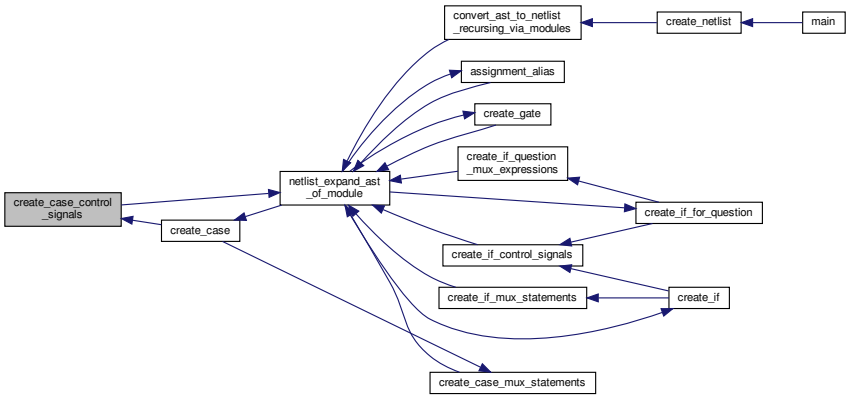


2.34.2.13 create_case_control_signals()

```
void create_case_control_signals (
            ast_node_t * case_list_of_items,
            ast_node_t * compare_against,
            nnode_t * case_node,
            char * instance_name_prefix )
```

Definition at line 4125 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

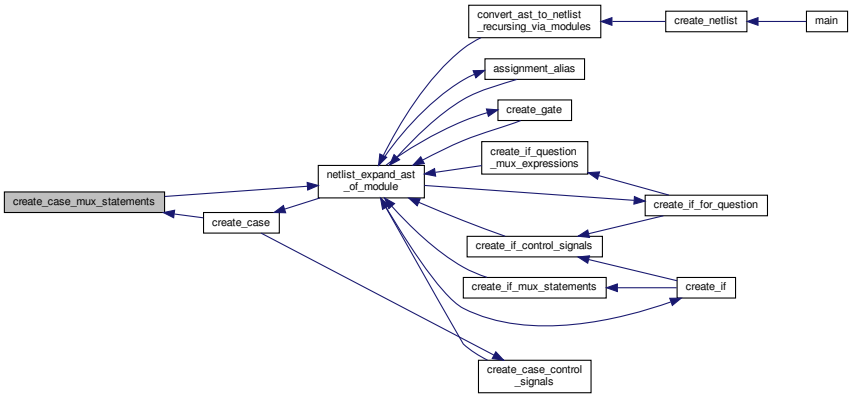


2.34.2.14 create_case_mux_statements()

```
signal_list_t * create_case_mux_statements (
             ast_node_t * case_list_of_items,
             nnode_t * case_node,
             char * instance_name_prefix )
```

Definition at line 4193 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

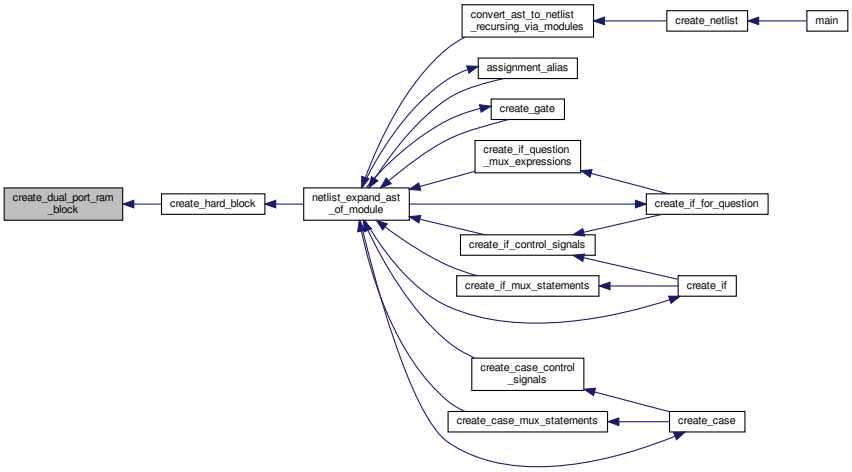


2.34.2.15 create_dual_port_ram_block()

```
signal_list_t * create_dual_port_ram_block (
             ast_node_t * block,
             char * instance_name_prefix,
             t_model * hb_model )
```

Definition at line 4511 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

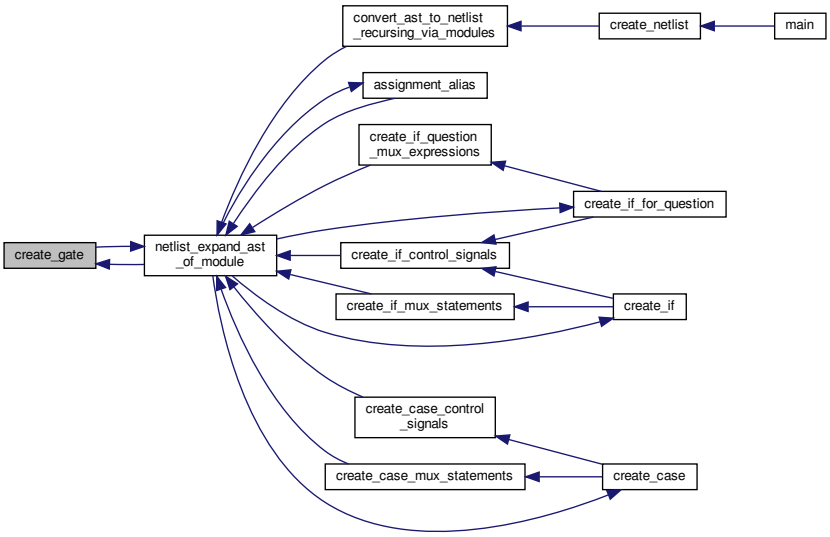


2.34.2.16 create_gate()

```
signal_list_t * create_gate (
            ast_node_t * gate,
            char * instance_name_prefix )
```

Definition at line 3514 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

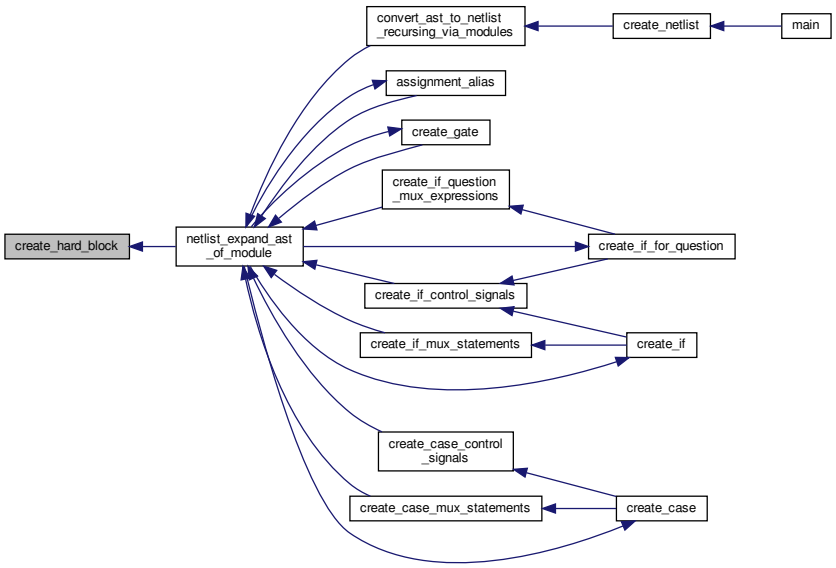


2.34.2.17 create_hard_block()

```
signal_list_t * create_hard_block (
            ast_node_t * block,
            char * instance_name_prefix )
```

Definition at line 5182 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

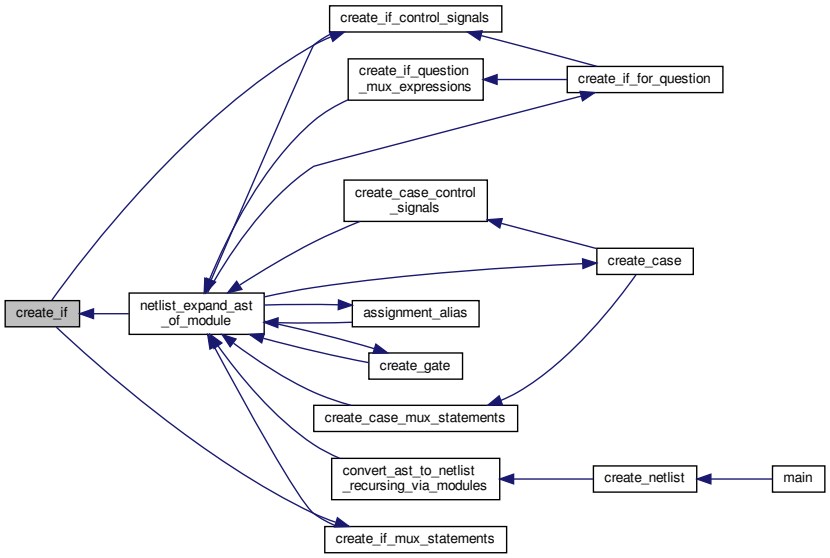


2.34.2.18 create_if()

```
signal_list_t * create_if (
            ast_node_t * if_ast,
            char * instance_name_prefix )
```

Definition at line 3975 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

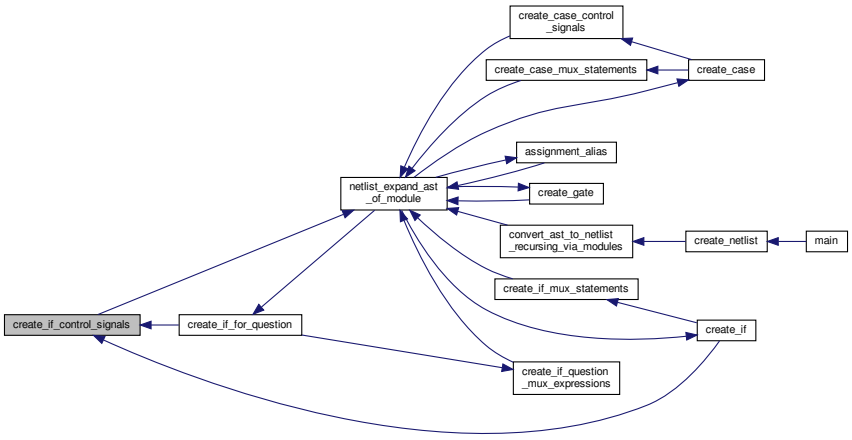


2.34.2.19 create_if_control_signals()

```
void create_if_control_signals (
            ast_node_t * if_expression,
            nnode_t * if_node,
            char * instance_name_prefix )
```

Definition at line 3999 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

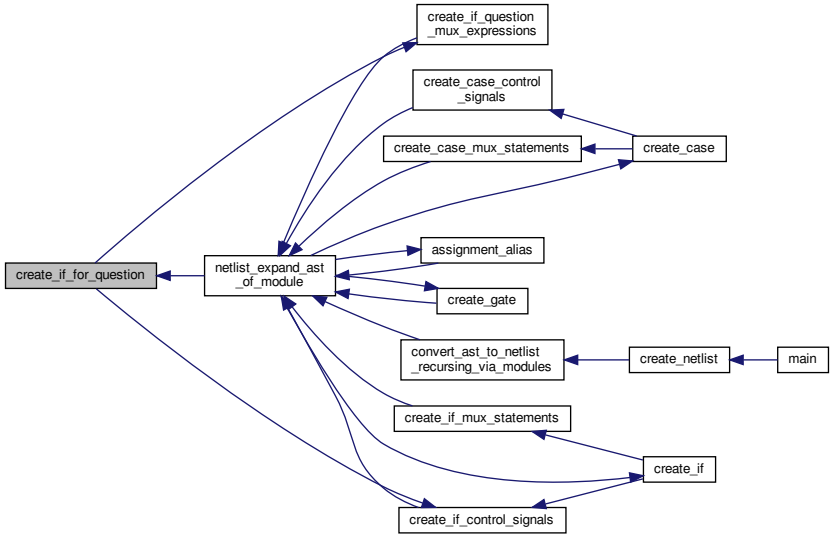


2.34.2.20 create_if_for_question()

```
signal_list_t * create_if_for_question (
            ast_node_t * if_ast,
            char * instance_name_prefix )
```

Definition at line 3919 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

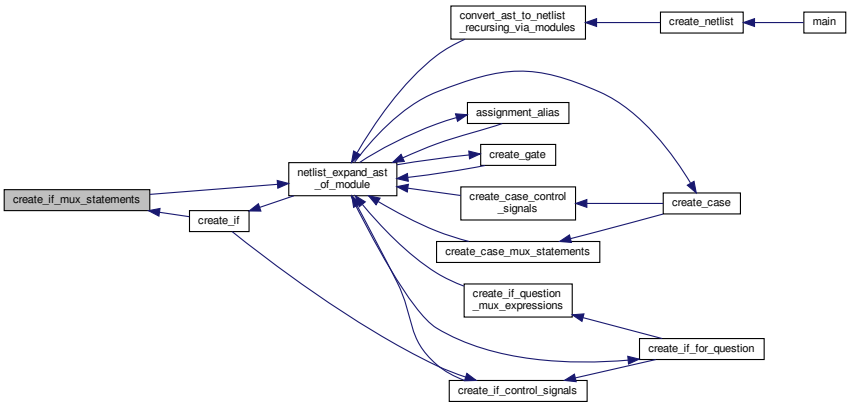


2.34.2.21 create_if_mux_statements()

```
signal_list_t * create_if_mux_statements (
            ast_node_t * if_ast,
            nnode_t * if_node,
            char * instance_name_prefix )
```

Definition at line 4059 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

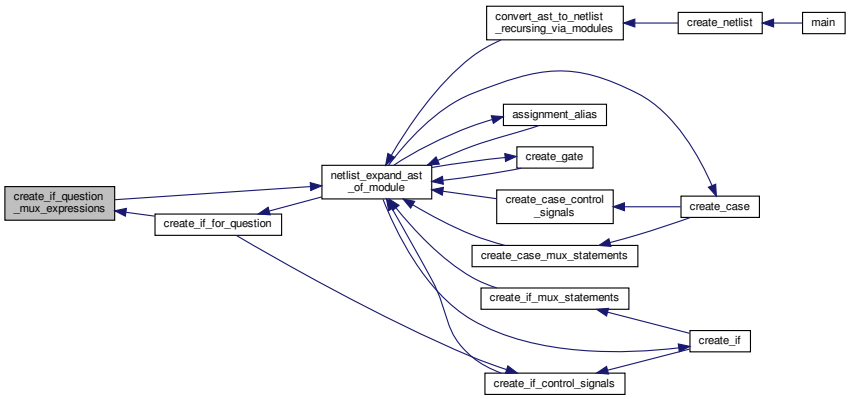


2.34.2.22 create_if_question_mux_expressions()

```
signal_list_t * create_if_question_mux_expressions (
            ast_node_t * if_ast,
            nnode_t * if_node,
            char * instance_name_prefix )
```

Definition at line 3943 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

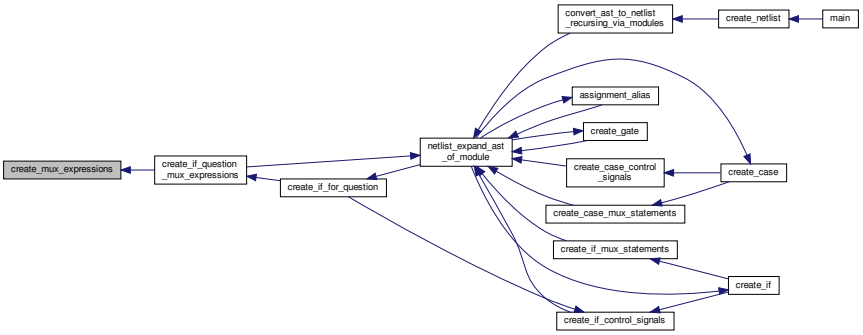


2.34.2.23 create_mux_expressions()

```
signal_list_t * create_mux_expressions (
             signal_list_t ** expression_lists,
             nnode_t * mux_node,
             int num_expression_lists,
             char * instance_name_prefix )
```

Definition at line 4346 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

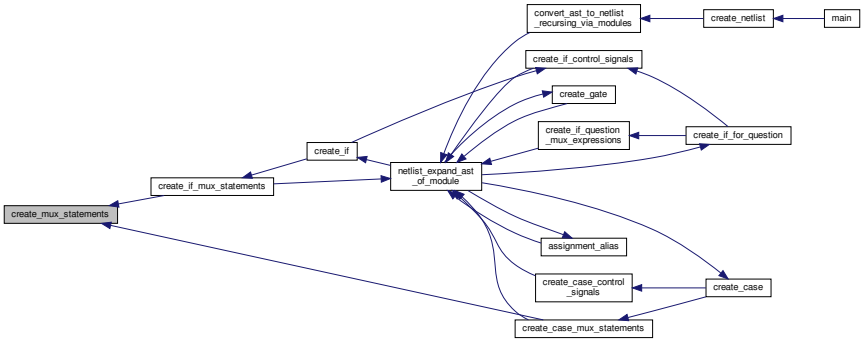


2.34.2.24 create_mux_statements()

```
signal_list_t * create_mux_statements (
             signal_list_t ** statement_lists,
             nnode_t * case_node,
             int num_statement_lists,
             char * instance_name_prefix )
```

Definition at line 4232 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

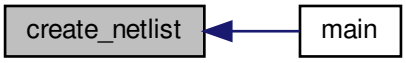


2.34.2.25 create_netlist()

```
void create_netlist ( )
```

Definition at line 319 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

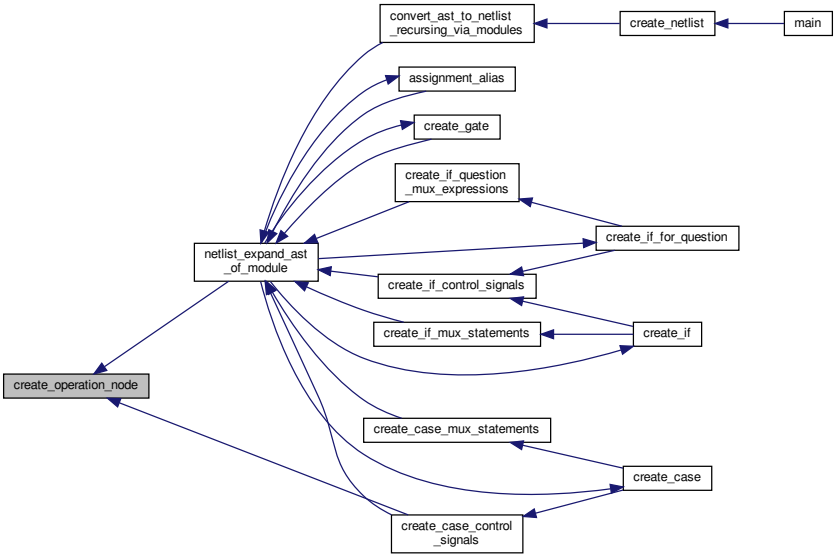


2.34.2.26 create_operation_node()

```
signal_list_t * create_operation_node (
            ast_node_t * op,
            signal_list_t ** input_lists,
            int list_size,
            char * instance_name_prefix )
```

Definition at line 3623 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

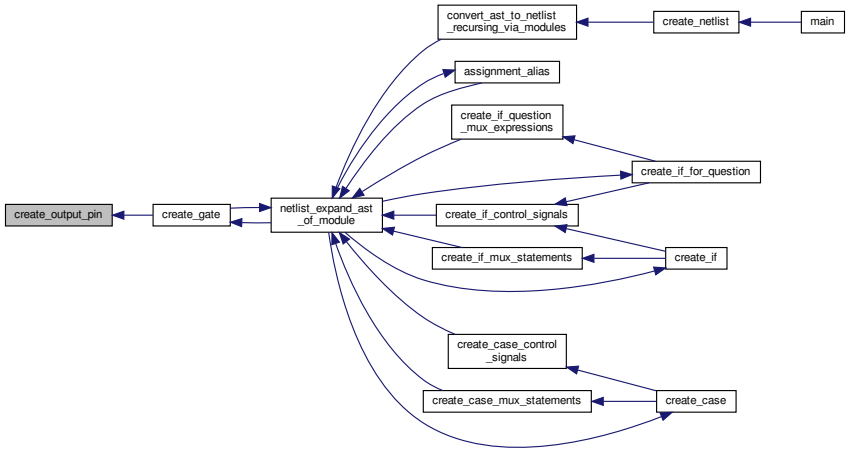


2.34.2.27 create_output_pin()

```
signal_list_t * create_output_pin (
            ast_node_t * var_declare,
            char * instance_name_prefix )
```

Definition at line 2857 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:



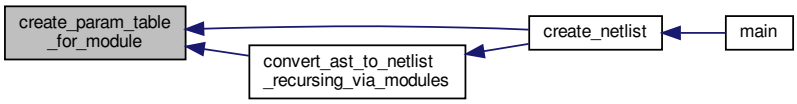
2.34.2.28 create_param_table_for_module()

```
void create_param_table_for_module (
            ast_node_t * parent_parameter_list,
            ast_node_t * module_items,
            char * module_name )
```

Scan through all VAR_DECLARE_LISTs in MODULE_ITEMS and create a hash table for all parameters in this instantiation, taking into account if they are being overridden by their parent

Definition at line 155 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

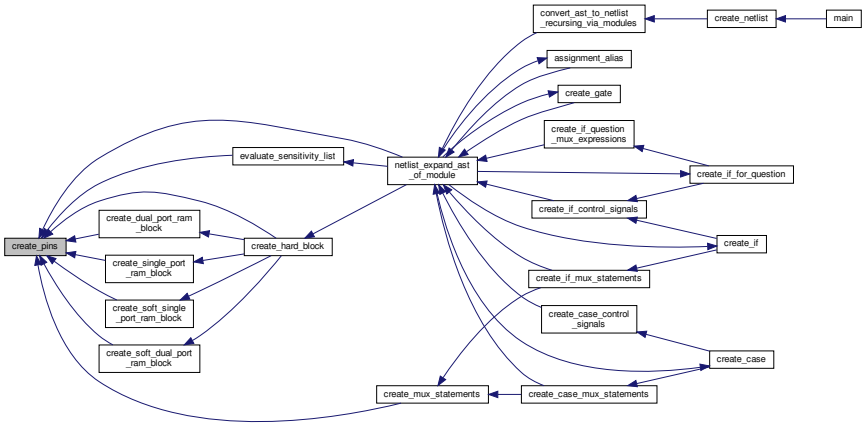


2.34.2.29 create_pins()

```
signal_list_t * create_pins (
             ast_node_t * var_declare,
             char * name,
             char * instance_name_prefix )
```

Definition at line 2758 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

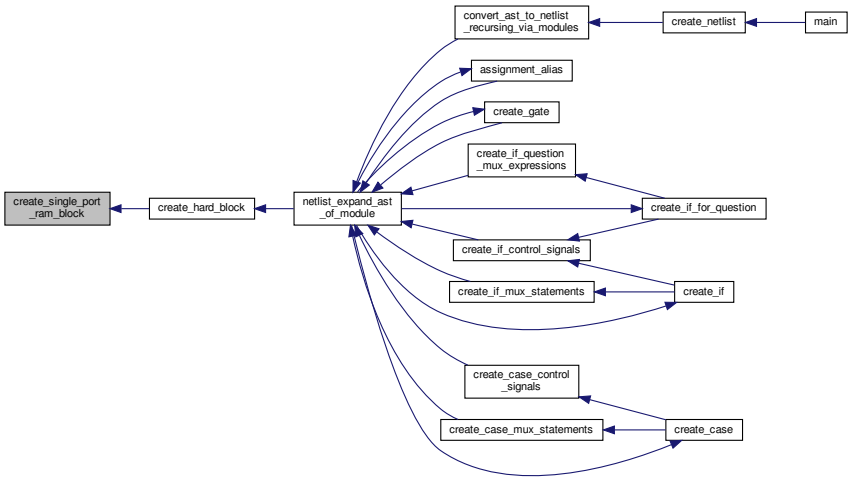


2.34.2.30 create_single_port_ram_block()

```
signal_list_t * create_single_port_ram_block (
             ast_node_t * block,
             char * instance_name_prefix,
             t_model * hb_model )
```

Definition at line 4686 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

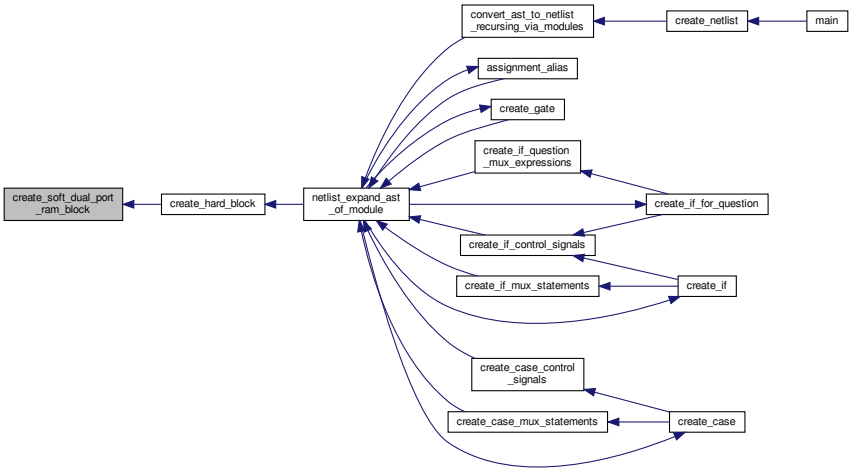


2.34.2.31 create_soft_dual_port_ram_block()

```
signal_list_t * create_soft_dual_port_ram_block (
            ast_node_t * block,
            char * instance_name_prefix )
```

Definition at line 5024 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

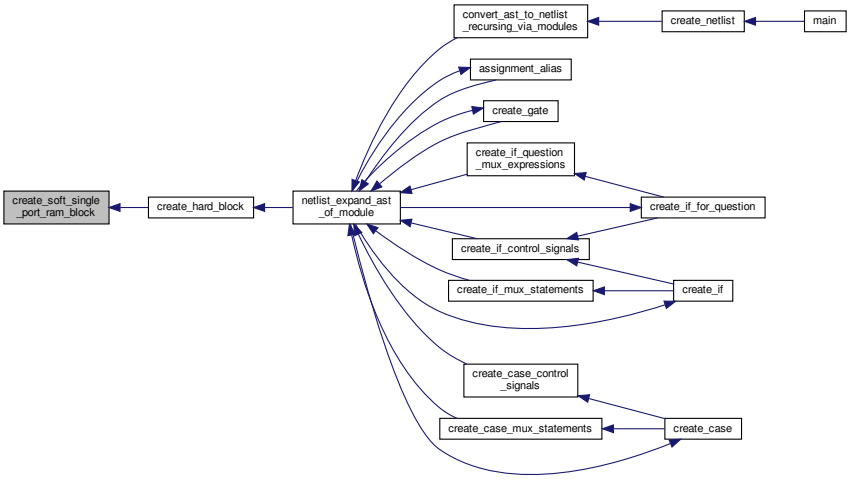


2.34.2.32 create_soft_single_port_ram_block()

```
signal_list_t * create_soft_single_port_ram_block (
            ast_node_t * block,
            char * instance_name_prefix )
```

Definition at line 4874 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

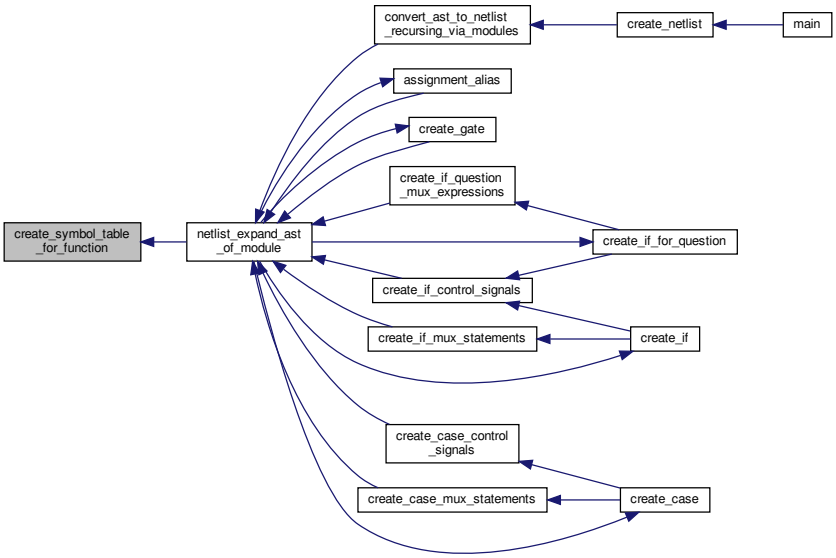


2.34.2.33 create_symbol_table_for_function()

```
void create_symbol_table_for_function (
            ast_node_t * module_items,
            char * module_name )
```

Definition at line 1699 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

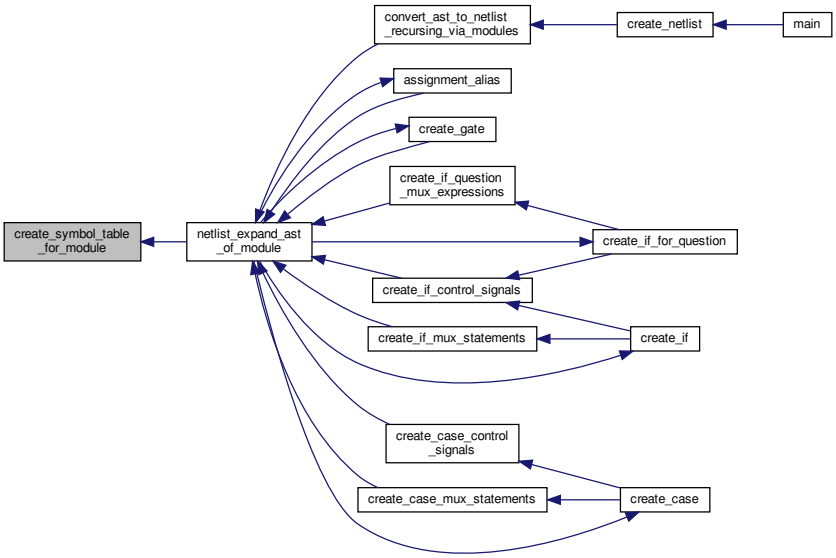


2.34.2.34 create_symbol_table_for_module()

```
void create_symbol_table_for_module (
            ast_node_t * module_items,
            char * module_name )
```

Definition at line 1550 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

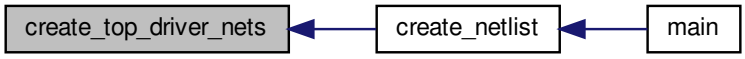


2.34.2.35 create_top_driver_nets()

```
void create_top_driver_nets (
             ast_node_t * module,
             char * instance_name_prefix )
```

Definition at line 1081 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

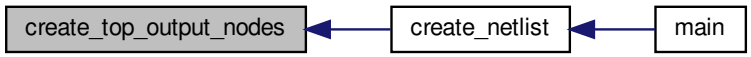


2.34.2.36 create_top_output_nodes()

```
void create_top_output_nodes (
            ast_node_t * module,
            char * instance_name_prefix )
```

Definition at line 1191 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

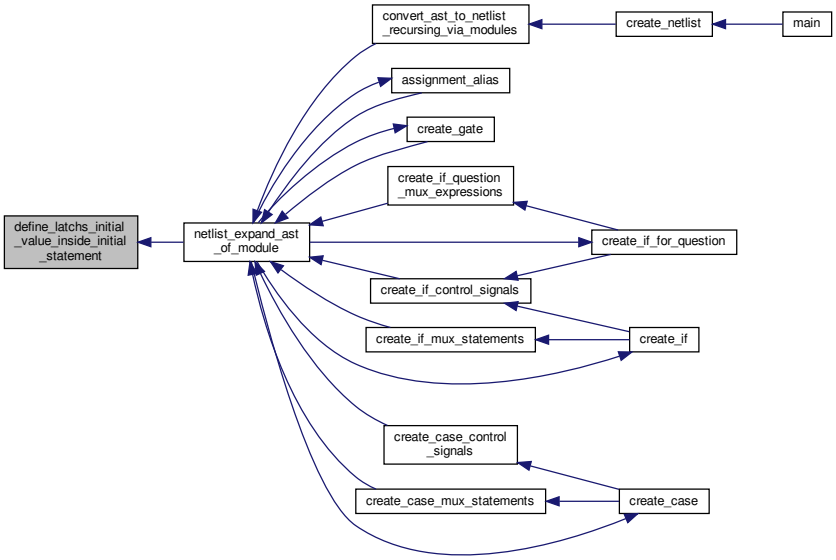


2.34.2.37 define_latchs_initial_value_inside_initial_statement()

```
void define_latchs_initial_value_inside_initial_statement (
            ast_node_t * initial_node,
            char * instance_name_prefix )
```

Definition at line 3149 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

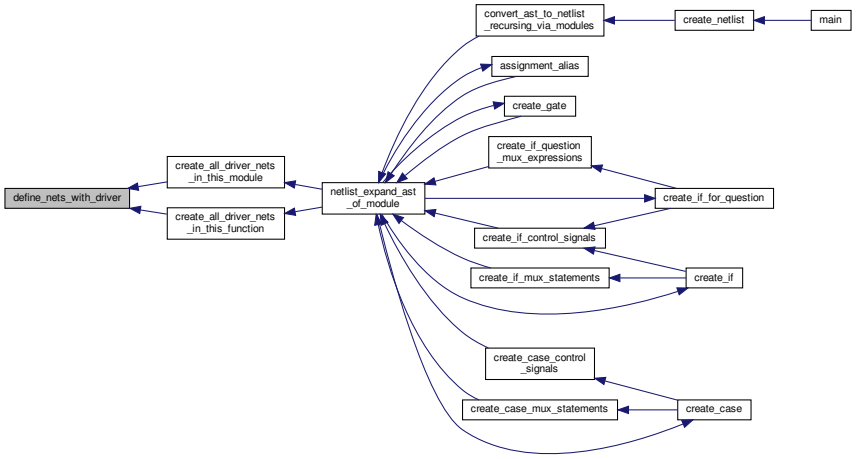


2.34.2.38 define_nets_with_driver()

```
nnet_t * define_nets_with_driver (
             ast_node_t * var_declare,
             char * instance_name_prefix )
```

Definition at line 1313 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

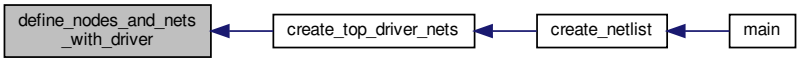


2.34.2.39 define_nodes_and_nets_with_driver()

```
nnet_t * define_nodes_and_nets_with_driver (
             ast_node_t * var_declare,
             char * instance_name_prefix )
```

Definition at line 1440 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

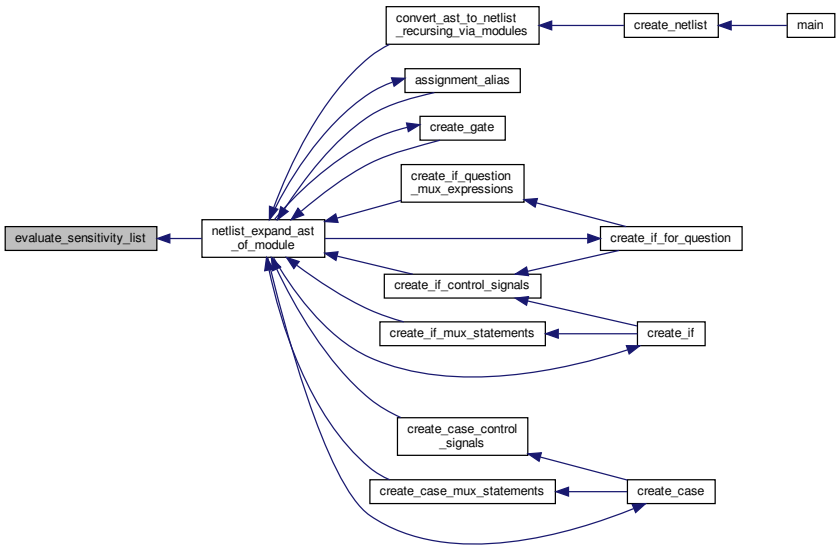


2.34.2.40 evaluate_sensitivity_list()

```
signal_list_t * evaluate_sensitivity_list (
            ast_node_t * delay_control,
            char * instance_name_prefix )
```

Definition at line 3852 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

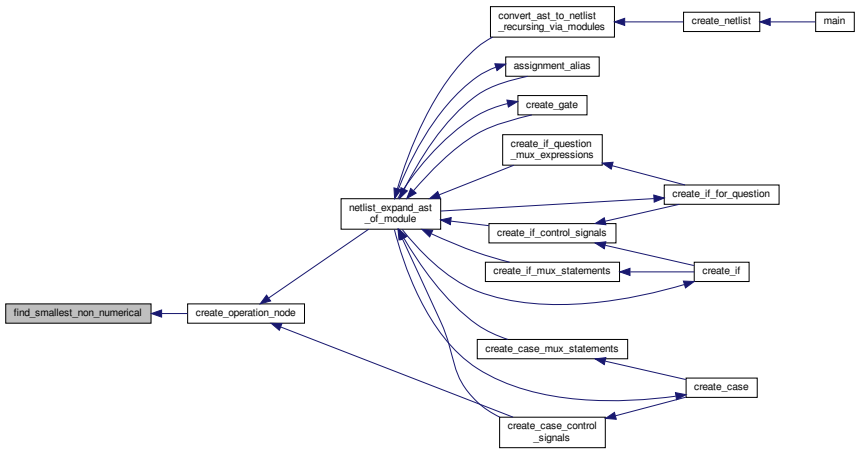


2.34.2.41 find_smallest_non_numerical()

```
int find_smallest_non_numerical (
            ast_node_t * node,
            signal_list_t ** input_list,
            int num_input_lists )
```

Definition at line 4421 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

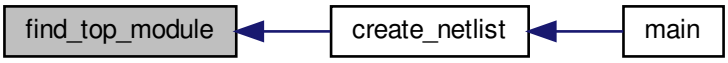


2.34.2.42 find_top_module()

```
ast_node_t* find_top_module ( )
```

Definition at line 419 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

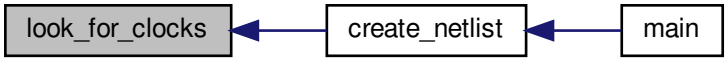


2.34.2.43 look_for_clocks()

```
void look_for_clocks (
             netlist_t * netlist )
```

Definition at line 401 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

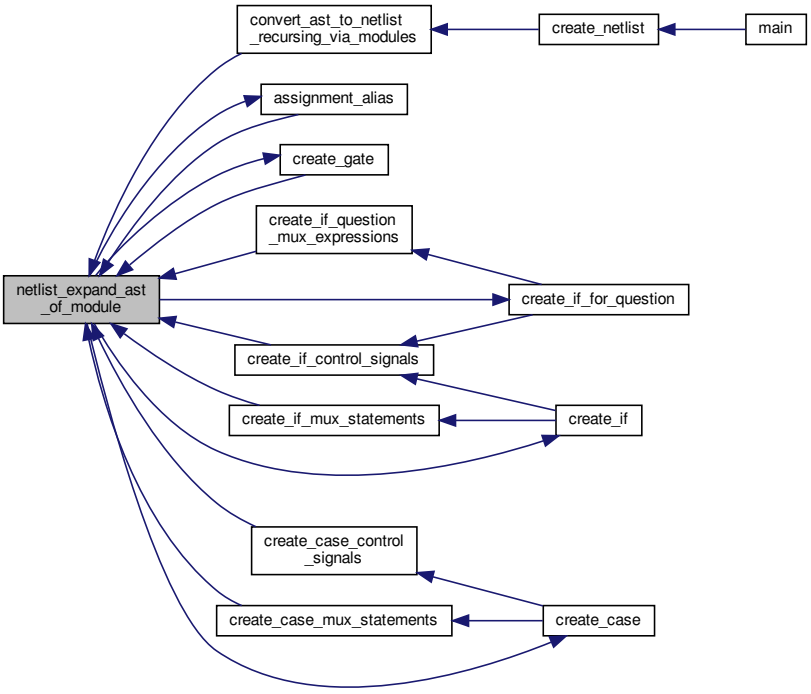


2.34.2.44 netlist_expand_ast_of_module()

```
signal_list_t * netlist_expand_ast_of_module (
            ast_node_t * node,
            char * instance_name_prefix )
```

Definition at line 618 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

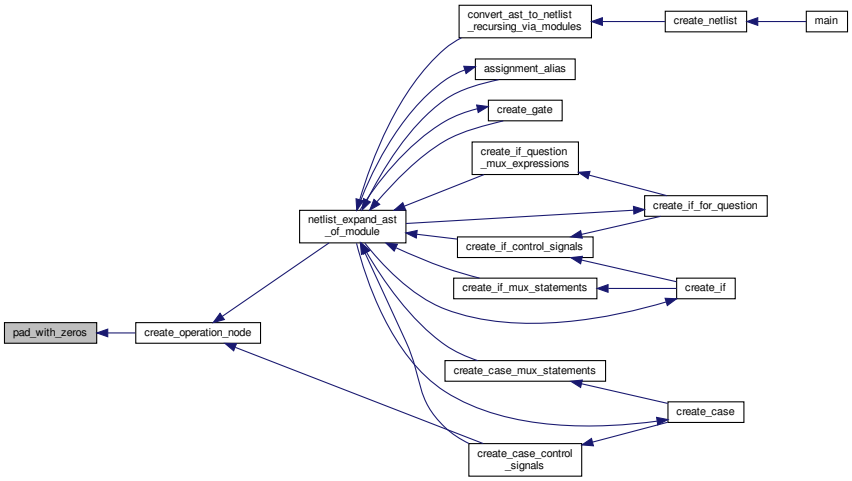


2.34.2.45 pad_with_zeros()

```
void pad_with_zeros (
            ast_node_t * node,
            signal_list_t * list,
            int pad_size,
            char * instance_name_prefix )
```

Definition at line 4484 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

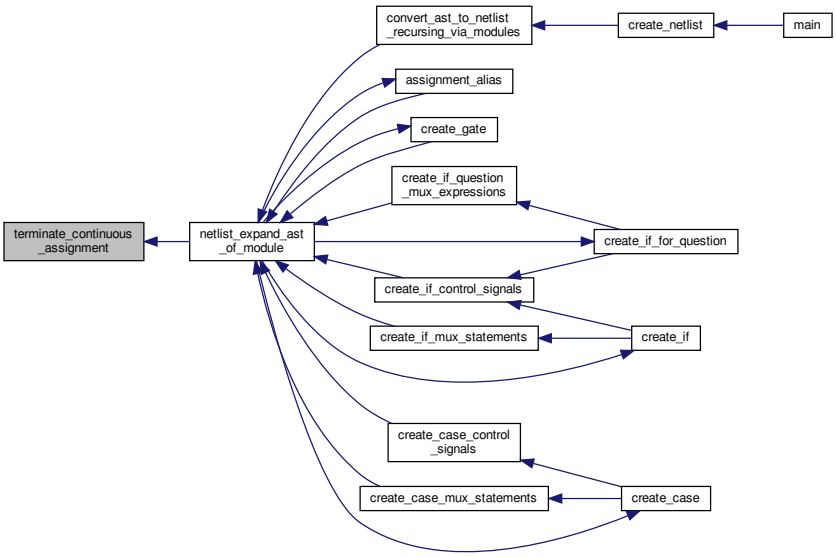


2.34.2.46 terminate_continuous_assignment()

```
void terminate_continuous_assignment (
            ast_node_t * node,
            signal_list_t * assignment,
            char * instance_name_prefix )
```

Definition at line 3401 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

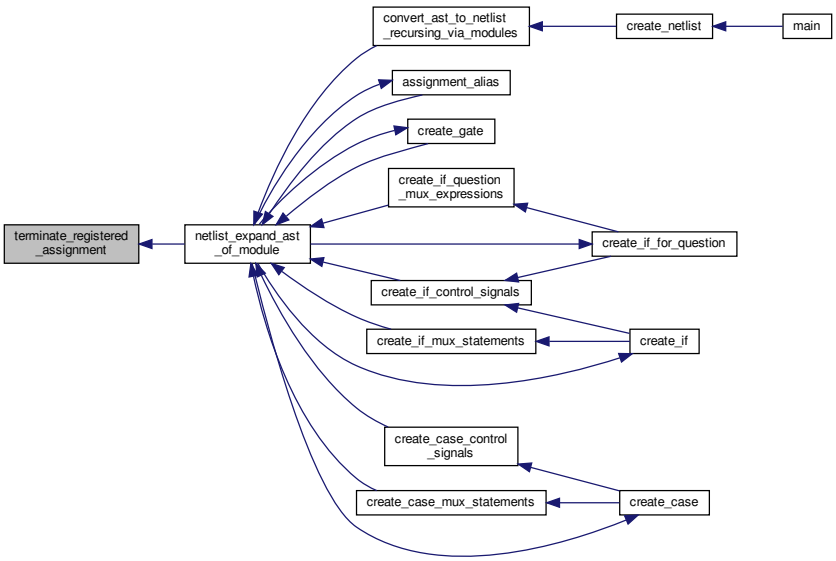


2.34.2.47 terminate_registered_assignment()

```
void terminate_registered_assignment (
            ast_node_t * always_node,
            signal_list_t * assignment,
            signal_list_t * potential_clocks,
            char * instance_name_prefix )
```

Definition at line 3185 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:



2.34.3 Variable Documentation

2.34.3.1 function_local_symbol_table

```
ast_node_t** function_local_symbol_table
```

Definition at line 67 of file netlist_create_from_ast.cpp.

2.34.3.2 function_local_symbol_table_sc

```
STRING_CACHE* function_local_symbol_table_sc
```

Definition at line 64 of file netlist_create_from_ast.cpp.

2.34.3.3 function_num_local_symbol_table

```
int function_num_local_symbol_table
```

Definition at line 69 of file netlist_create_from_ast.cpp.

2.34.3.4 global_param_table_sc

```
STRING_CACHE* global_param_table_sc
```

Definition at line 65 of file netlist_create_from_ast.cpp.

2.34.3.5 input_nets_sc

```
STRING_CACHE* input_nets_sc
```

Definition at line 61 of file netlist_create_from_ast.cpp.

2.34.3.6 local_clock_found

```
short local_clock_found
```

Definition at line 71 of file netlist_create_from_ast.cpp.

2.34.3.7 local_clock_idx

```
int local_clock_idx
```

Definition at line 72 of file netlist_create_from_ast.cpp.

2.34.3.8 local_clock_list

```
signal_list_t* local_clock_list
```

Definition at line 70 of file netlist_create_from_ast.cpp.

2.34.3.9 local_symbol_table

```
ast_node_t** local_symbol_table
```

Definition at line 66 of file netlist_create_from_ast.cpp.

2.34.3.10 local_symbol_table_sc

```
STRING_CACHE* local_symbol_table_sc
```

Definition at line 63 of file netlist_create_from_ast.cpp.

2.34.3.11 netlist_create_line_number

```
int netlist_create_line_number = -2
```

Definition at line 83 of file netlist_create_from_ast.cpp.

2.34.3.12 num_local_symbol_table

```
int num_local_symbol_table
```

Definition at line 68 of file netlist_create_from_ast.cpp.

2.34.3.13 one_string

```
char* one_string
```

Definition at line 75 of file netlist_create_from_ast.cpp.

2.34.3.14 output_nets_sc

```
STRING_CACHE* output_nets_sc
```

Definition at line 60 of file netlist_create_from_ast.cpp.

2.34.3.15 pad_string

```
char* pad_string
```

Definition at line 77 of file netlist_create_from_ast.cpp.

2.34.3.16 top_module

```
ast_node_t* top_module
```

Definition at line 79 of file netlist_create_from_ast.cpp.

2.34.3.17 type_of_circuit

```
int type_of_circuit
```

Definition at line 85 of file netlist_create_from_ast.cpp.

2.34.3.18 verilog_netlist

```
netlist_t* verilog_netlist
```

Definition at line 81 of file netlist_create_from_ast.cpp.

2.34.3.19 zero_string

```
char* zero_string
```

Definition at line 76 of file netlist_create_from_ast.cpp.

2.35 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_create_from_ast.h File Reference

Functions

- void create_netlist ()
- void connect_memory_and_alias (ast_node_t *hb_instance, char *instance_name_prefix)

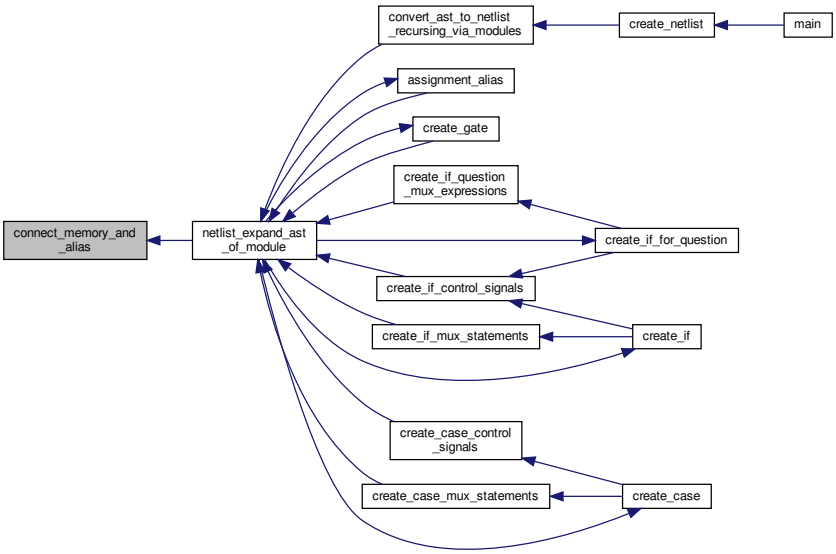
2.35.1 Function Documentation

2.35.1.1 connect_memory_and_alias()

```
void connect_memory_and_alias (
            ast_node_t * hb_instance,
            char * instance_name_prefix )
```

Definition at line 1836 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:

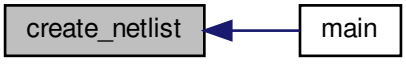


2.35.1.2 create_netlist()

```
void create_netlist ( )
```

Definition at line 319 of file netlist_create_from_ast.cpp.

Here is the caller graph for this function:



2.36 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_utils.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdarg.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "node_creation_library.h"
#include "odin_util.h"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- nnode_t * allocate_nnode ()
- nnode_t * free_nnode (nnode_t *to_free)
- void allocate_more_input_pins (nnode_t *node, int width)
- void allocate_more_output_pins (nnode_t *node, int width)
- void add_output_port_information (nnode_t *node, int port_width)
- void add_input_port_information (nnode_t *node, int port_width)
- npin_t * allocate_npin ()
- npin_t * copy_output_npin (npin_t *copy_pin)
- npin_t * copy_input_npin (npin_t *copy_pin)
- nnet_t * allocate_nnet ()
- void move_output_pin (nnode_t *node, int old_idx, int new_idx)
- void move_input_pin (nnode_t *node, int old_idx, int new_idx)
- void add_input_pin_to_node (nnode_t *node, npin_t *pin, int pin_idx)
- void add_fanout_pin_to_net (nnet_t *net, npin_t *pin)
- void add_output_pin_to_node (nnode_t *node, npin_t *pin, int pin_idx)
- void add_driver_pin_to_net (nnet_t *net, npin_t *pin)
- void combine_nets (nnet_t *output_net, nnet_t *input_net, netlist_t *netlist)
- void join_nets (nnet_t *join_to_net, nnet_t *other_net)
- void remap_pin_to_new_net (npin_t *pin, nnet_t *new_net)
- void remap_pin_to_new_node (npin_t *pin, nnode_t *new_node, int pin_idx)
- void connect_nodes (nnode_t *out_node, int out_idx, nnode_t *in_node, int in_idx)
- signal_list_t * init_signal_list ()
- void add_pin_to_signal_list (signal_list_t *list, npin_t *pin)
- signal_list_t * combine_lists (signal_list_t **signal_lists, int num_signal_lists)
- signal_list_t * combine_lists_without_freeing_originals (signal_list_t **signal_lists, int num_signal_lists)
- signal_list_t * copy_input_signals (signal_list_t *signalsvar)
- signal_list_t * copy_output_signals (signal_list_t *signalsvar)
- void sort_signal_list_alphabetically (signal_list_t *list)
- signal_list_t * make_output_pins_for_existing_node (nnode_t *node, int width)
- void free_signal_list (signal_list_t *list)
- void hookup_input_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *input_list, int il_start_idx, int width, netlist_t *netlist)

- void hookup_hb_input_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *input_list, int il_start_idx, int width, netlist_t *netlist)
- void hookup_output_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *output_list, int ol_start_idx, int width)
- void depth_traverse_count (nnode_t *node, int *count, int traverse_mark_number)
- int count_nodes_in_netlist (netlist_t *netlist)
- netlist_t * allocate_netlist ()
- void free_netlist (netlist_t *to_free)
- void add_node_to_netlist (netlist_t *netlist, nnode_t *node, short special_node)
- void mark_clock_node (netlist_t *netlist, const char *clock_name)
- int get_output_pin_index_from_mapping (nnode_t *node, const char *name)
- int get_output_port_index_from_mapping (nnode_t *node, const char *name)
- int get_input_pin_index_from_mapping (nnode_t *node, const char *name)
- int get_input_port_index_from_mapping (nnode_t *node, const char *name)
- chain_information_t * allocate_chain_info ()
- void remove_fanout_pins_from_net (nnet_t *net, npin_t *, int id)

Variables

- global_args_t global_args

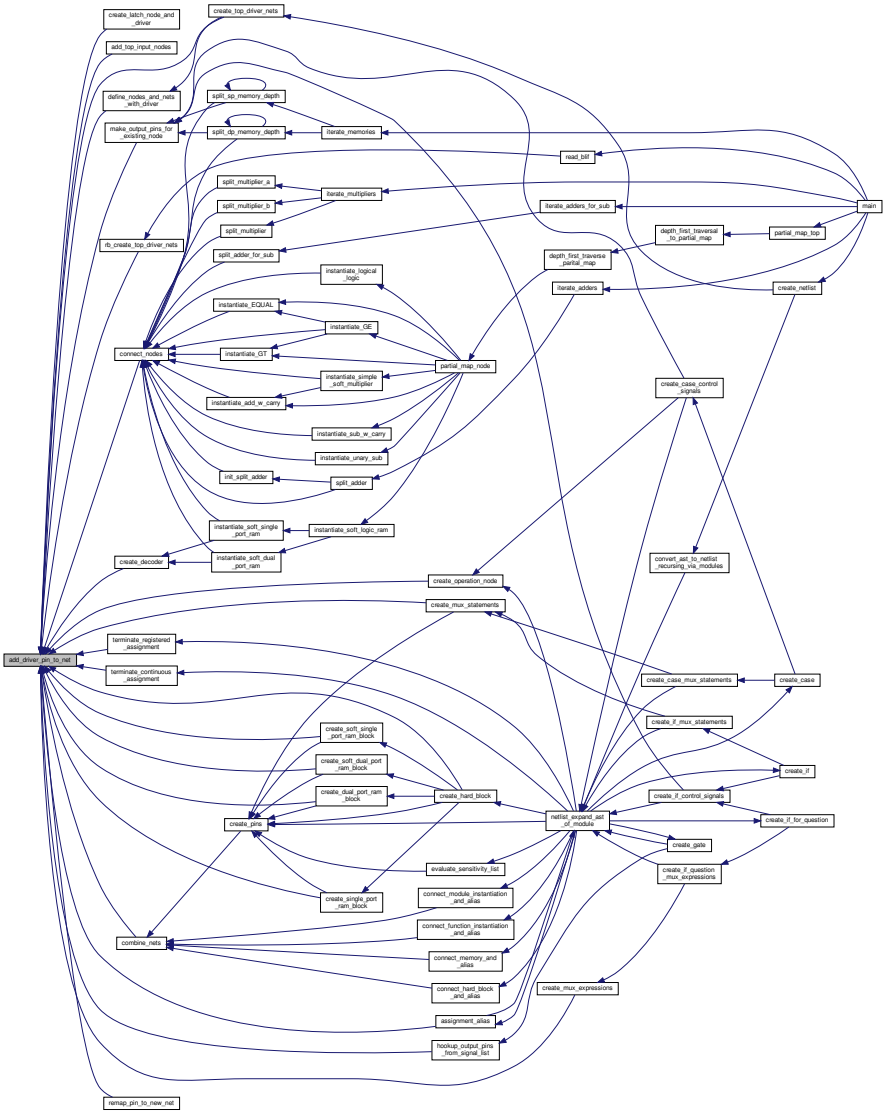
2.36.1 Function Documentation

2.36.1.1 add_driver_pin_to_net()

```
void add_driver_pin_to_net (
            nnet_t * net,
            npin_t * pin )
```

Definition at line 366 of file netlist_utils.cpp.

Here is the caller graph for this function:

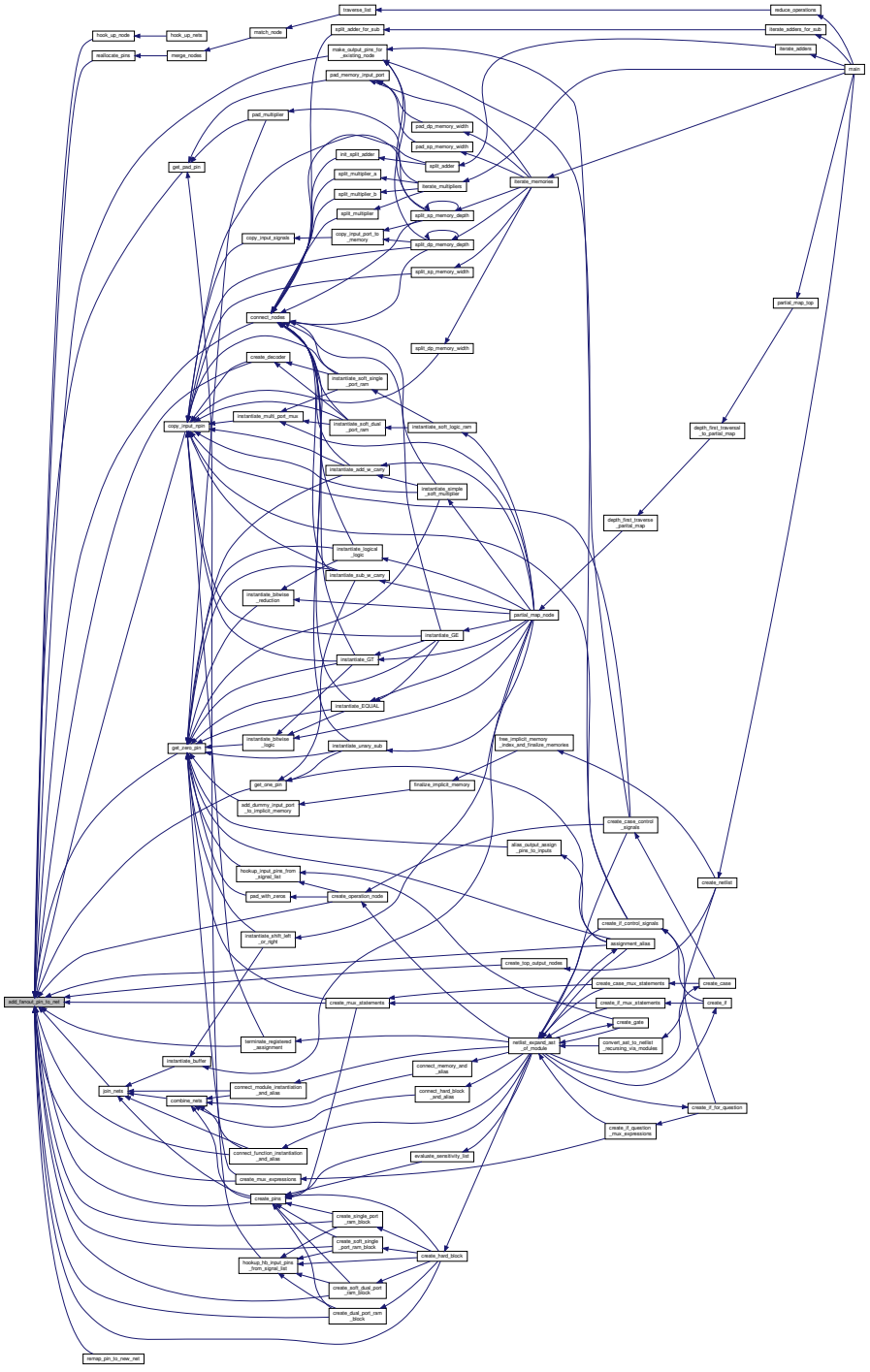


2.36.1.2 add_fanout_pin_to_net()

```
void add_fanout_pin_to_net (
            nnet_t * net,
            npin_t * pin )
```

Definition at line 332 of file netlist_utils.cpp.

Here is the caller graph for this function:



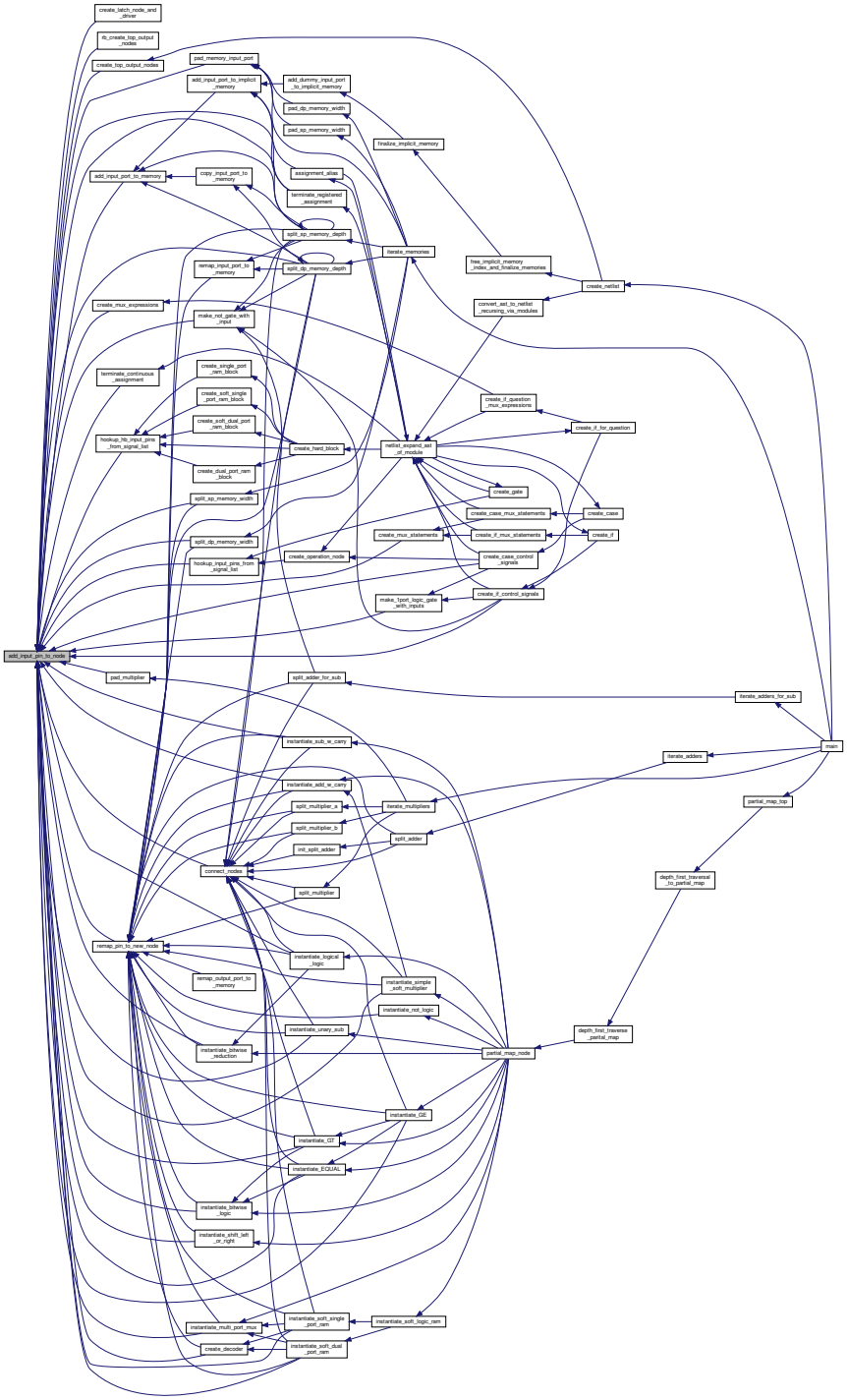
2.36.1.3 add_input_pin_to_node()

```
void add_input_pin_to_node (
```

```
nnode_t * node,
npin_t * pin,
int pin_idx )
```

Definition at line 316 of file netlist_utils.cpp.

Here is the caller graph for this function:

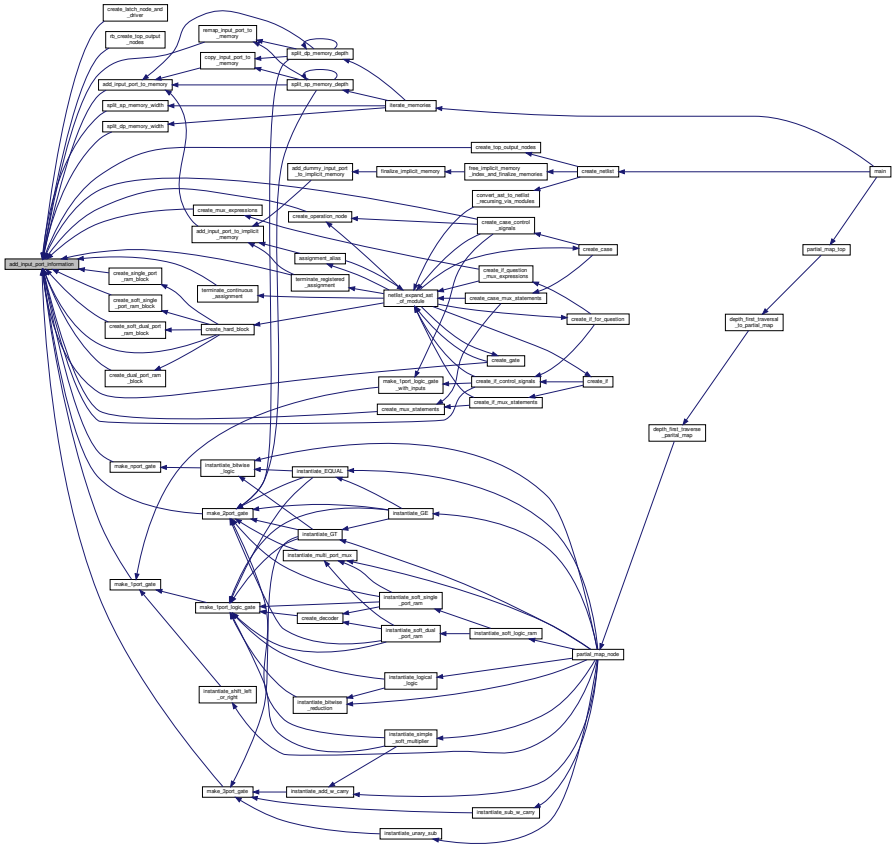


2.36.1.4 add_input_port_information()

```
void add_input_port_information (
            nnode_t * node,
            int port_width )
```

Definition at line 178 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.1.5 add_node_to_netlist()

```
void add_node_to_netlist (
            netlist_t * netlist,
            nnode_t * node,
            short special_node )
```

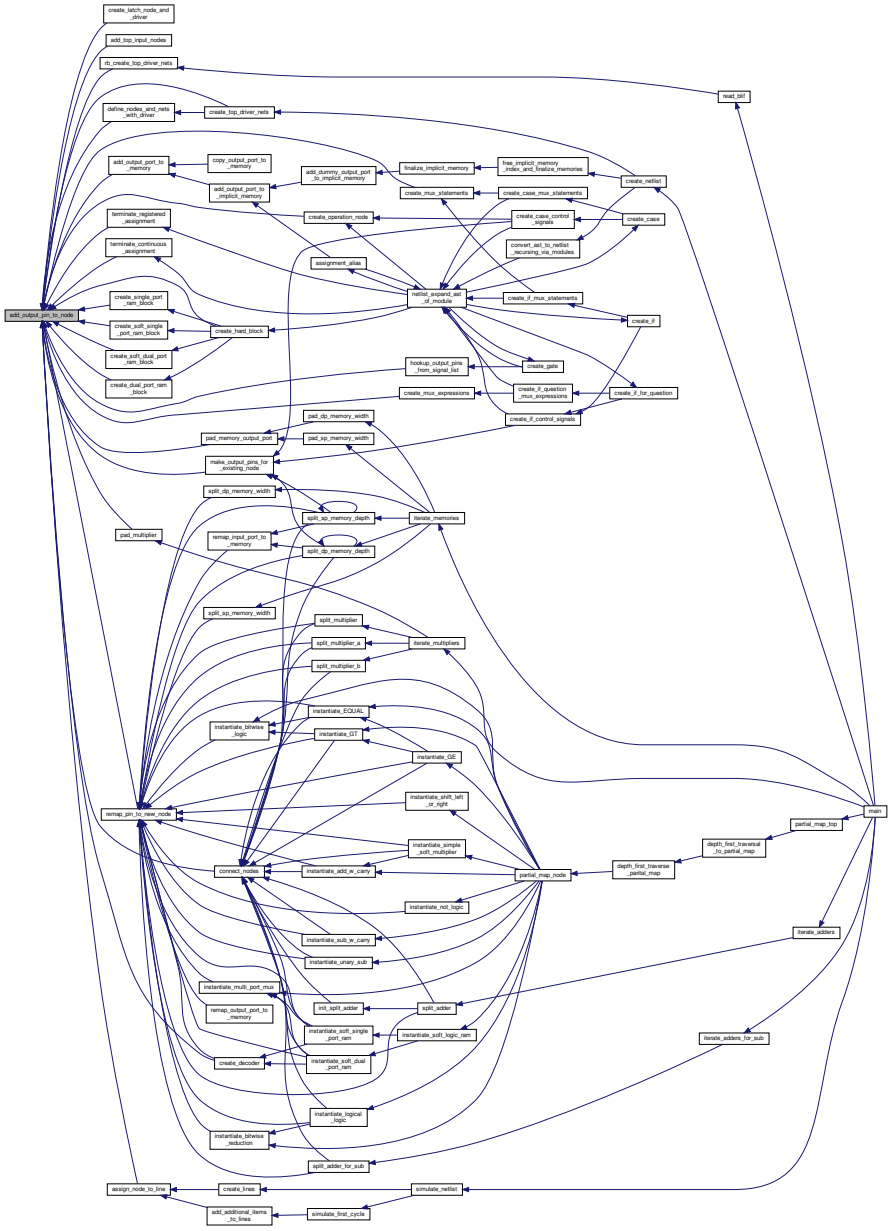
Definition at line 896 of file netlist_utils.cpp.

2.36.1.6 add_output_pin_to_node()

```
void add_output_pin_to_node (
            nnode_t * node,
            npin_t * pin,
            int pin_idx )
```

Definition at line 350 of file netlist_utils.cpp.

Here is the caller graph for this function:

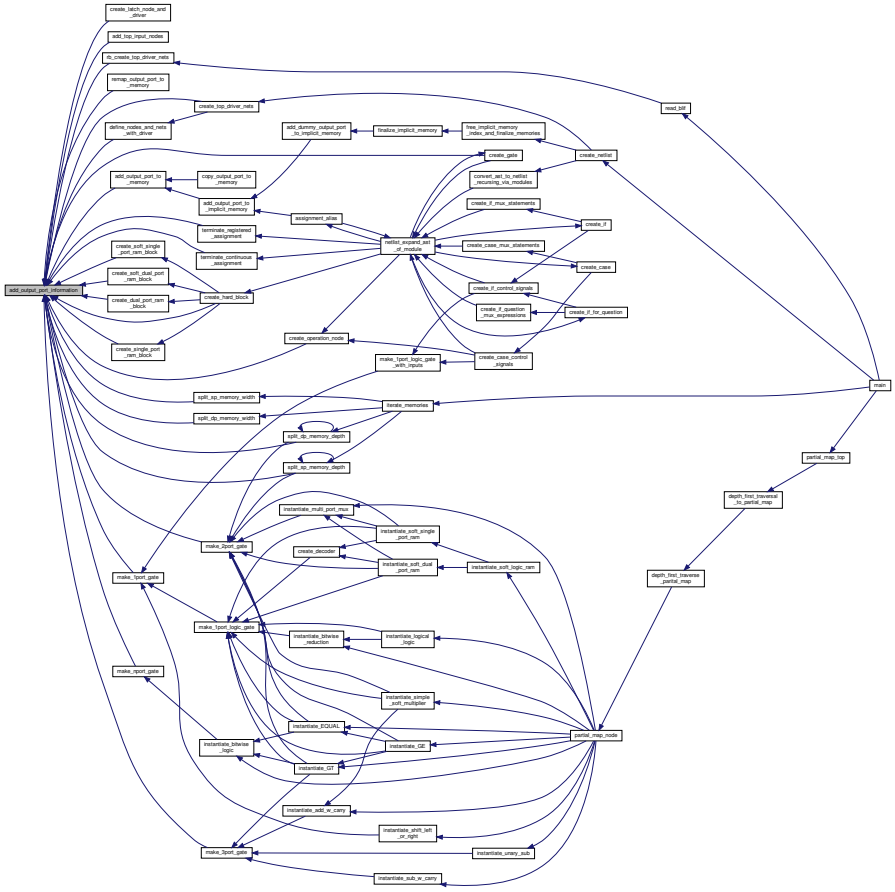


2.36.1.7 add_output_port_information()

```
void add_output_port_information (
              nnode_t * node,
              int port_width )
```

Definition at line 168 of file netlist_utils.cpp.

Here is the caller graph for this function:

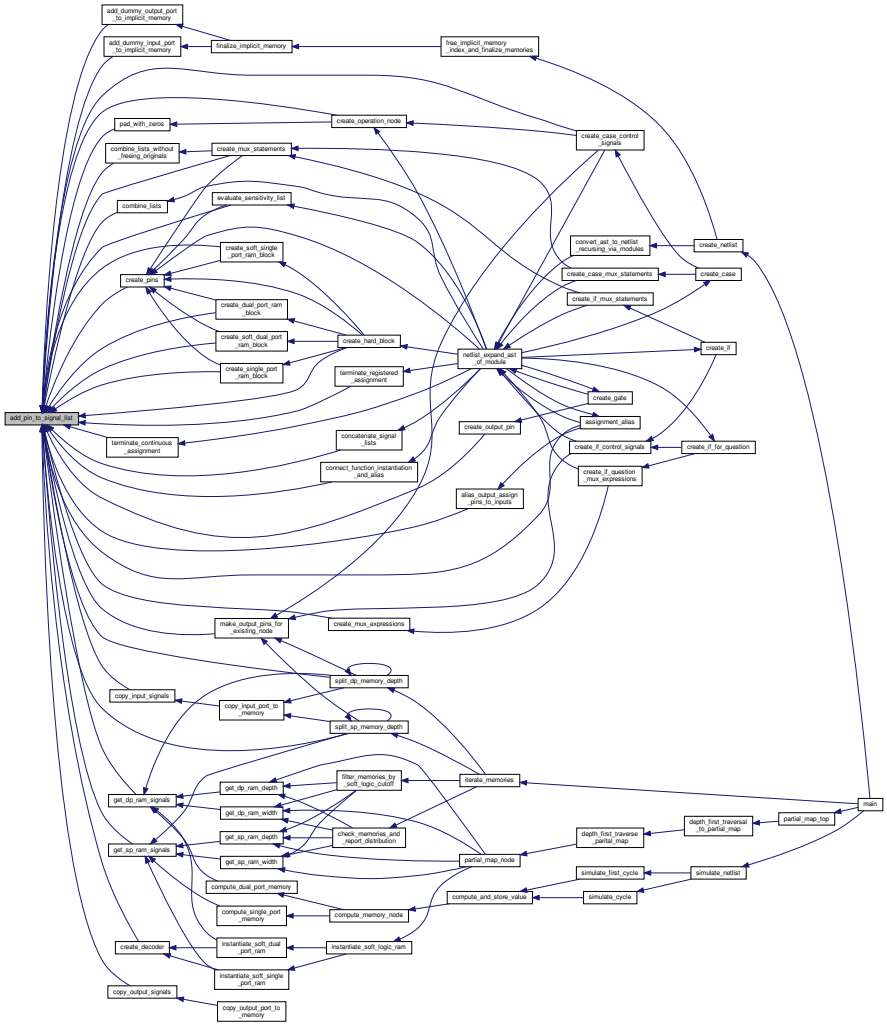


2.36.1.8 add_pin_to_signal_list()

```
void add_pin_to_signal_list (
              signal_list_t * list,
              npin_t * pin )
```

Definition at line 546 of file netlist_utils.cpp.

Here is the caller graph for this function:

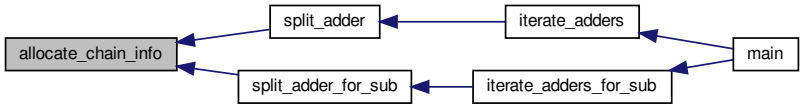


2.36.1.9 allocate_chain_info()

```
chain_information_t* allocate_chain_info ( )
```

Definition at line 1049 of file netlist_utils.cpp.

Here is the caller graph for this function:

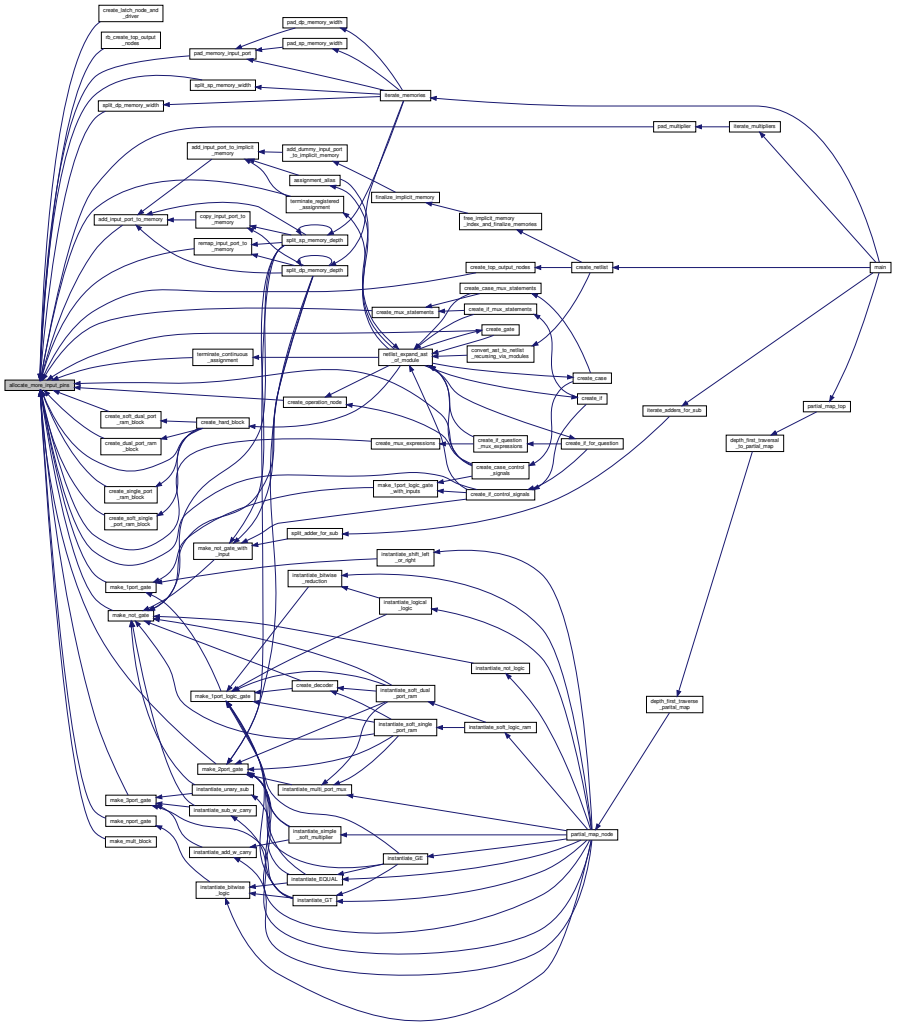


2.36.1.10 allocate_more_input_pins()

```
void allocate_more_input_pins (
            nnode_t * node,
            int width )
```

Definition at line 125 of file netlist_utils.cpp.

Here is the caller graph for this function:

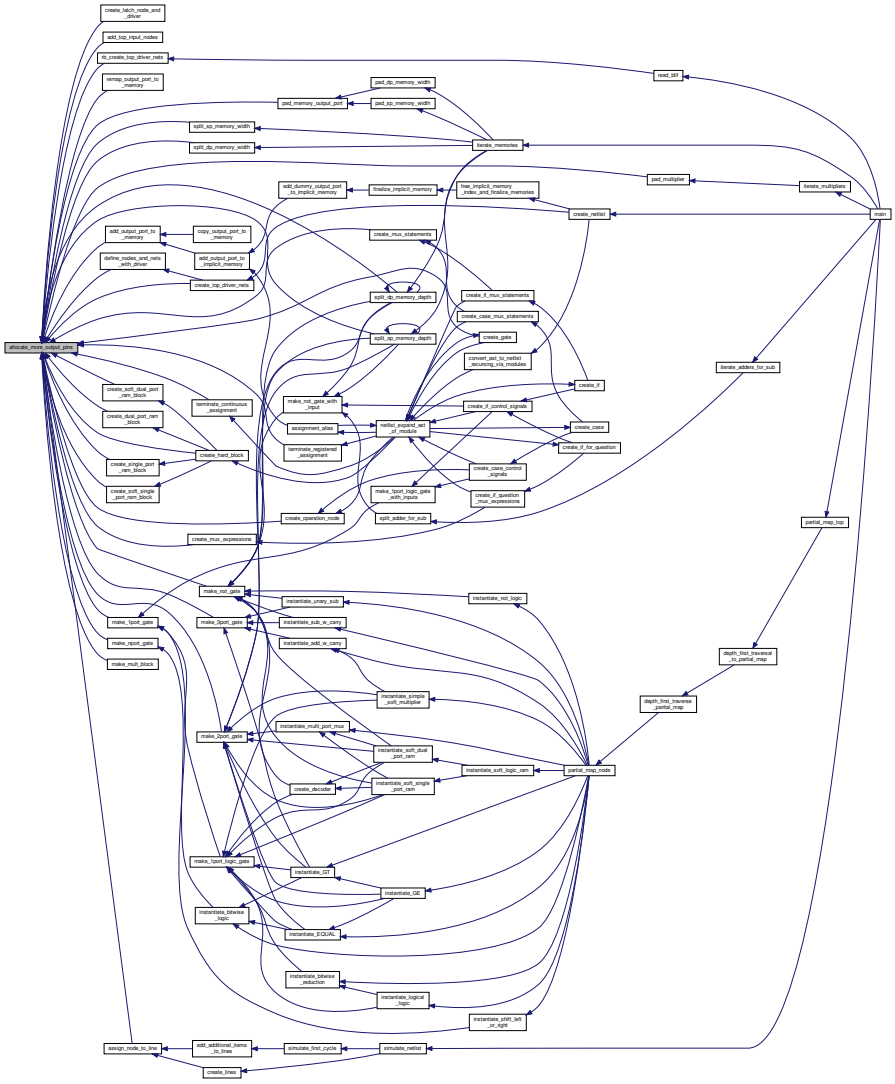


2.36.1.11 allocate_more_output_pins()

```
void allocate_more_output_pins (
            nnode_t * node,
            int width )
```

Definition at line 147 of file netlist_utils.cpp.

Here is the caller graph for this function:

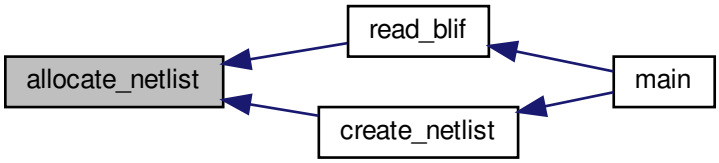


2.36.1.12 allocate_netlist()

```
netlist_t* allocate_netlist ( )
```

Definition at line 837 of file netlist_utils.cpp.

Here is the caller graph for this function:

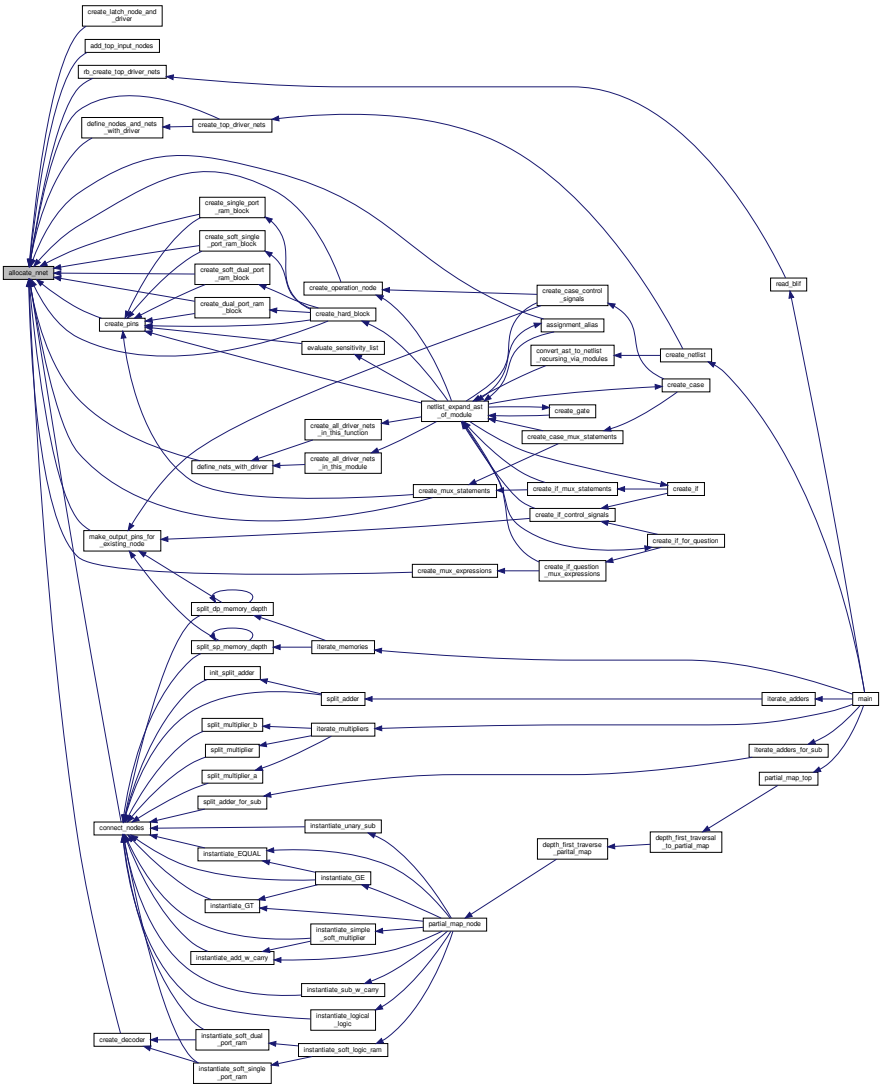


2.36.1.13 allocate_nnet()

```
nnet_t* allocate_nnet ( )
```

Definition at line 254 of file netlist_utils.cpp.

Here is the caller graph for this function:

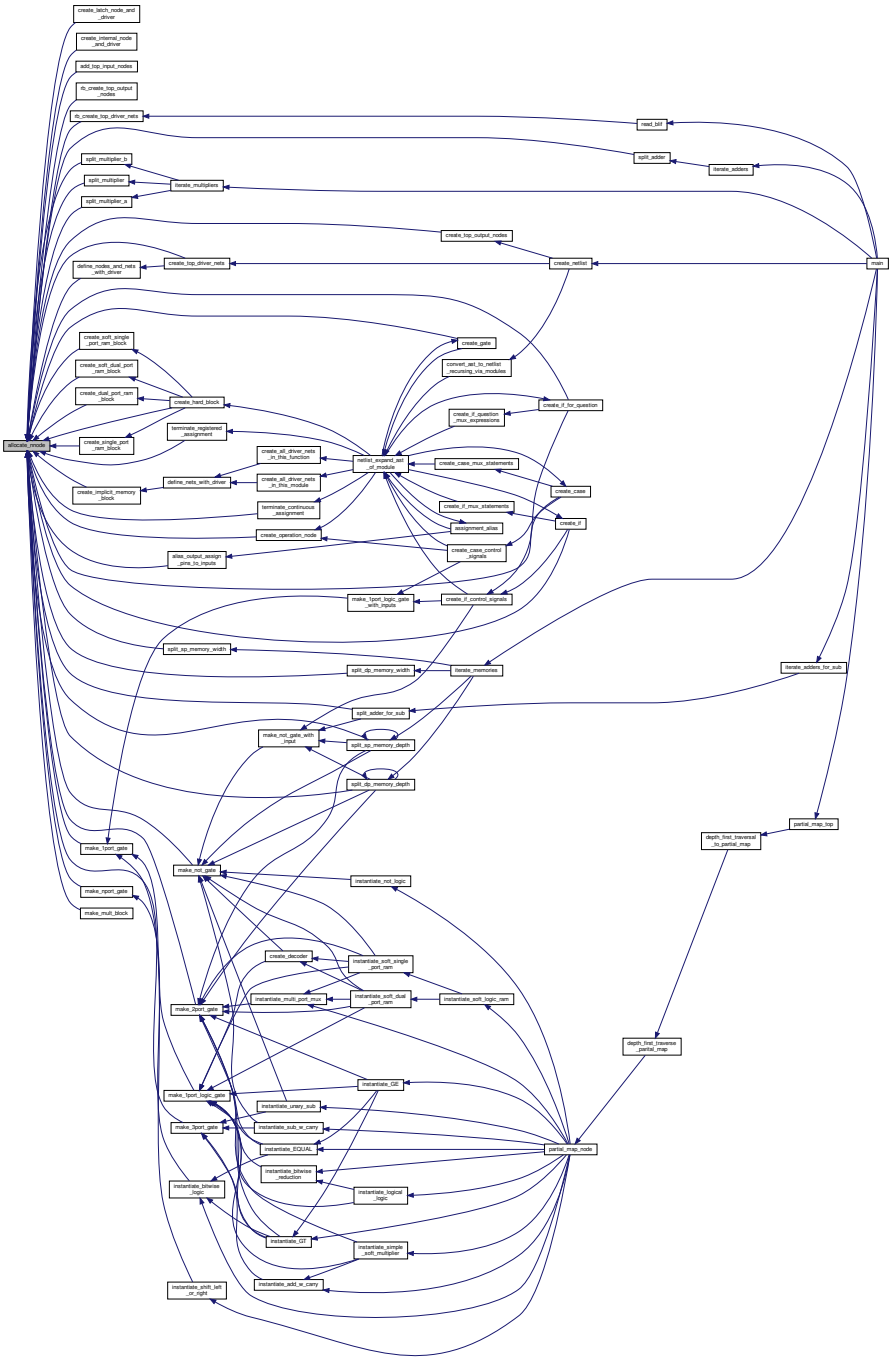


2.36.1.14 allocate_nnode()

```
nnode_t* allocate_nnode ( )
```

Definition at line 41 of file netlist_utils.cpp.

Here is the caller graph for this function:

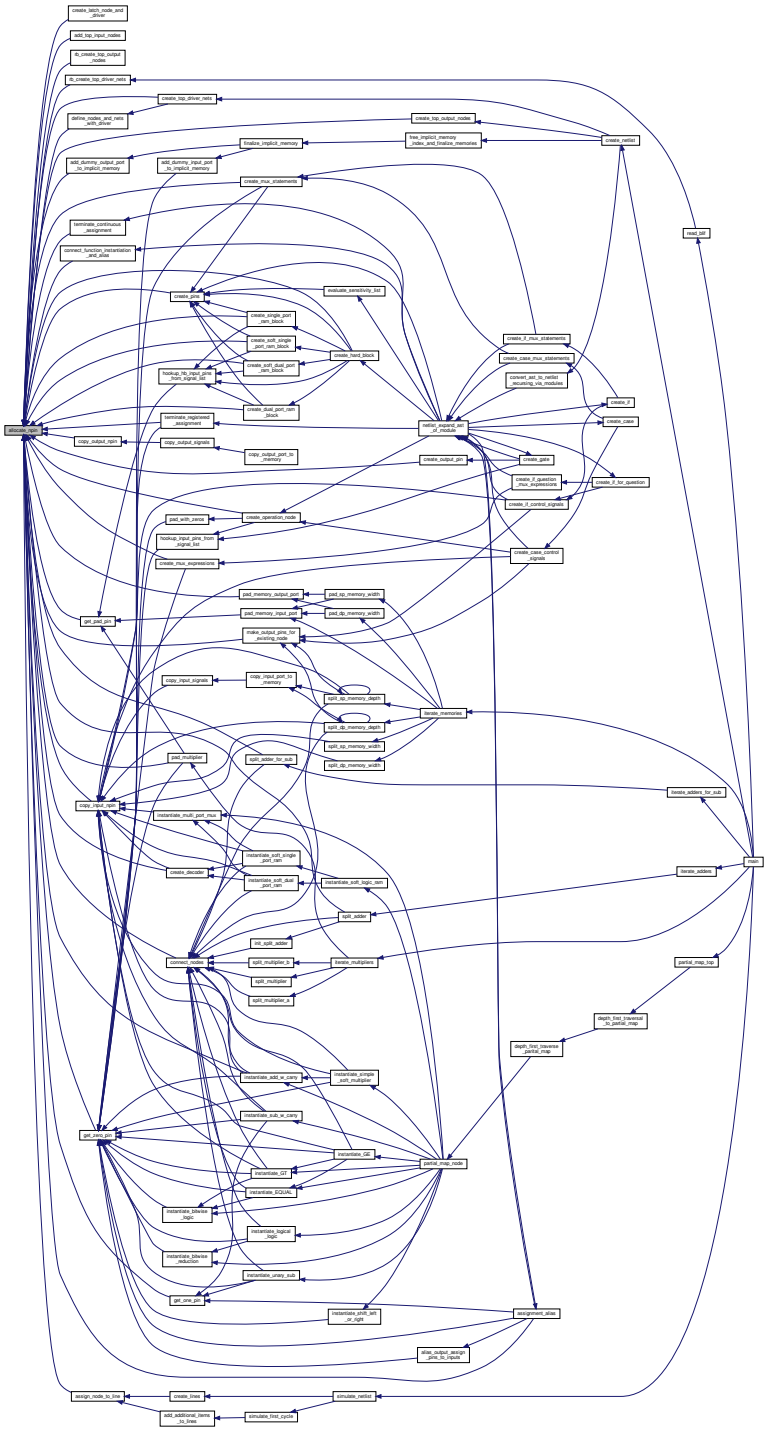


2.36.1.15 allocate_npin()

```
npin_t* allocate_npin ( )
```

Definition at line 188 of file netlist_utils.cpp.

Here is the caller graph for this function:

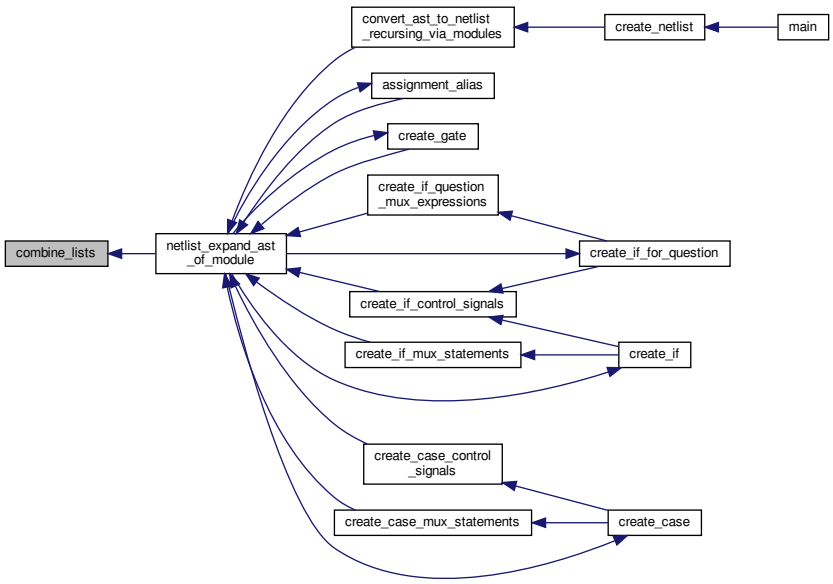


2.36.1.16 combine_lists()

```
signal_list_t* combine_lists (
            signal_list_t ** signal_lists,
            int num_signal_lists )
```

Definition at line 556 of file netlist_utils.cpp.

Here is the caller graph for this function:

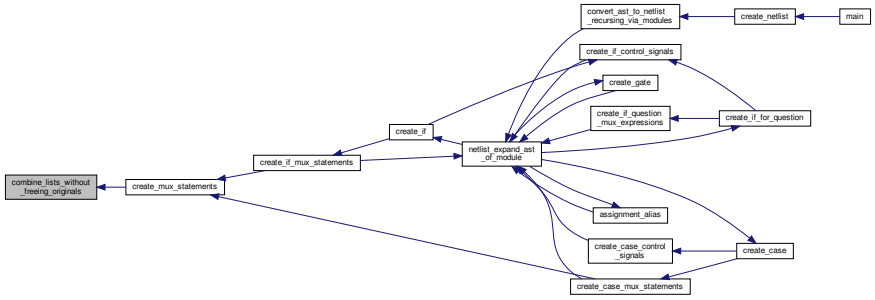


2.36.1.17 combine_lists_without_freeing_originals()

```
signal_list_t* combine_lists_without_freeing_originals (
            signal_list_t ** signal_lists,
            int num_signal_lists )
```

Definition at line 574 of file netlist_utils.cpp.

Here is the caller graph for this function:

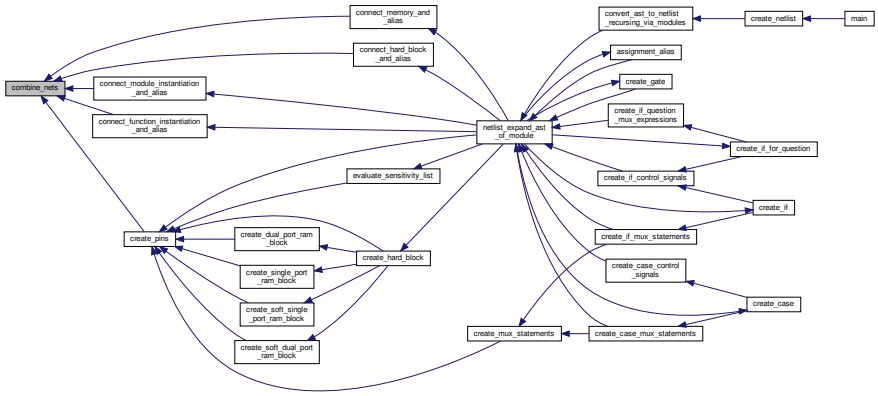


2.36.1.18 combine_nets()

```
void combine_nets (
            nnet_t * output_net,
            nnet_t * input_net,
            netlist_t * netlist )
```

Definition at line 384 of file netlist_utils.cpp.

Here is the caller graph for this function:

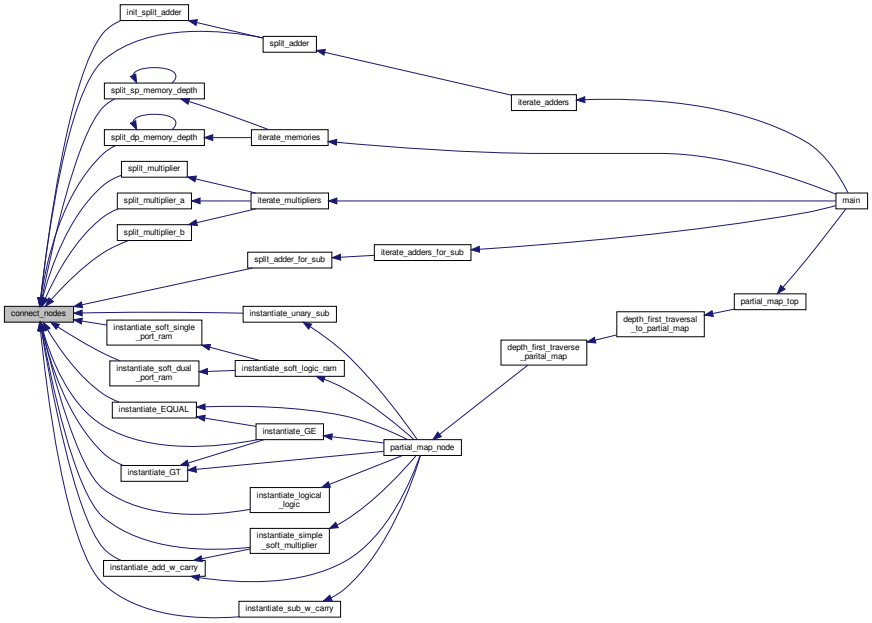


2.36.1.19 connect_nodes()

```
void connect_nodes (
            nnode_t * out_node,
            int out_idx,
            nnode_t * in_node,
            int in_idx )
```

Definition at line 489 of file netlist_utils.cpp.

Here is the caller graph for this function:

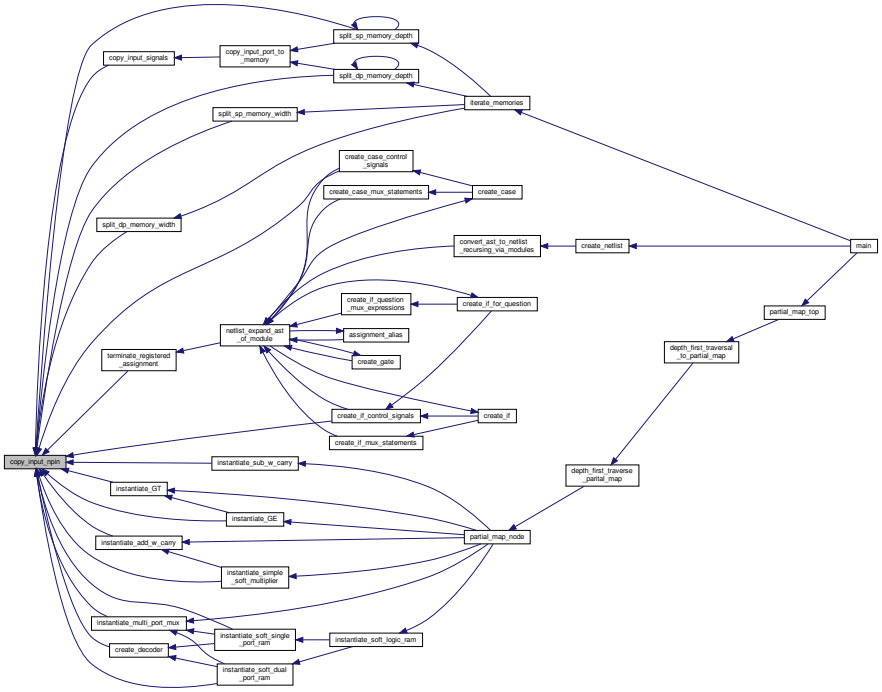


2.36.1.20 copy_input_npin()

```
npin_t* copy_input_npin (
            npin_t * copy_pin )
```

Definition at line 234 of file netlist_utils.cpp.

Here is the caller graph for this function:

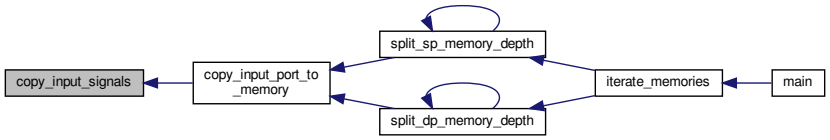


2.36.1.21 copy_input_signals()

```
signal_list_t* copy_input_signals (
            signal_list_t * signalsvar )
```

Definition at line 592 of file netlist_utils.cpp.

Here is the caller graph for this function:

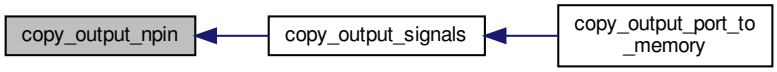


2.36.1.22 copy_output_npin()

```
npin_t* copy_output_npin (
            npin_t * copy_pin )
```

Definition at line 217 of file netlist_utils.cpp.

Here is the caller graph for this function:

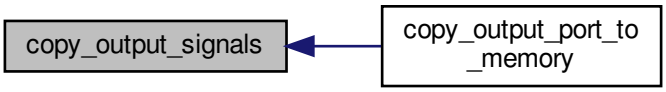


2.36.1.23 copy_output_signals()

```
signal_list_t* copy_output_signals (
            signal_list_t * signalsvar )
```

Definition at line 606 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.1.24 count_nodes_in_netlist()

```
int count_nodes_in_netlist (
            netlist_t * netlist )
```

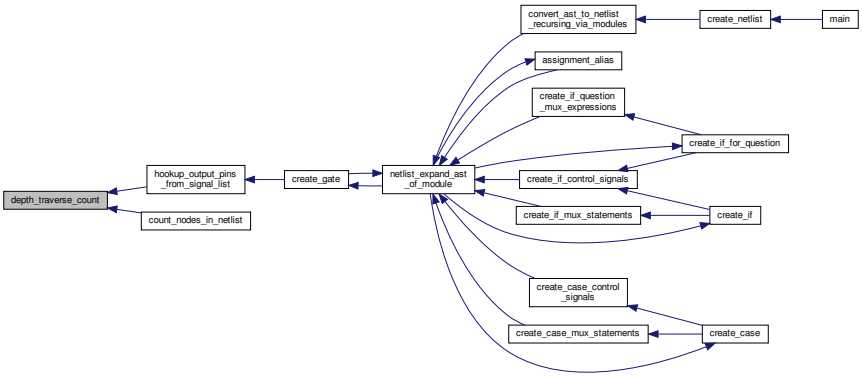
Definition at line 772 of file netlist_utils.cpp.

2.36.1.25 depth_traverse_count()

```
void depth_traverse_count (
            nnode_t * node,
            int * count,
            int traverse_mark_number )
```

Definition at line 795 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.1.26 free_netlist()

```
void free_netlist (
            netlist_t * to_free )
```

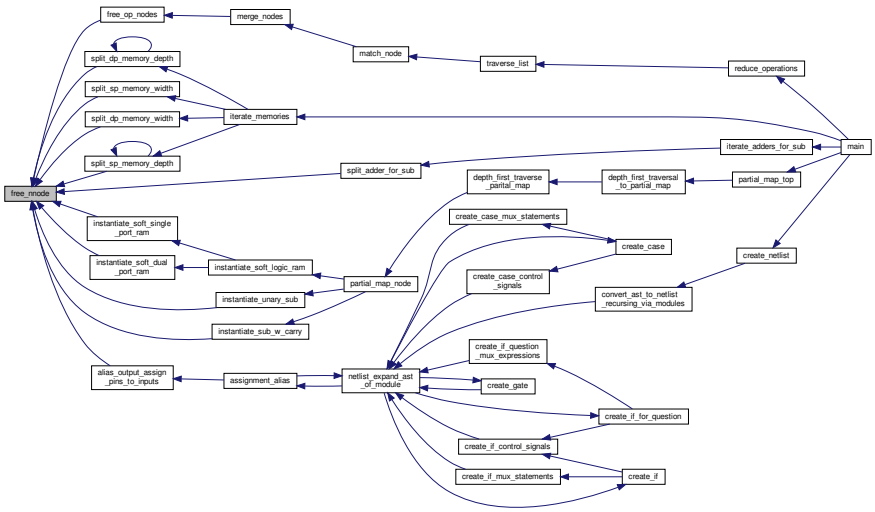
Definition at line 886 of file netlist_utils.cpp.

2.36.1.27 free_nnode()

```
nnode_t* free_nnode (
            nnode_t * to_free )
```

Definition at line 96 of file netlist_utils.cpp.

Here is the caller graph for this function:

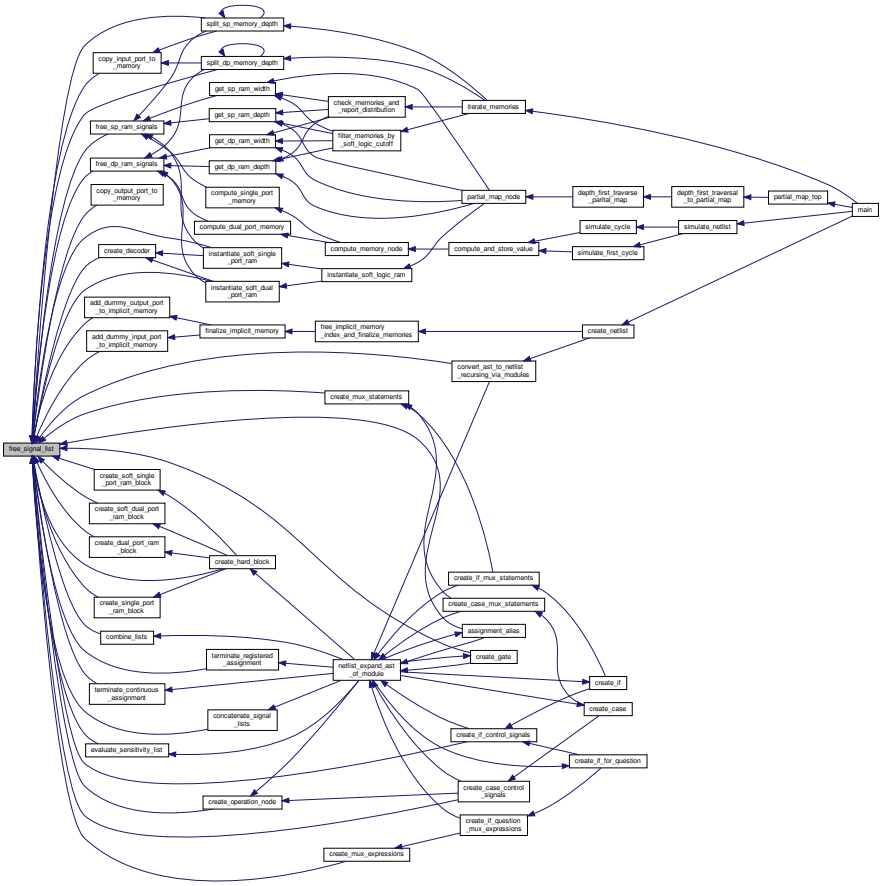


2.36.1.28 free_signal_list()

```
void free_signal_list (
             signal_list_t * list )
```

Definition at line 675 of file netlist_utils.cpp.

Here is the caller graph for this function:

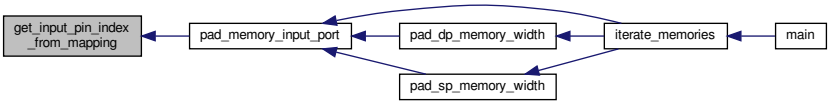


2.36.1.29 get_input_pin_index_from_mapping()

```
int get_input_pin_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 1015 of file netlist_utils.cpp.

Here is the caller graph for this function:

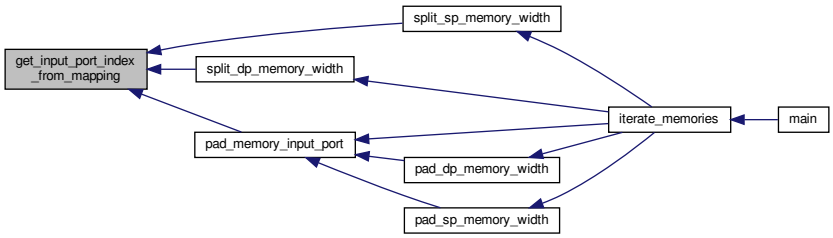


2.36.1.30 get_input_port_index_from_mapping()

```
int get_input_port_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 1032 of file netlist_utils.cpp.

Here is the caller graph for this function:

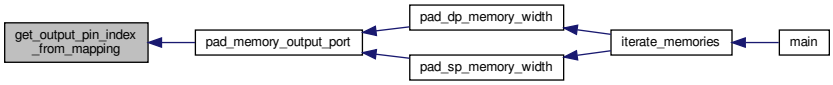


2.36.1.31 get_output_pin_index_from_mapping()

```
int get_output_pin_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 978 of file netlist_utils.cpp.

Here is the caller graph for this function:

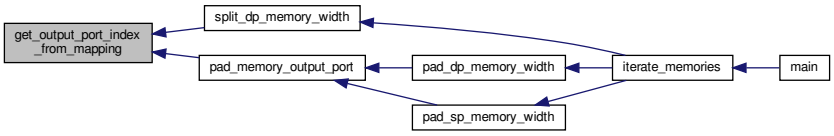


2.36.1.32 get_output_port_index_from_mapping()

```
int get_output_port_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 995 of file netlist_utils.cpp.

Here is the caller graph for this function:

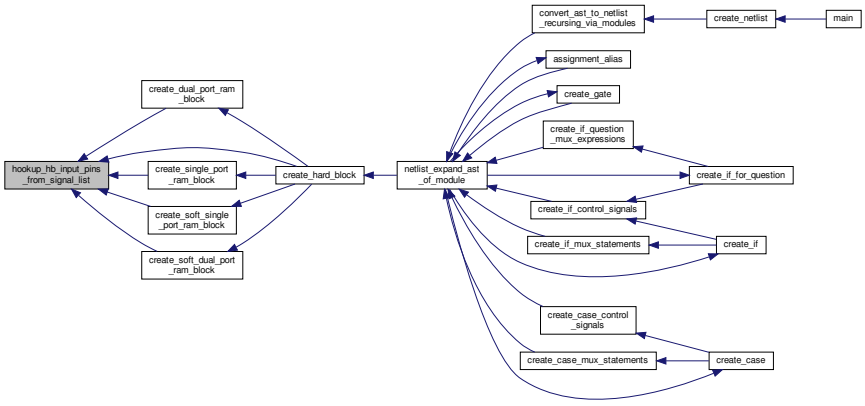


2.36.1.33 hookup_hb_input_pins_from_signal_list()

```
void hookup_hb_input_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * input_list,
            int il_start_idx,
            int width,
            netlist_t * netlist )
```

Definition at line 717 of file netlist_utils.cpp.

Here is the caller graph for this function:

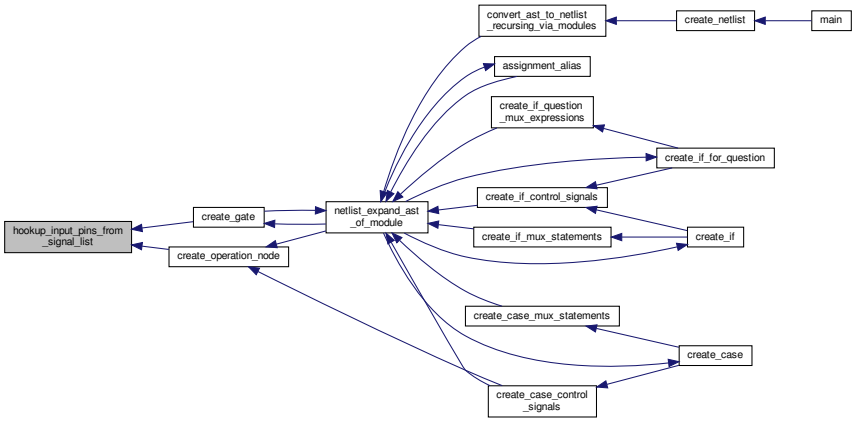


2.36.1.34 hookup_input_pins_from_signal_list()

```
void hookup_input_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * input_list,
            int il_start_idx,
            int width,
            netlist_t * netlist )
```

Definition at line 688 of file netlist_utils.cpp.

Here is the caller graph for this function:

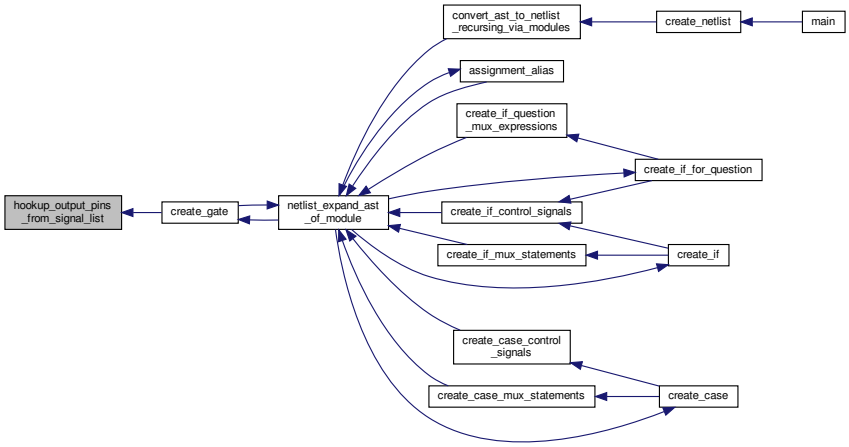


2.36.1.35 hookup_output_pins_from_signal_list()

```
void hookup_output_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * output_list,
            int ol_start_idx,
            int width )
```

Definition at line 743 of file netlist_utils.cpp.

Here is the caller graph for this function:

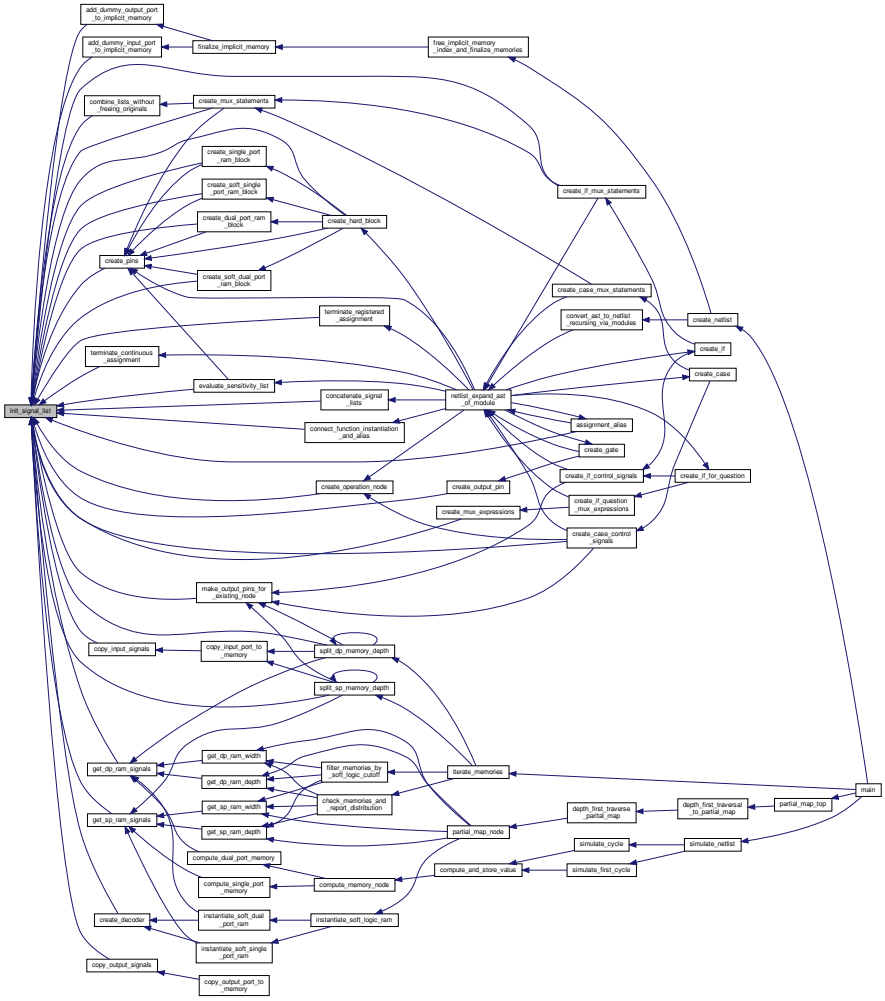


2.36.1.36 init_signal_list()

```
signal_list_t* init_signal_list ( )
```

Definition at line 529 of file netlist_utils.cpp.

Here is the caller graph for this function:

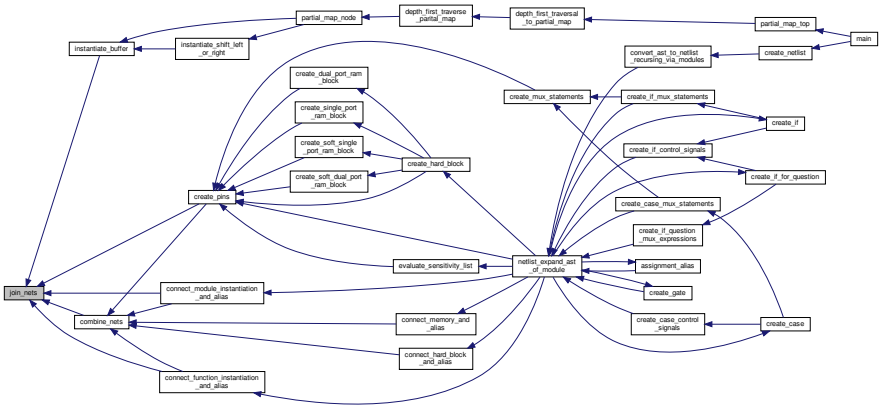


2.36.1.37 join_nets()

```
void join_nets (
            nnet_t * join_to_net,
            nnet_t * other_net )
```

Definition at line 420 of file netlist_utils.cpp.

Here is the caller graph for this function:

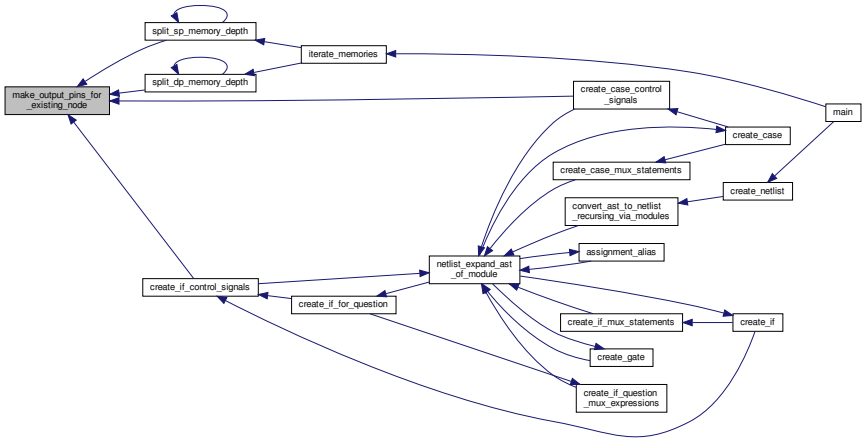


2.36.1.38 make_output_pins_for_existing_node()

```
signal_list_t* make_output_pins_for_existing_node (
            nnode_t * node,
            int width )
```

Definition at line 642 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.1.39 mark_clock_node()

```
void mark_clock_node (
            netlist_t * netlist,
            const char * clock_name )
```

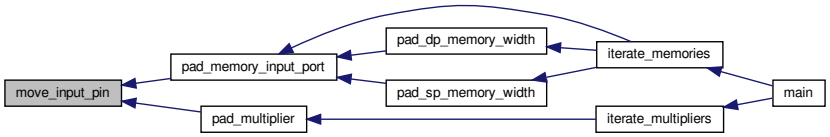
Definition at line 949 of file netlist_utils.cpp.

2.36.1.40 move_input_pin()

```
void move_input_pin (
            nnode_t * node,
            int old_idx,
            int new_idx )
```

Definition at line 296 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.1.41 move_output_pin()

```
void move_output_pin (
            nnode_t * node,
            int old_idx,
            int new_idx )
```

Definition at line 276 of file netlist_utils.cpp.

Here is the caller graph for this function:

2.36.1.42 remap_pin_to_new_net()

```
void remap_pin_to_new_net (
            npin_t * pin,
            nnet_t * new_net )
```

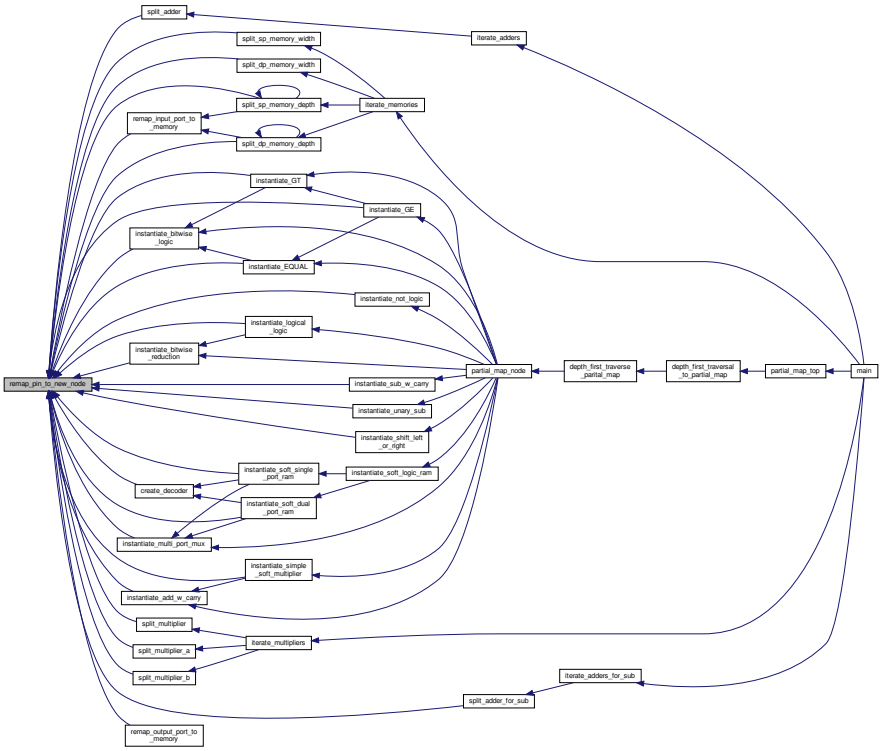
Definition at line 448 of file netlist_utils.cpp.

2.36.1.43 remap_pin_to_new_node()

```
void remap_pin_to_new_node (
            npin_t * pin,
            nnode_t * new_node,
            int pin_idx )
```

Definition at line 469 of file netlist_utils.cpp.

Here is the caller graph for this function:

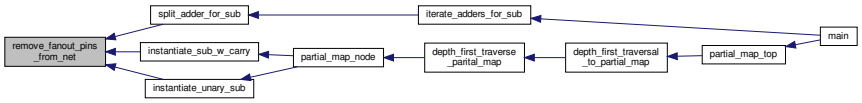


2.36.1.44 remove_fanout_pins_from_net()

```
void remove_fanout_pins_from_net (
            nnet_t * net,
            npin_t * ,
            int id )
```

Definition at line 1061 of file netlist_utils.cpp.

Here is the caller graph for this function:

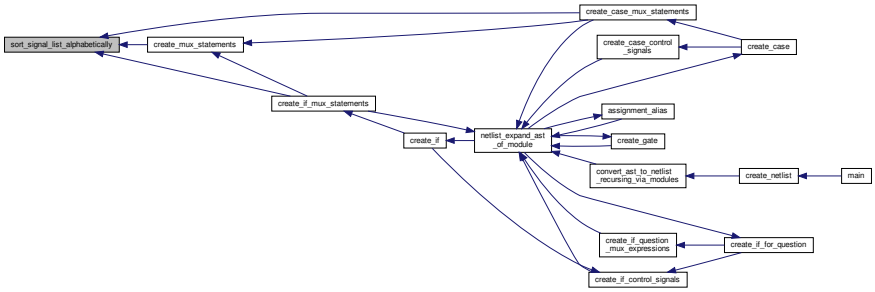


2.36.1.45 sort_signal_list_alphabetically()

```
void sort_signal_list_alphabetically (
            signal_list_t * list )
```

Definition at line 631 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.36.2 Variable Documentation

2.36.2.1 global_args

```
global_args_t global_args
```

Definition at line 59 of file odin_ii.cpp.

2.37 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/netlist_utils.h File Reference

```
#include "types.h"
```

Functions

- nnode_t * allocate_nnode ()
- npin_t * allocate_npin ()
- npin_t * get_zero_pin (netlist_t *netlist)
- npin_t * get_pad_pin (netlist_t *netlist)
- npin_t * get_one_pin (netlist_t *netlist)
- npin_t * copy_input_npin (npin_t *copy_pin)
- npin_t * copy_output_npin (npin_t *copy_pin)
- nnet_t * allocate_nnet ()
- nnode_t * free_nnode (nnode_t *to_free)
- npin_t * free_npin (npin_t *to_free)
- void allocate_more_input_pins (nnode_t *node, int width)
- void allocate_more_output_pins (nnode_t *node, int width)
- void move_input_pin (nnode_t *node, int old_idx, int new_idx)
- void move_output_pin (nnode_t *node, int old_idx, int new_idx)
- void add_input_pin_to_node (nnode_t *node, npin_t *pin, int pin_idx)
- void add_fanout_pin_to_net (nnet_t *net, npin_t *pin)
- void add_output_pin_to_node (nnode_t *node, npin_t *pin, int pin_idx)
- void add_driver_pin_to_net (nnet_t *net, npin_t *pin)
- void add_output_port_information (nnode_t *node, int port_width)
- void add_input_port_information (nnode_t *node, int port_width)
- void combine_nets (nnet_t *output_net, nnet_t *input_net, netlist_t *netlist)
- void join_nets (nnet_t *net, nnet_t *input_net)
- void remap_pin_to_new_net (npin_t *pin, nnet_t *new_net)
- void remap_pin_to_new_node (npin_t *pin, nnode_t *new_node, int pin_idx)
- signal_list_t * init_signal_list ()
- void add_pin_to_signal_list (signal_list_t *list, npin_t *pin)
- void sort_signal_list_alphabetically (signal_list_t *list)
- signal_list_t * combine_lists (signal_list_t **signal_lists, int num_signal_lists)
- signal_list_t * combine_lists_without_freeing_originals (signal_list_t **signal_lists, int num_signal_lists)
- signal_list_t * copy_input_signals (signal_list_t *signalsvar)
- signal_list_t * copy_output_signals (signal_list_t *signalsvar)
- void free_signal_list (signal_list_t *list)
- void hookup_hb_input_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *input_list, int il_start_idx, int width, netlist_t *netlist)
- void hookup_input_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *input_list, int il_start_idx, int width, netlist_t *netlist)
- void hookup_output_pins_from_signal_list (nnode_t *node, int n_start_idx, signal_list_t *output_list, int ol_start_idx, int width)
- signal_list_t * make_output_pins_for_existing_node (nnode_t *node, int width)
- void connect_nodes (nnode_t *out_node, int out_idx, nnode_t *in_node, int in_idx)
- int count_nodes_in_netlist (netlist_t *netlist)
- netlist_t * allocate_netlist ()
- void free_netlist (netlist_t *to_free)

- void add_node_to_netlist (netlist_t *netlist, nnode_t *node, short special_node)
- void mark_clock_node (netlist_t *netlist, const char *clock_name)
- int get_output_pin_index_from_mapping (nnode_t *node, const char *name)
- int get_output_port_index_from_mapping (nnode_t *node, const char *name)
- int get_input_pin_index_from_mapping (nnode_t *node, const char *name)
- int get_input_port_index_from_mapping (nnode_t *node, const char *name)
- chain_information_t * allocate_chain_info ()
- void remove_fanout_pins_from_net (nnet_t *net, npin_t *pin, int id)

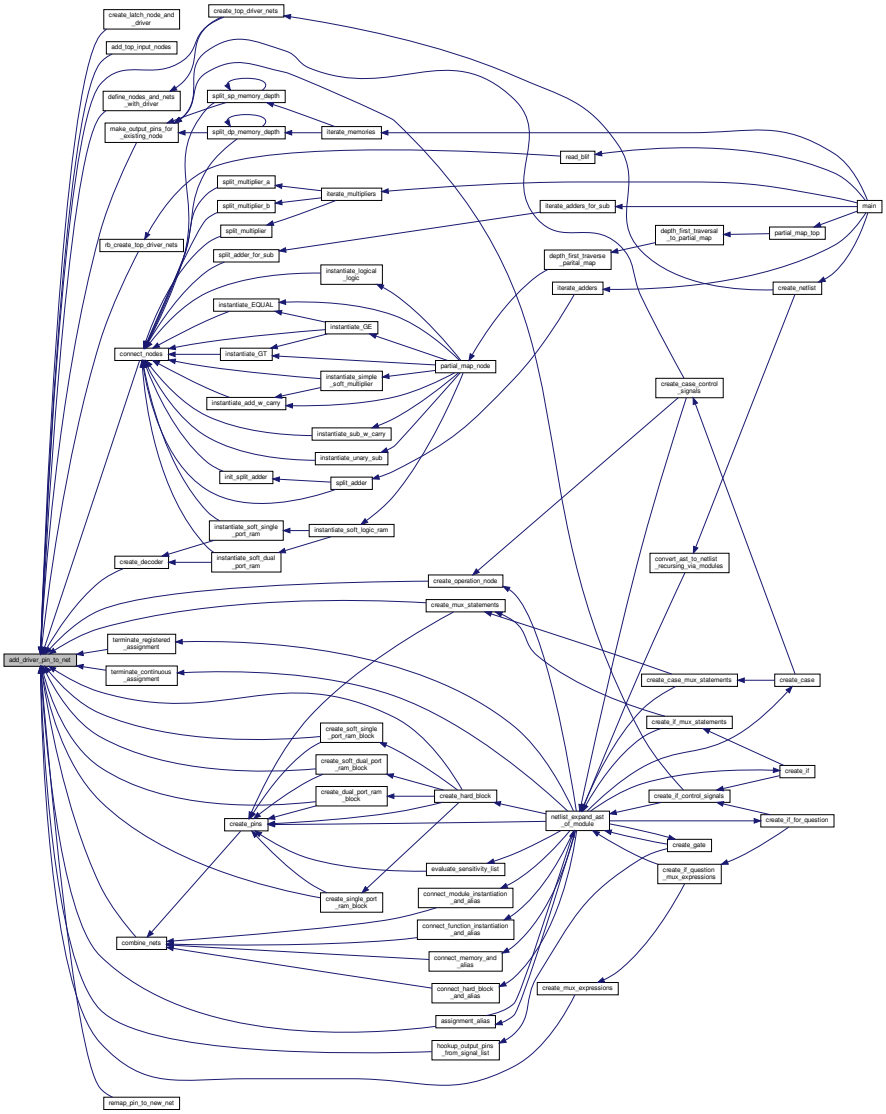
2.37.1 Function Documentation

2.37.1.1 add_driver_pin_to_net()

```
void add_driver_pin_to_net (
            nnet_t * net,
            npin_t * pin )
```

Definition at line 366 of file netlist_utils.cpp.

Here is the caller graph for this function:

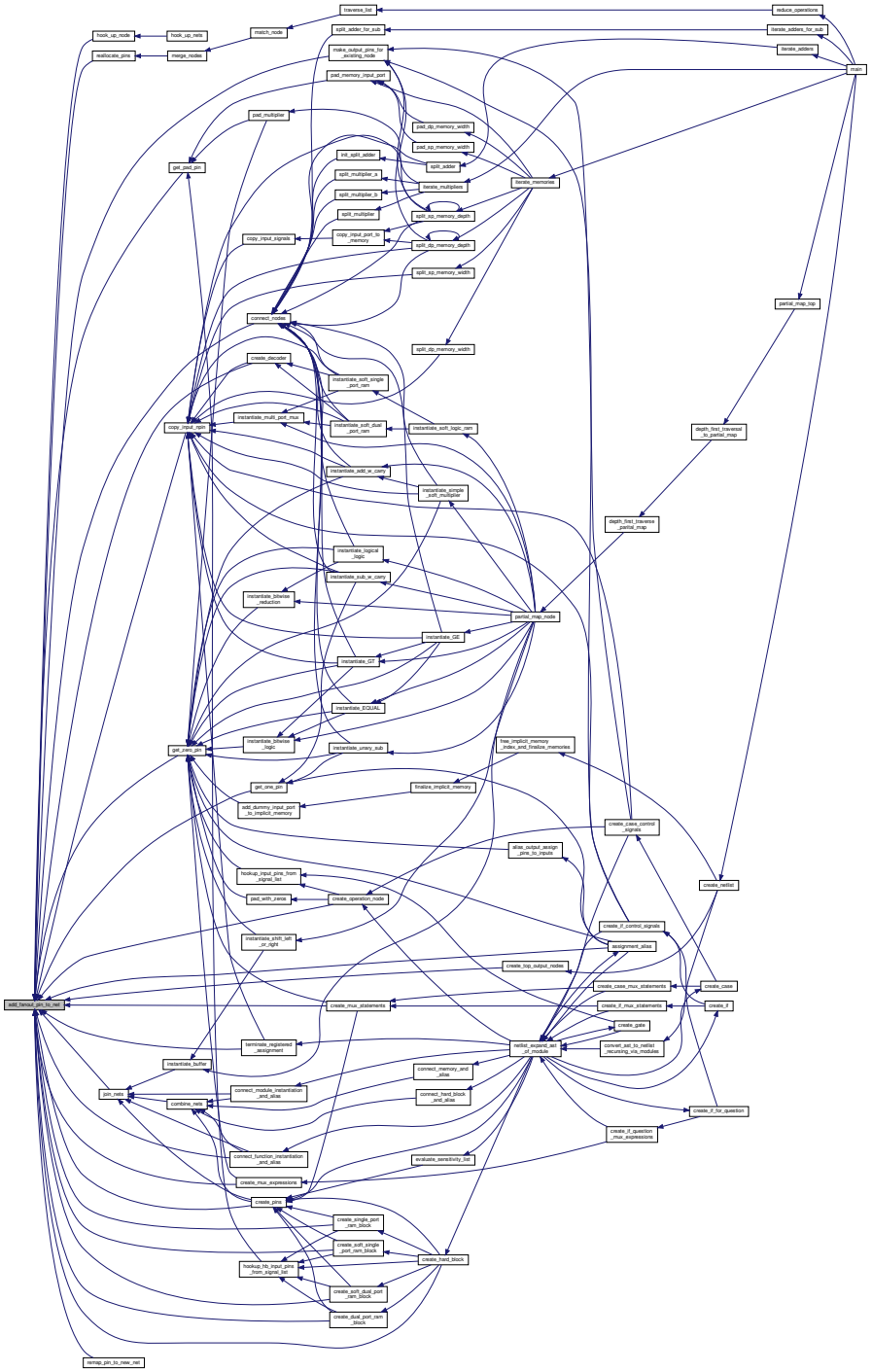


2.37.1.2 add_fanout_pin_to_net()

```
void add_fanout_pin_to_net (
            nnet_t * net,
            npin_t * pin )
```

Definition at line 332 of file netlist_utils.cpp.

Here is the caller graph for this function:



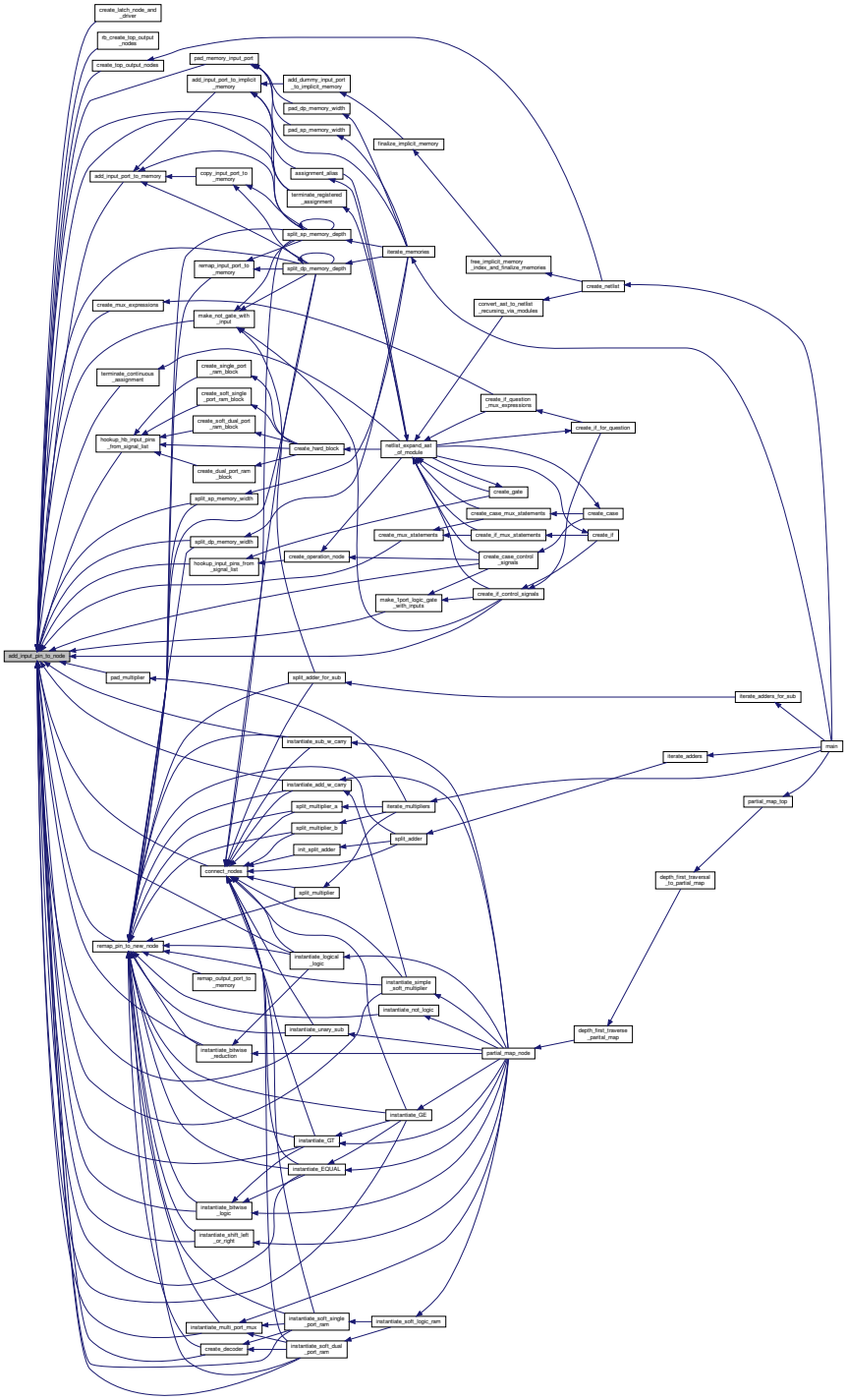
2.37.1.3 add_input_pin_to_node()

```
void add_input_pin_to_node (
```

```
nnode_t * node,
npin_t * pin,
int pin_idx )
```

Definition at line 316 of file netlist_utils.cpp.

Here is the caller graph for this function:

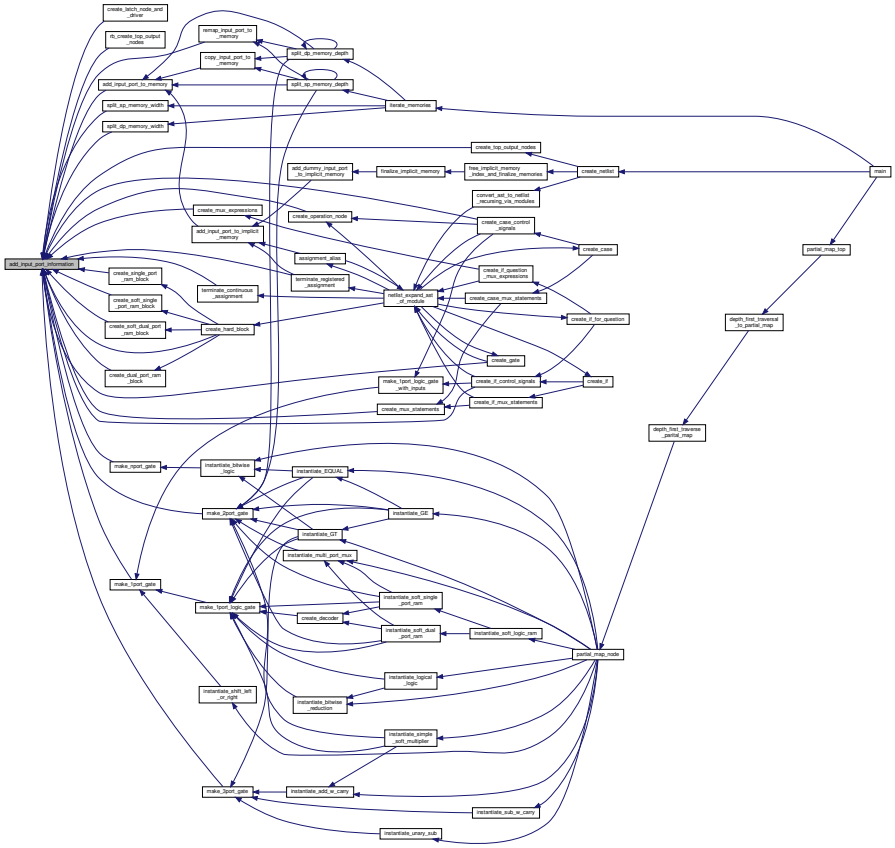


2.37.1.4 add_input_port_information()

```
void add_input_port_information (
            nnode_t * node,
            int port_width )
```

Definition at line 178 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.37.1.5 add_node_to_netlist()

```
void add_node_to_netlist (
            netlist_t * netlist,
            nnode_t * node,
            short special_node )
```

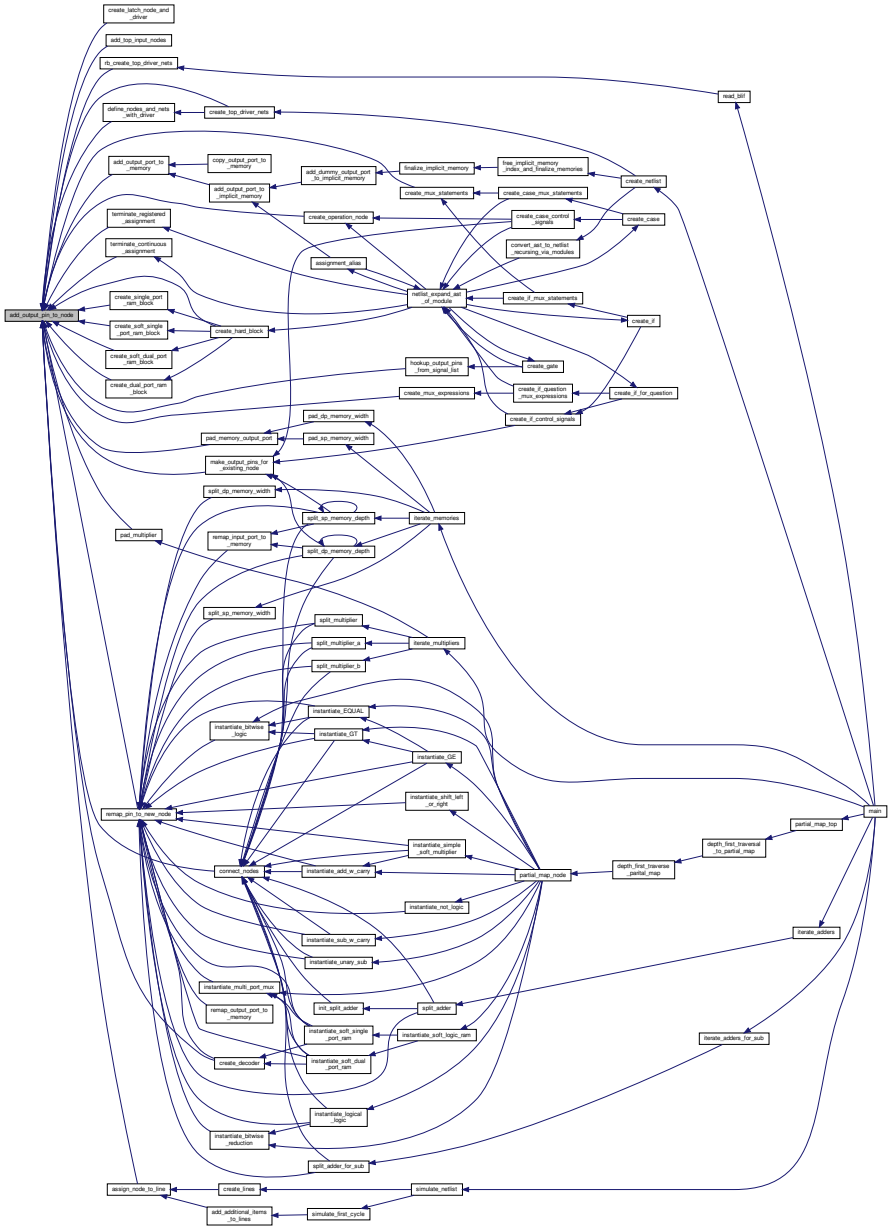
Definition at line 896 of file netlist_utils.cpp.

2.37.1.6 add_output_pin_to_node()

```
void add_output_pin_to_node (
            nnode_t * node,
            npin_t * pin,
            int pin_idx )
```

Definition at line 350 of file netlist_utils.cpp.

Here is the caller graph for this function:

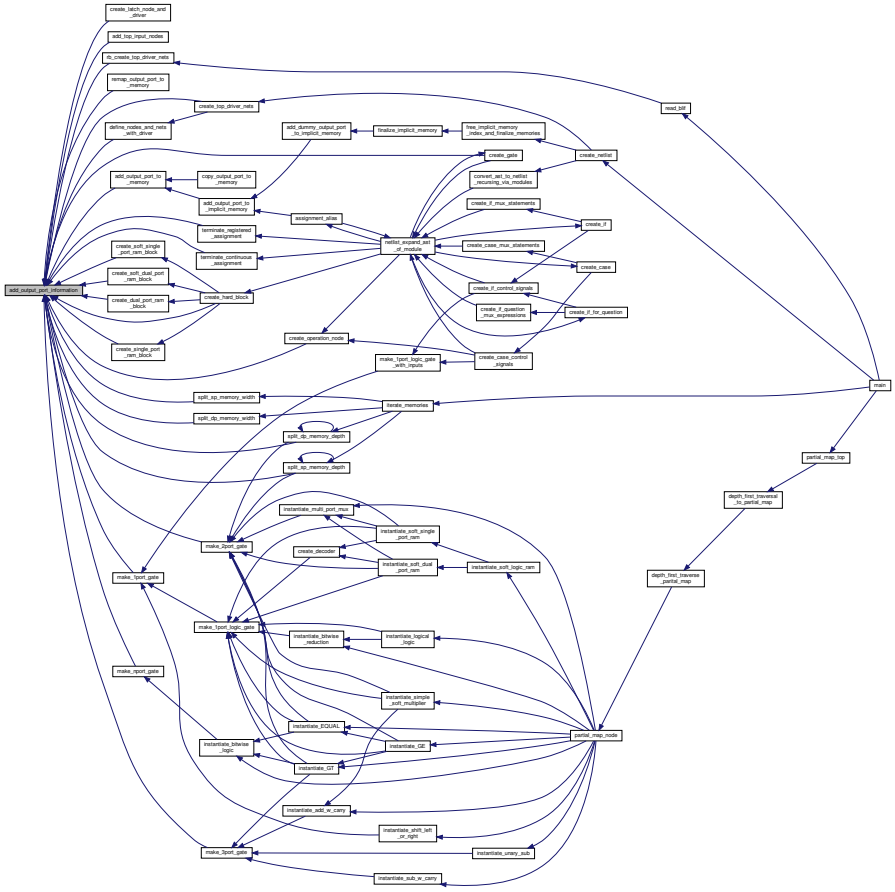


2.37.1.7 add_output_port_information()

```
void add_output_port_information (
              nnode_t * node,
              int port_width )
```

Definition at line 168 of file netlist_utils.cpp.

Here is the caller graph for this function:

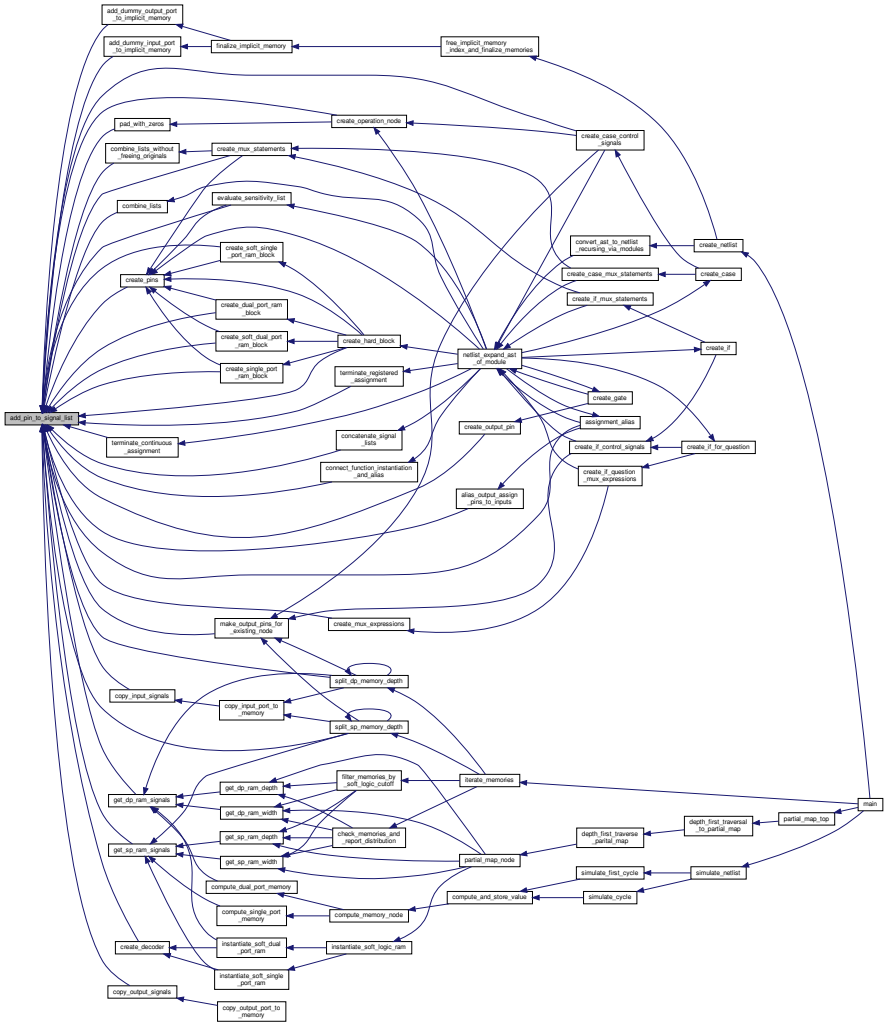


2.37.1.8 add_pin_to_signal_list()

```
void add_pin_to_signal_list (
              signal_list_t * list,
              npin_t * pin )
```

Definition at line 546 of file netlist_utils.cpp.

Here is the caller graph for this function:

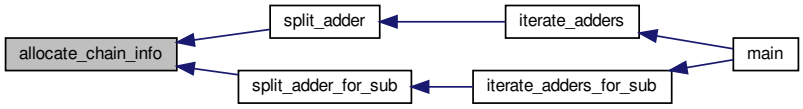


2.37.1.9 allocate_chain_info()

```
chain_information_t* allocate_chain_info ( )
```

Definition at line 1049 of file netlist_utils.cpp.

Here is the caller graph for this function:

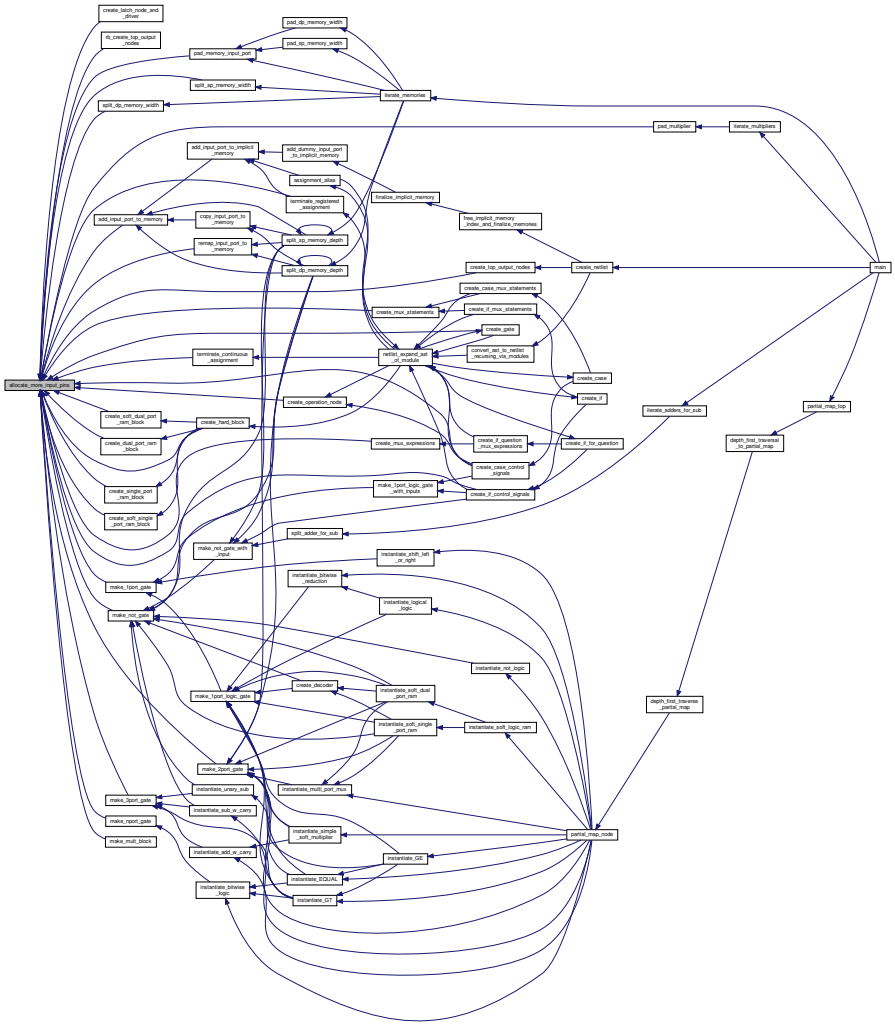


2.37.1.10 allocate_more_input_pins()

```
void allocate_more_input_pins (
            nnode_t * node,
            int width )
```

Definition at line 125 of file netlist_utils.cpp.

Here is the caller graph for this function:

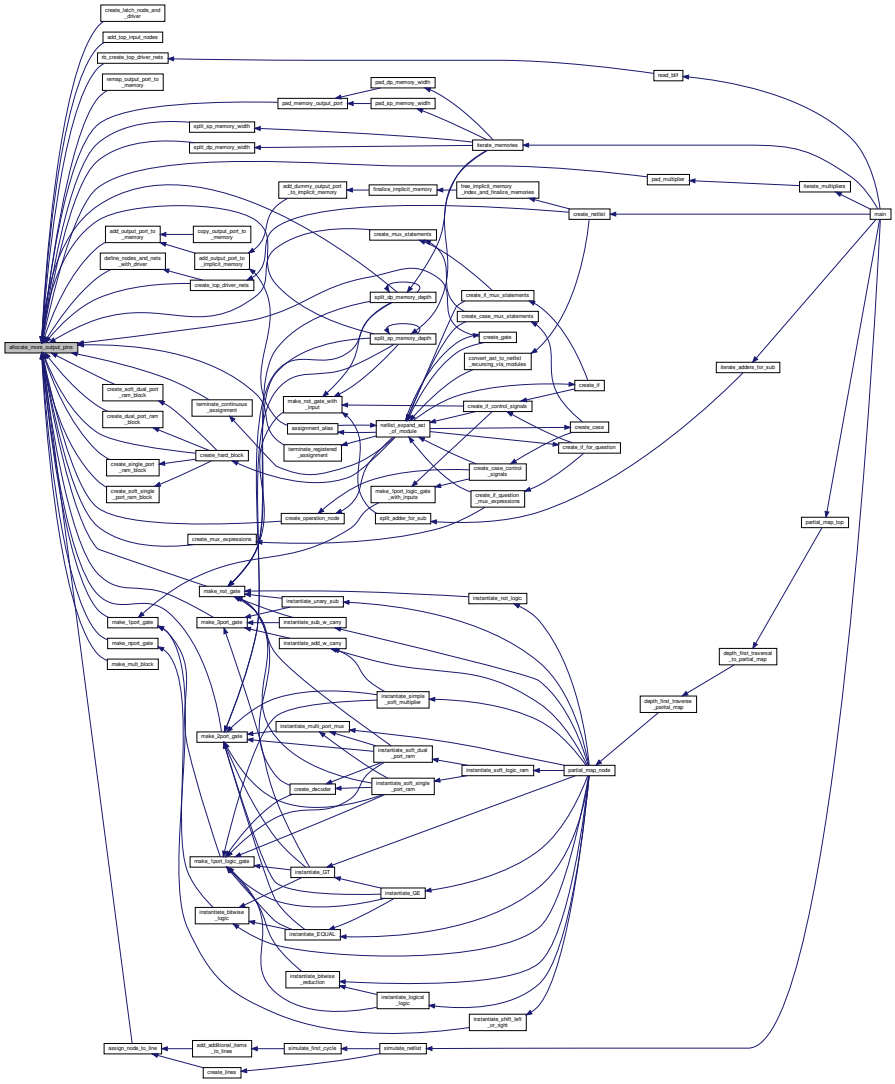


2.37.1.11 allocate_more_output_pins()

```
void allocate_more_output_pins (
            nnode_t * node,
            int width )
```

Definition at line 147 of file netlist_utils.cpp.

Here is the caller graph for this function:

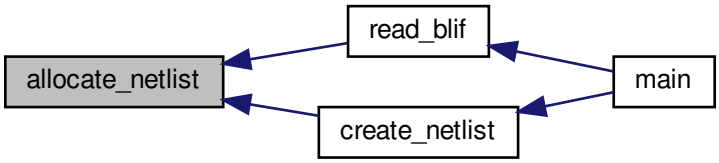


2.37.1.12 allocate_netlist()

```
netlist_t* allocate_netlist ( )
```

Definition at line 837 of file netlist_utils.cpp.

Here is the caller graph for this function:

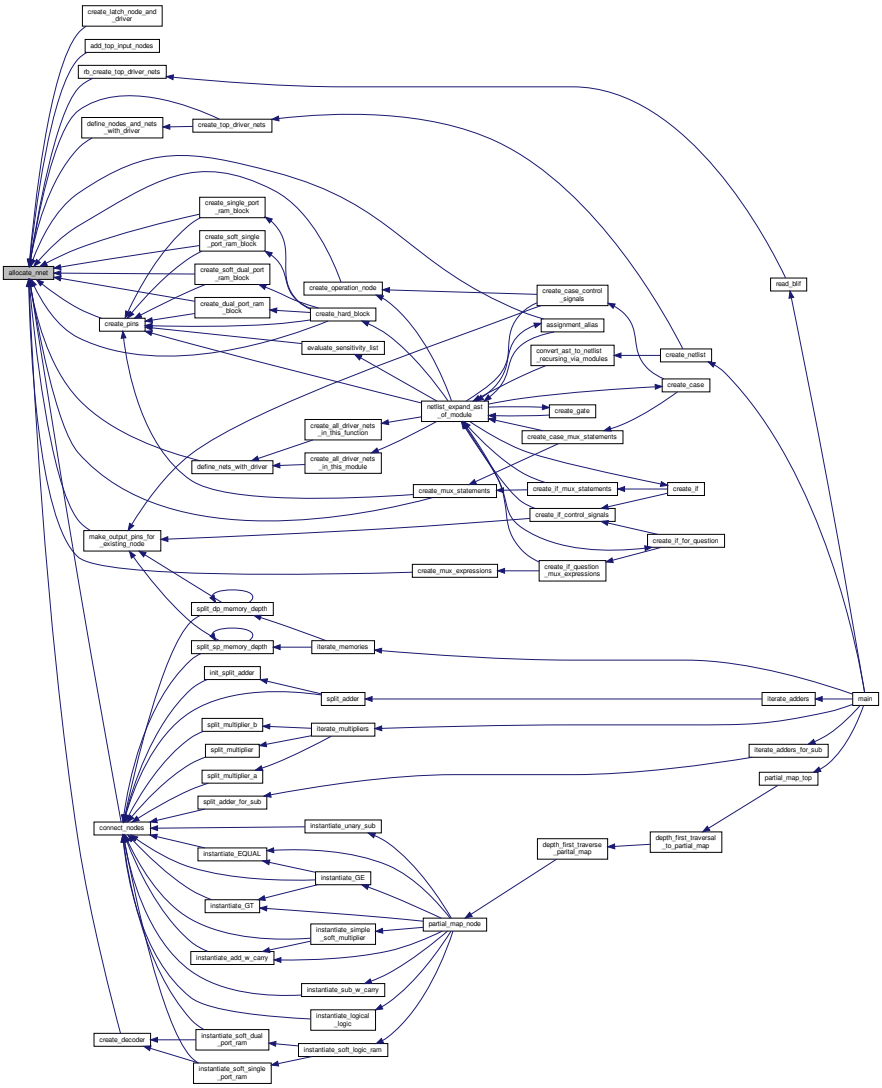


2.37.1.13 allocate_nnet()

```
nnet_t* allocate_nnet ( )
```

Definition at line 254 of file netlist_utils.cpp.

Here is the caller graph for this function:

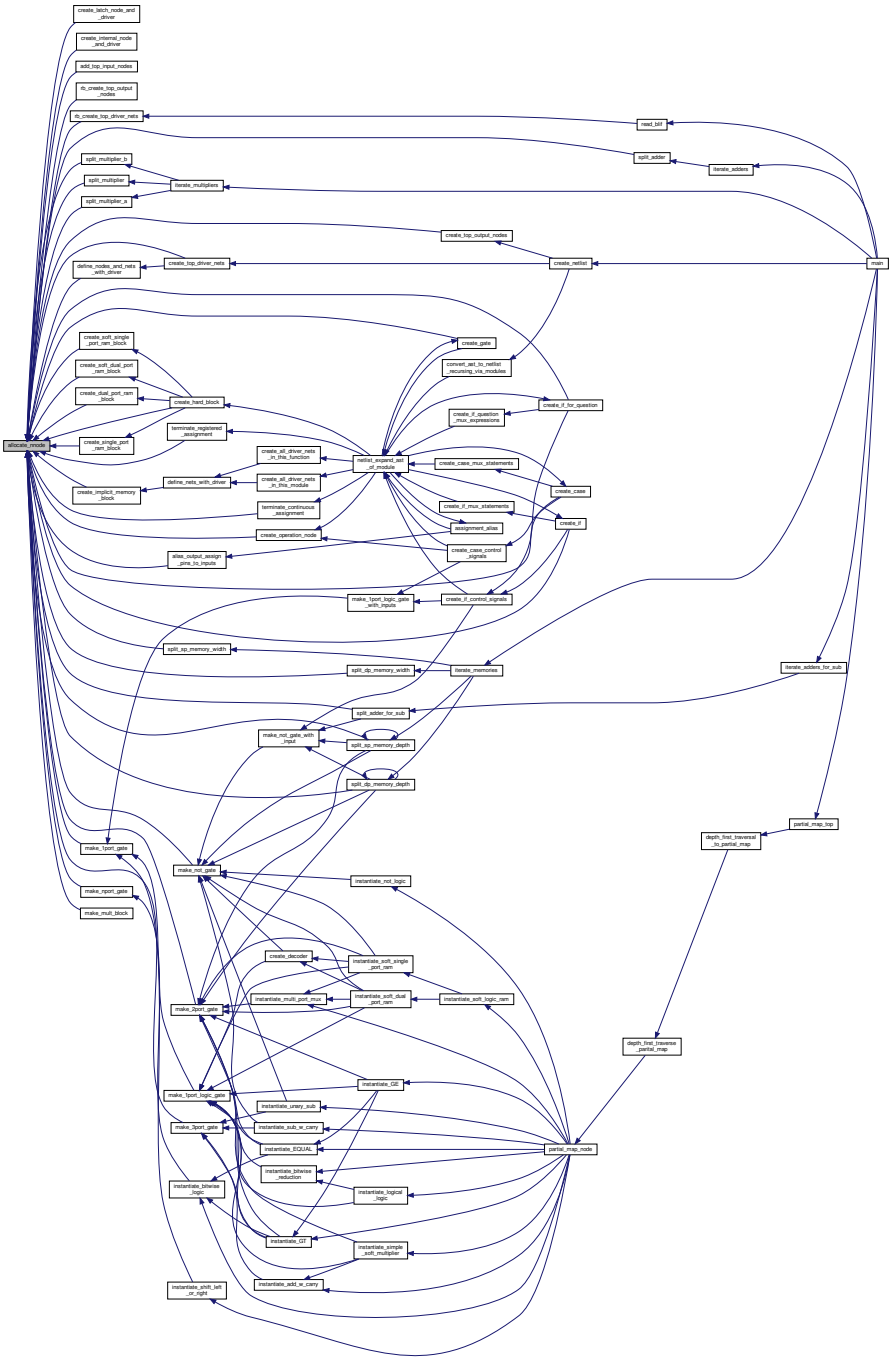


2.37.1.14 allocate_nnode()

```
nnode_t* allocate_nnode ( )
```

Definition at line 41 of file netlist_utils.cpp.

Here is the caller graph for this function:

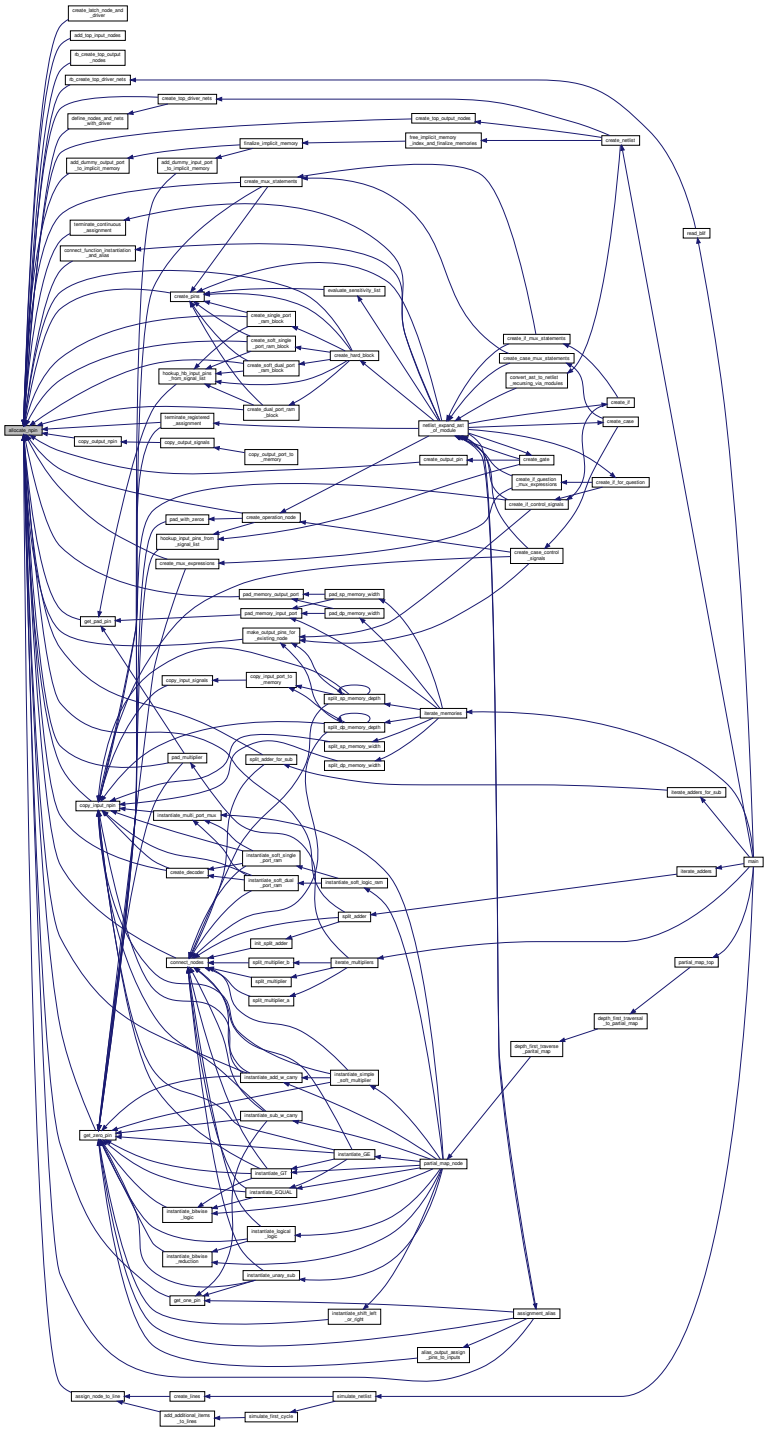


2.37.1.15 allocate_npin()

```
npin_t* allocate_npin ( )
```

Definition at line 188 of file netlist_utils.cpp.

Here is the caller graph for this function:

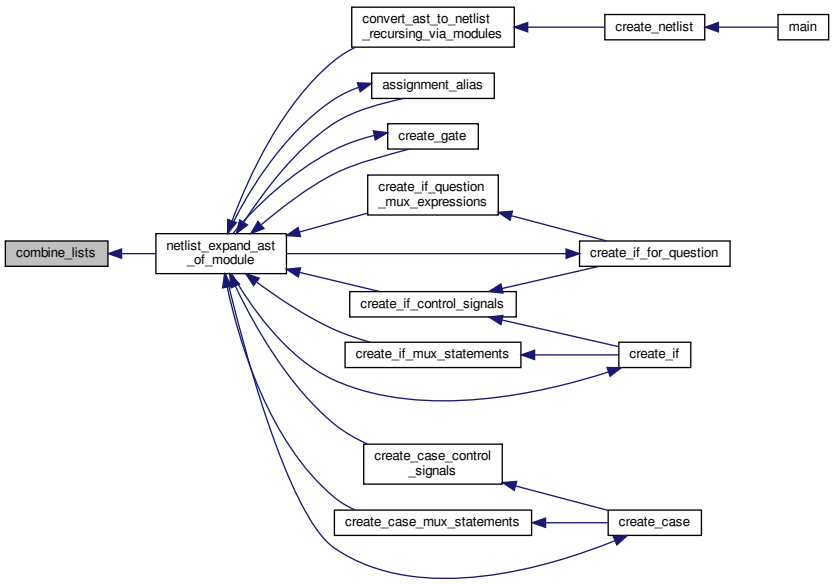


2.37.1.16 combine_lists()

```
signal_list_t* combine_lists (
            signal_list_t ** signal_lists,
            int num_signal_lists )
```

Definition at line 556 of file netlist_utils.cpp.

Here is the caller graph for this function:

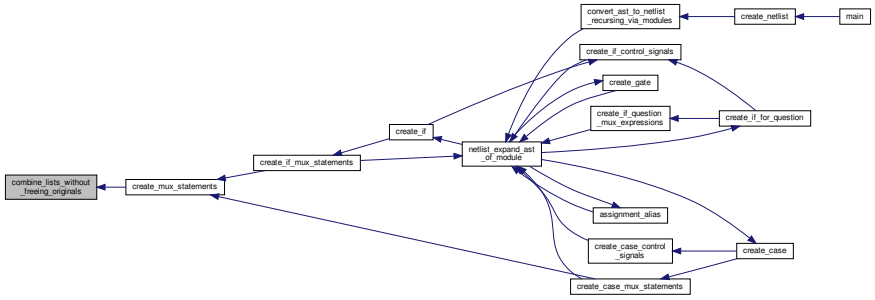


2.37.1.17 combine_lists_without_freeing_originals()

```
signal_list_t* combine_lists_without_freeing_originals (
            signal_list_t ** signal_lists,
            int num_signal_lists )
```

Definition at line 574 of file netlist_utils.cpp.

Here is the caller graph for this function:

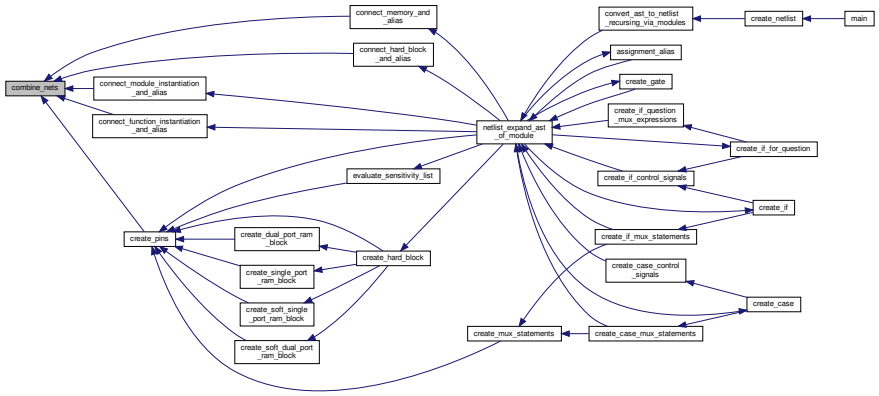


2.37.1.18 combine_nets()

```
void combine_nets (
            nnet_t * output_net,
            nnet_t * input_net,
            netlist_t * netlist )
```

Definition at line 384 of file netlist_utils.cpp.

Here is the caller graph for this function:

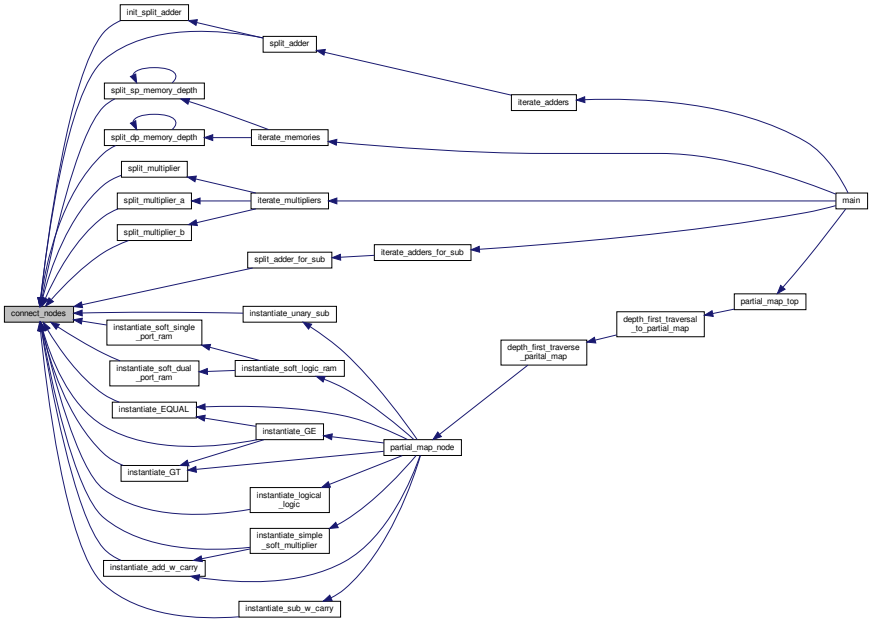


2.37.1.19 connect_nodes()

```
void connect_nodes (
            nnode_t * out_node,
            int out_idx,
            nnode_t * in_node,
            int in_idx )
```

Definition at line 489 of file netlist_utils.cpp.

Here is the caller graph for this function:

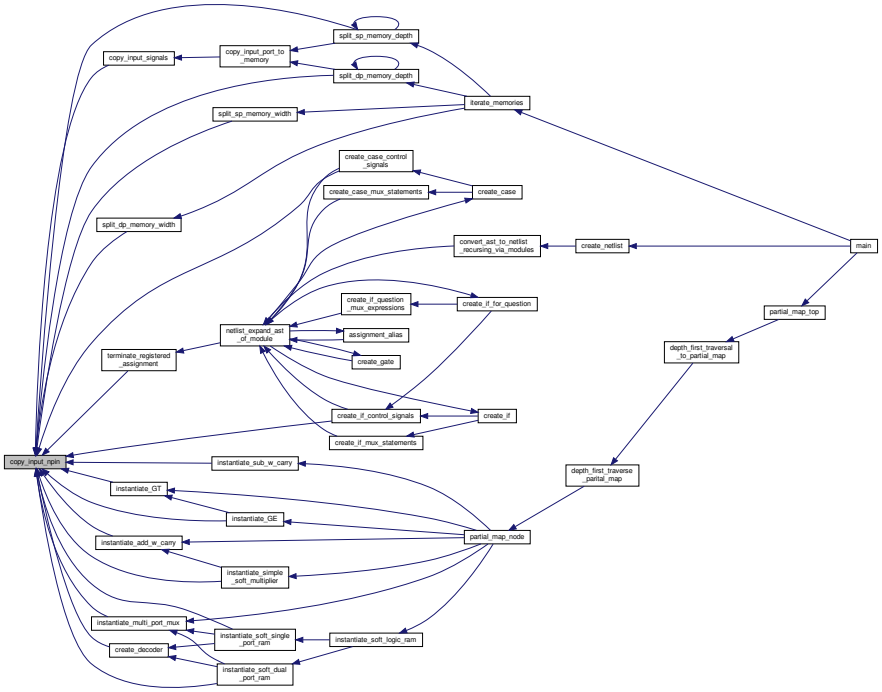


2.37.1.20 copy_input_npin()

```
npin_t* copy_input_npin (
            npin_t * copy_pin )
```

Definition at line 234 of file netlist_utils.cpp.

Here is the caller graph for this function:

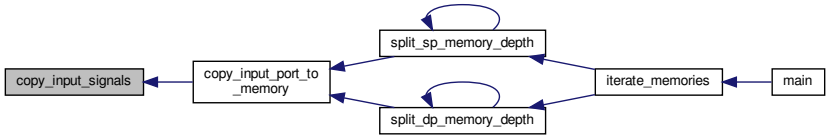


2.37.1.21 copy_input_signals()

```
signal_list_t* copy_input_signals (
            signal_list_t * signalsvar )
```

Definition at line 592 of file netlist_utils.cpp.

Here is the caller graph for this function:

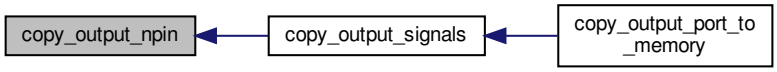


2.37.1.22 copy_output_npin()

```
npin_t* copy_output_npin (
            npin_t * copy_pin )
```

Definition at line 217 of file netlist_utils.cpp.

Here is the caller graph for this function:

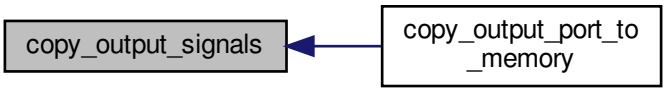


2.37.1.23 copy_output_signals()

```
signal_list_t* copy_output_signals (
            signal_list_t * signalsvar )
```

Definition at line 606 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.37.1.24 count_nodes_in_netlist()

```
int count_nodes_in_netlist (
            netlist_t * netlist )
```

Definition at line 772 of file netlist_utils.cpp.

2.37.1.25 free_netlist()

```
void free_netlist (
            netlist_t * to_free )
```

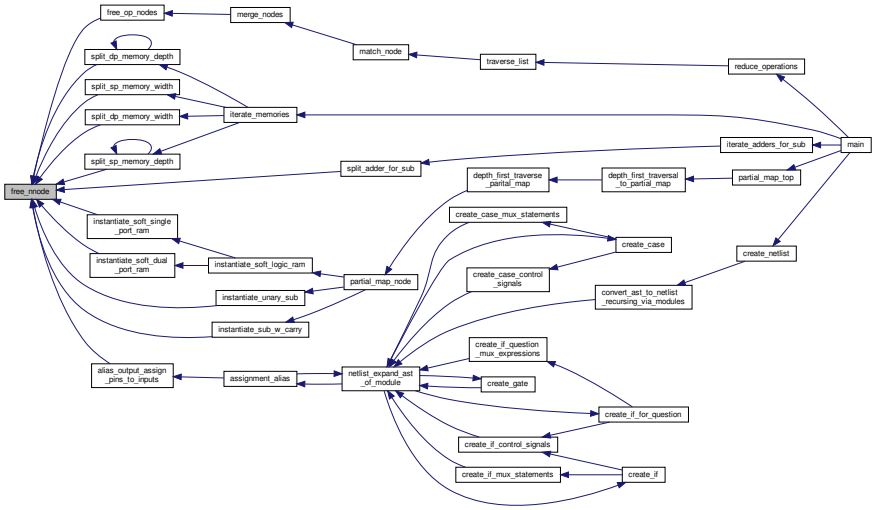
Definition at line 886 of file netlist_utils.cpp.

2.37.1.26 free_nnode()

```
nnode_t* free_nnode (
            nnode_t * to_free )
```

Definition at line 96 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.37.1.27 free_npin()

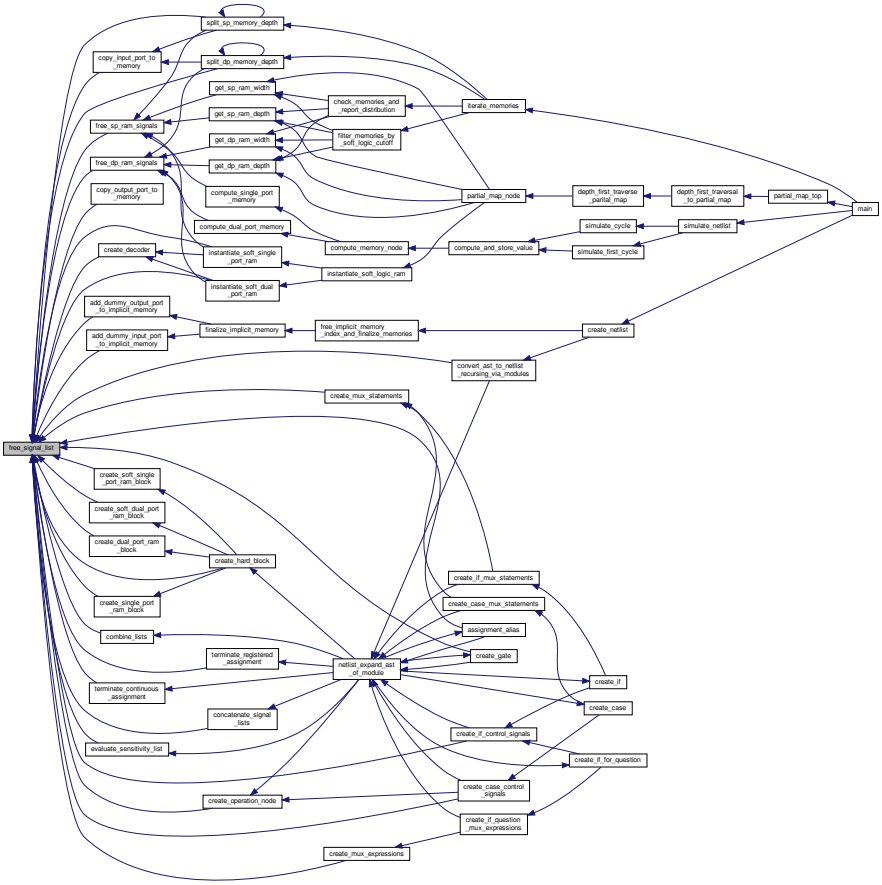
```
npin_t* free_npin (
            npin_t * to_free )
```

2.37.1.28 free_signal_list()

```
void free_signal_list (
            signal_list_t * list )
```

Definition at line 675 of file netlist_utils.cpp.

Here is the caller graph for this function:

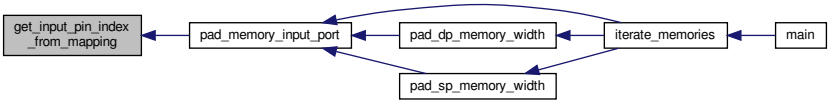


2.37.1.29 get_input_pin_index_from_mapping()

```
int get_input_pin_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 1015 of file netlist_utils.cpp.

Here is the caller graph for this function:

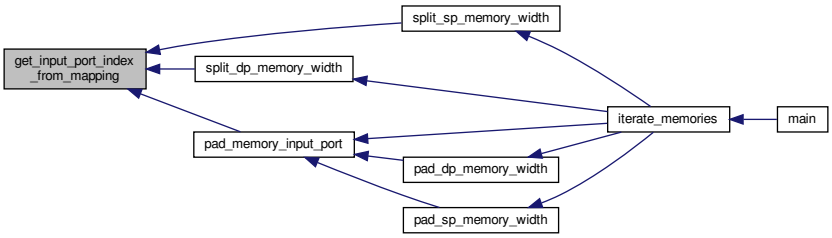


2.37.1.30 get_input_port_index_from_mapping()

```
int get_input_port_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 1032 of file netlist_utils.cpp.

Here is the caller graph for this function:

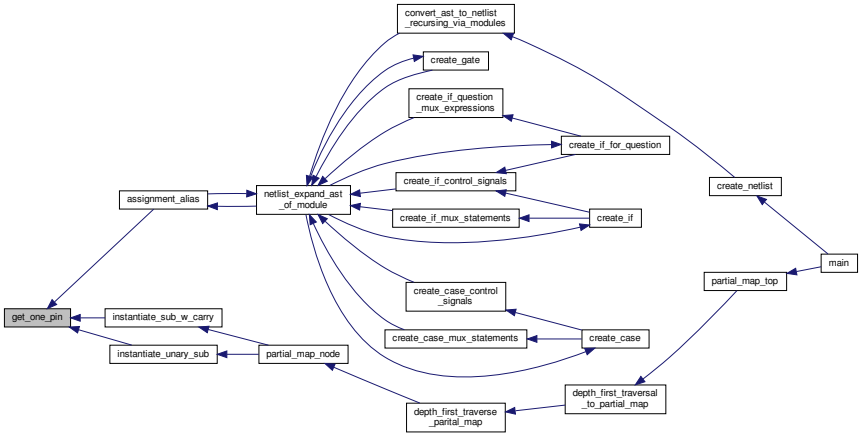


2.37.1.31 get_one_pin()

```
npin_t* get_one_pin (
            netlist_t * netlist )
```

Definition at line 64 of file node_creation_library.cpp.

Here is the caller graph for this function:

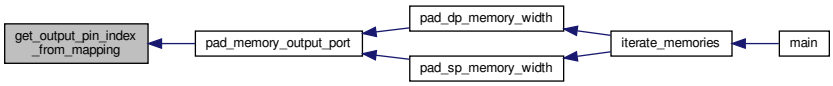


2.37.1.32 get_output_pin_index_from_mapping()

```
int get_output_pin_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 978 of file netlist_utils.cpp.

Here is the caller graph for this function:

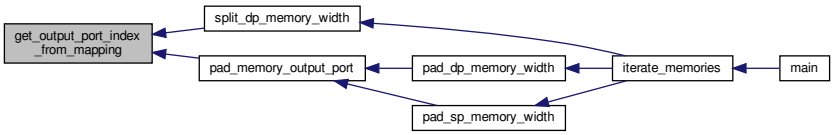


2.37.1.33 get_output_port_index_from_mapping()

```
int get_output_port_index_from_mapping (
            nnode_t * node,
            const char * name )
```

Definition at line 995 of file netlist_utils.cpp.

Here is the caller graph for this function:

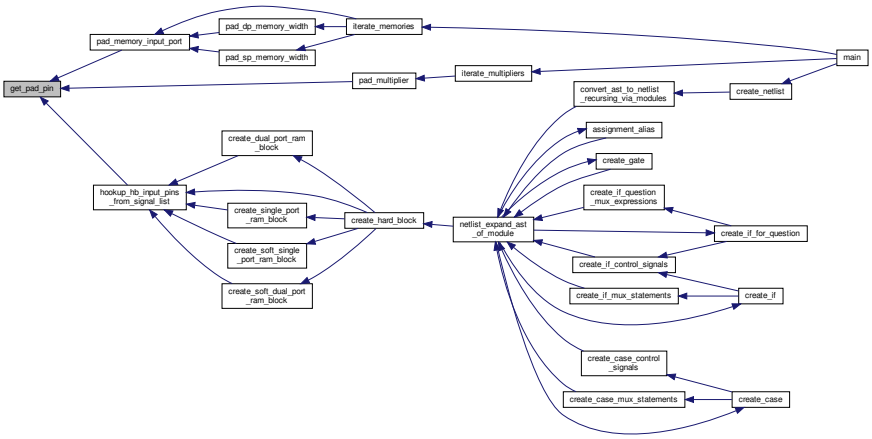


2.37.1.34 get_pad_pin()

```
npin_t* get_pad_pin (
            netlist_t * netlist )
```

Definition at line 40 of file node_creation_library.cpp.

Here is the caller graph for this function:

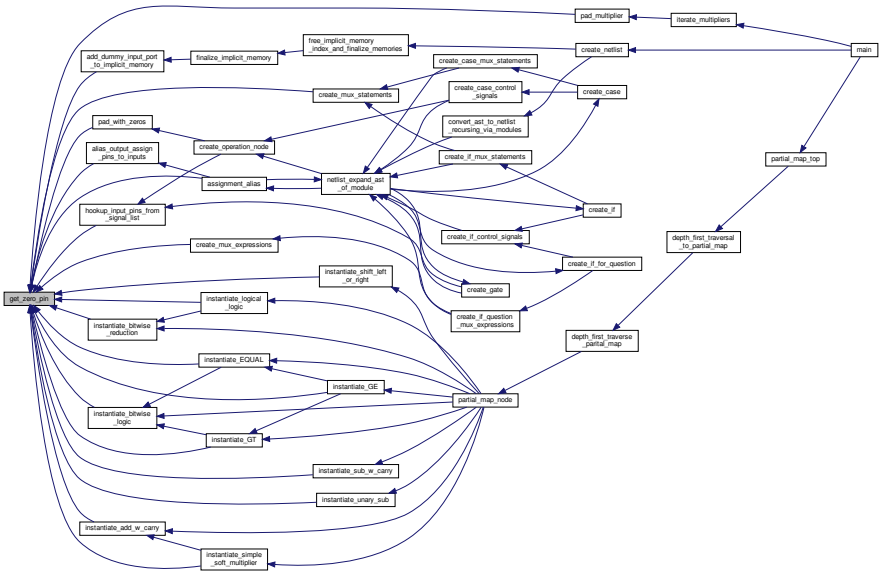


2.37.1.35 get_zero_pin()

```
npin_t* get_zero_pin (
            netlist_t * netlist )
```

Definition at line 52 of file node_creation_library.cpp.

Here is the caller graph for this function:

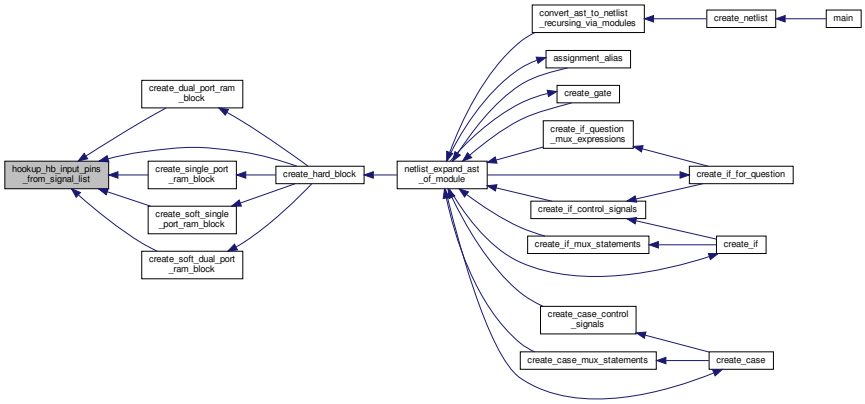


2.37.1.36 hookup_hb_input_pins_from_signal_list()

```
void hookup_hb_input_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * input_list,
            int il_start_idx,
            int width,
            netlist_t * netlist )
```

Definition at line 717 of file netlist_utils.cpp.

Here is the caller graph for this function:

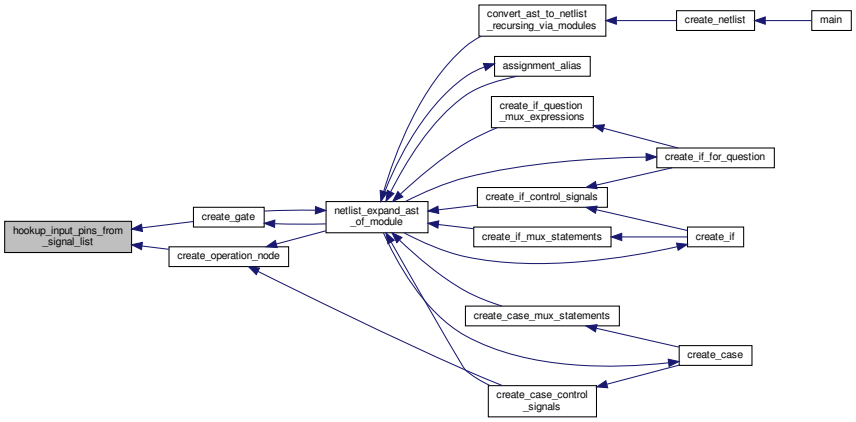


2.37.1.37 hookup_input_pins_from_signal_list()

```
void hookup_input_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * input_list,
            int il_start_idx,
            int width,
            netlist_t * netlist )
```

Definition at line 688 of file netlist_utils.cpp.

Here is the caller graph for this function:

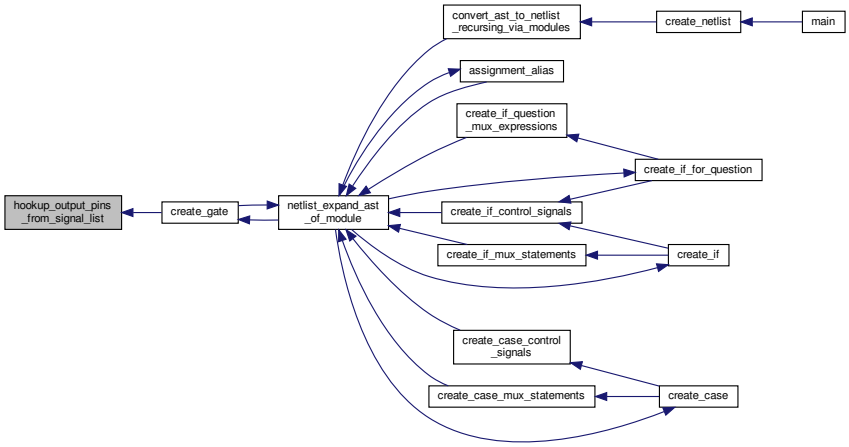


2.37.1.38 hookup_output_pins_from_signal_list()

```
void hookup_output_pins_from_signal_list (
            nnode_t * node,
            int n_start_idx,
            signal_list_t * output_list,
            int ol_start_idx,
            int width )
```

Definition at line 743 of file netlist_utils.cpp.

Here is the caller graph for this function:

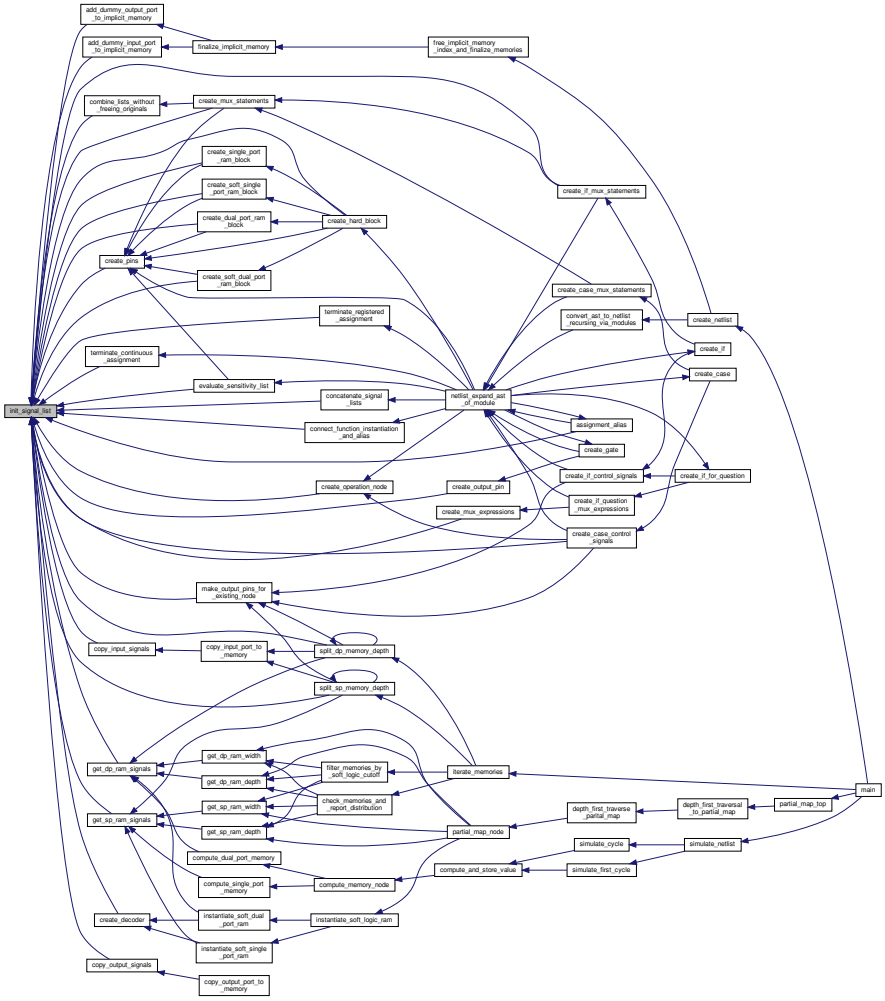


2.37.1.39 init_signal_list()

```
signal_list_t* init_signal_list ( )
```

Definition at line 529 of file netlist_utils.cpp.

Here is the caller graph for this function:

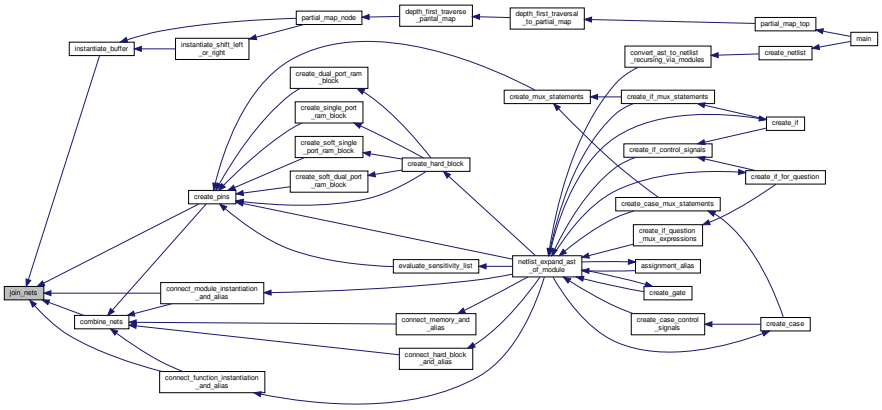


2.37.1.40 join_nets()

```
void join_nets (
            nnet_t * net,
            nnet_t * input_net )
```

Definition at line 420 of file netlist_utils.cpp.

Here is the caller graph for this function:

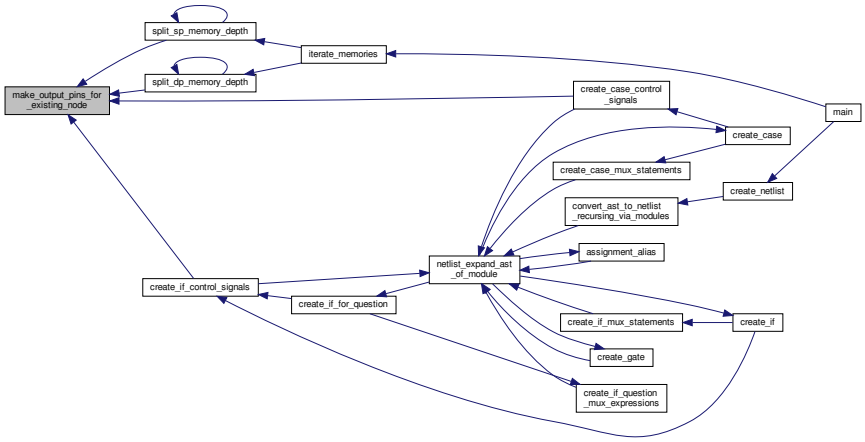


2.37.1.41 make_output_pins_for_existing_node()

```
signal_list_t* make_output_pins_for_existing_node (
            nnode_t * node,
            int width )
```

Definition at line 642 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.37.1.42 mark_clock_node()

```
void mark_clock_node (
            netlist_t * netlist,
            const char * clock_name )
```

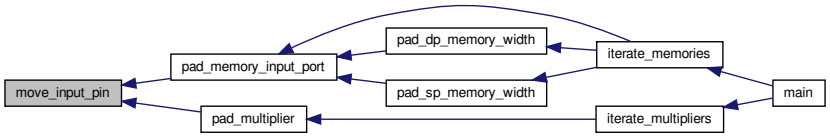
Definition at line 949 of file netlist_utils.cpp.

2.37.1.43 move_input_pin()

```
void move_input_pin (
            nnode_t * node,
            int old_idx,
            int new_idx )
```

Definition at line 296 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.37.1.44 move_output_pin()

```
void move_output_pin (
            nnode_t * node,
            int old_idx,
            int new_idx )
```

Definition at line 276 of file netlist_utils.cpp.

Here is the caller graph for this function:

2.37.1.45 remap_pin_to_new_net()

```
void remap_pin_to_new_net (
            npin_t * pin,
            nnet_t * new_net )
```

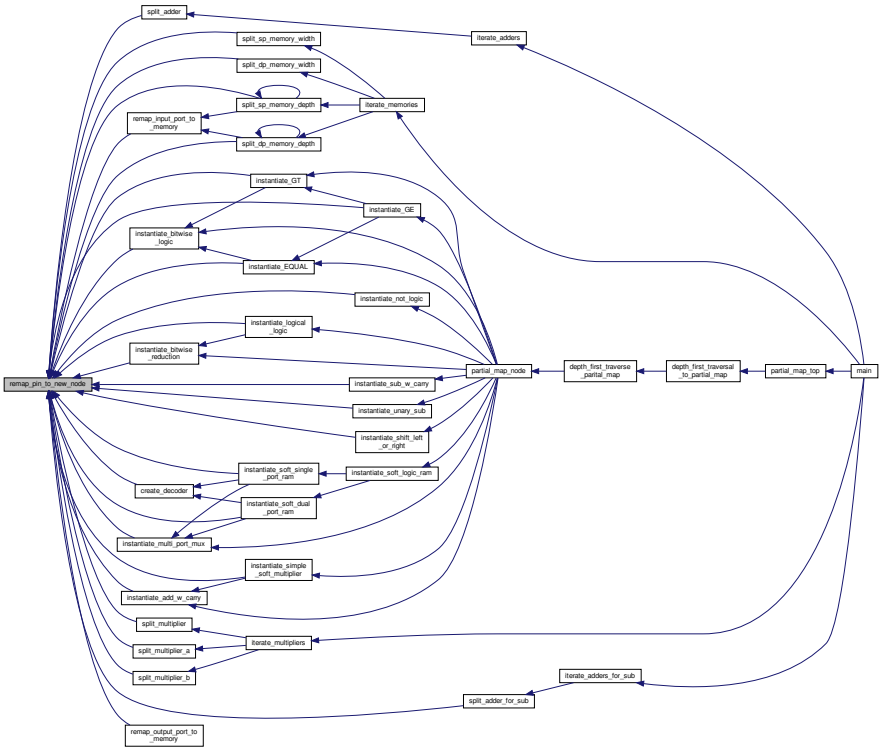
Definition at line 448 of file netlist_utils.cpp.

2.37.1.46 remap_pin_to_new_node()

```
void remap_pin_to_new_node (
            npin_t * pin,
            nnode_t * new_node,
            int pin_idx )
```

Definition at line 469 of file netlist_utils.cpp.

Here is the caller graph for this function:

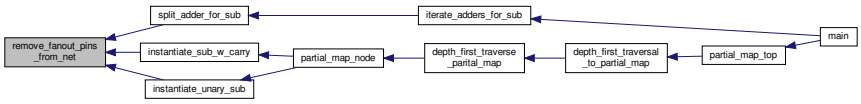


2.37.1.47 remove_fanout_pins_from_net()

```
void remove_fanout_pins_from_net (
            nnet_t * net,
            npin_t * pin,
            int id )
```

Definition at line 1061 of file netlist_utils.cpp.

Here is the caller graph for this function:

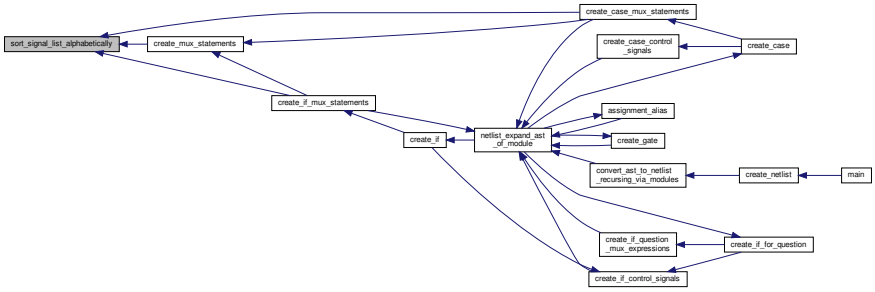


2.37.1.48 sort_signal_list_alphabetically()

```
void sort_signal_list_alphabetically (
            signal_list_t * list )
```

Definition at line 631 of file netlist_utils.cpp.

Here is the caller graph for this function:



2.38 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/node_creation_library.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdarg.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "node_creation_library.h"
#include "vtr_util.h"
```

Functions

- npin_t * get_pad_pin (netlist_t *netlist)
- npin_t * get_zero_pin (netlist_t *netlist)
- npin_t * get_one_pin (netlist_t *netlist)
- nnode_t * make_not_gate_with_input (npin_t *input_pin, nnode_t *node, short mark)
- nnode_t * make_not_gate (nnode_t *node, short mark)
- nnode_t * make_1port_gate (operation_list type, int width_input, int width_output, nnode_t *node, short mark)
- nnode_t * make_1port_logic_gate (operation_list type, int width, nnode_t *node, short mark)
- nnode_t * make_1port_logic_gate_with_inputs (operation_list type, int width, signal_list_t *pin_list, nnode_t *node, short mark)
- nnode_t * make_3port_gate (operation_list type, int width_port1, int width_port2, int width_port3, int width_output, nnode_t *node, short mark)
- nnode_t * make_2port_gate (operation_list type, int width_port1, int width_port2, int width_output, nnode_t *node, short mark)
- nnode_t * make_nport_gate (operation_list type, int port_sizes, int width, int width_output, nnode_t *node, short mark)
- const char * node_name_based_on_op (nnode_t *node)
- char * hard_node_name (nnode_t *, char *instance_name_prefix, char *hb_name, char *hb_inst)
- char * node_name (nnode_t *node, char *instance_name_prefix)
- nnode_t * make_mult_block (nnode_t *node, short mark)

Variables

- long unique_node_name_id = 0
- const char * MULTI_PORT_MUX_string = "MULTI_PORT_MUX"
- const char * FF_NODE_string = "FF_NODE"
- const char * BUF_NODE_string = "BUF_NODE"
- const char * INPUT_NODE_string = "INPUT_NODE"
- const char * CLOCK_NODE_string = "CLOCK_NODE"
- const char * OUTPUT_NODE_string = "OUTPUT_NODE"
- const char * GND_NODE_string = "GND_NODE"
- const char * VCC_NODE_string = "VCC_NODE"
- const char * ADD_string = "ADD"
- const char * MINUS_string = "MINUS"
- const char * BITWISE_NOT_string = "BITWISE_NOT"
- const char * BITWISE_AND_string = "BITWISE_AND"
- const char * BITWISE_OR_string = "BITWISE_OR"
- const char * BITWISE_NAND_string = "BITWISE_NAND"
- const char * BITWISE_NOR_string = "BITWISE_NOR"
- const char * BITWISE_XNOR_string = "BITWISE_XNOR"
- const char * BITWISE_XOR_string = "BITWISE_XOR"
- const char * LOGICAL_NOT_string = "LOGICAL_NOT"
- const char * LOGICAL_OR_string = "LOGICAL_OR"
- const char * LOGICAL_AND_string = "LOGICAL_AND"
- const char * LOGICAL_NAND_string = "LOGICAL_NAND"
- const char * LOGICAL_NOR_string = "LOGICAL_NOR"
- const char * LOGICAL_XOR_string = "LOGICAL_XOR"
- const char * LOGICAL_XNOR_string = "LOGICAL_XNOR"
- const char * MULTIPLY_string = "MULTIPLY"

- const char * DIVIDE_string = "DIVIDE"
- const char * MODULO_string = "MODULO"
- const char * LT_string = "LT"
- const char * GT_string = "GT"
- const char * LOGICAL_EQUAL_string = "LOGICAL_EQUAL"
- const char * NOT_EQUAL_string = "NOT_EQUAL"
- const char * LTE_string = "LTE"
- const char * GTE_string = "GTE"
- const char * SR_string = "SR"
- const char * SL_string = "SL"
- const char * CASE_EQUAL_string = "CASE_EQUAL"
- const char * CASE_NOT_EQUAL_string = "CASE_NOT_EQUAL"
- const char * ADDER_FUNC_string = "ADDER_FUNC"
- const char * CARRY_FUNC_string = "CARRY_FUNC"
- const char * MUX_2_string = "MUX_2"
- const char * HARD_IP_string = "HARD_IP"
- const char * MEMORY_string = "MEMORY"

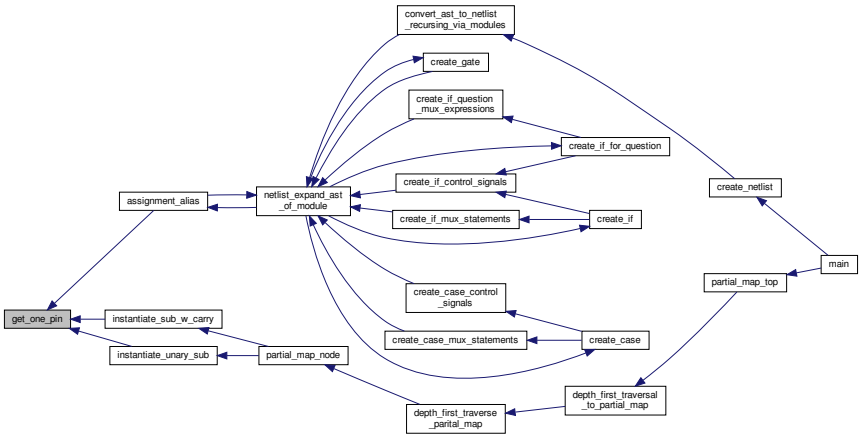
2.38.1 Function Documentation

2.38.1.1 get_one_pin()

```
npin_t* get_one_pin (
            netlist_t * netlist )
```

Definition at line 64 of file node_creation_library.cpp.

Here is the caller graph for this function:

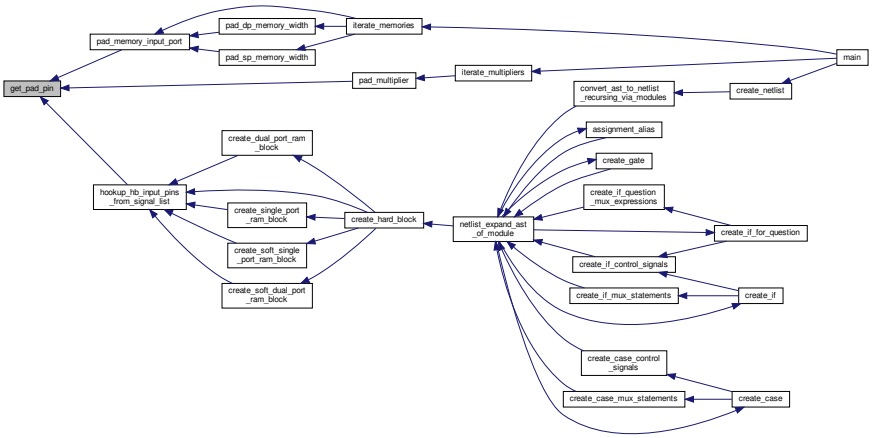


2.38.1.2 get_pad_pin()

```
npin_t* get_pad_pin (
            netlist_t * netlist )
```

Definition at line 40 of file node_creation_library.cpp.

Here is the caller graph for this function:

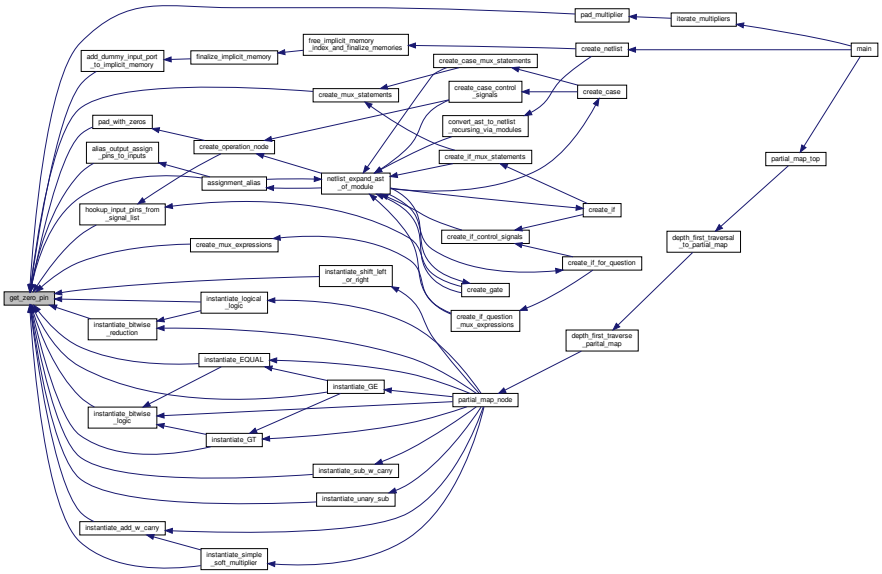


2.38.1.3 get_zero_pin()

```
npin_t* get_zero_pin (
            netlist_t * netlist )
```

Definition at line 52 of file node_creation_library.cpp.

Here is the caller graph for this function:

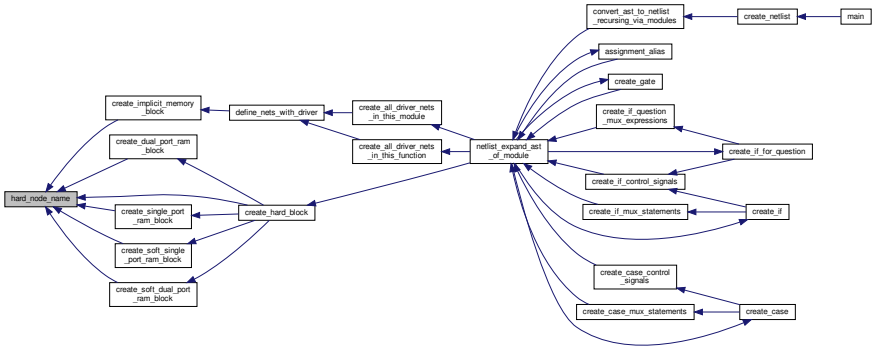


2.38.1.4 hard_node_name()

```
char* hard_node_name (
            nnode_t * ,
            char * instance_name_prefix,
            char * hb_name,
            char * hb_inst )
```

Definition at line 434 of file node_creation_library.cpp.

Here is the caller graph for this function:

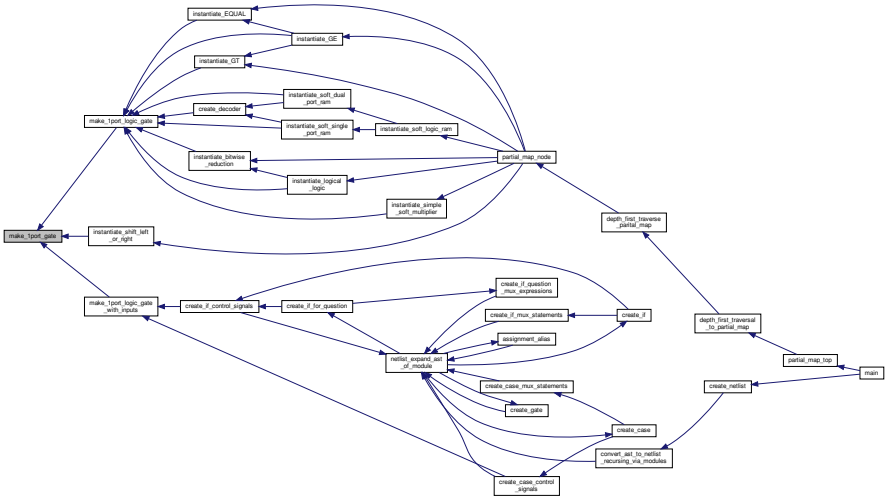


2.38.1.5 make_1port_gate()

```
nnode_t* make_1port_gate (
            operation_list type,
            int width_input,
            int width_output,
            nnode_t * node,
            short mark )
```

Definition at line 115 of file node_creation_library.cpp.

Here is the caller graph for this function:

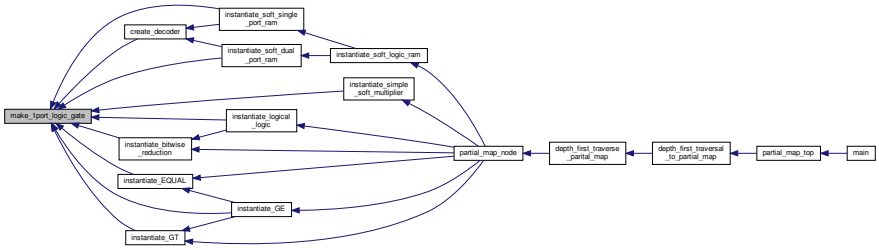


2.38.1.6 make_1port_logic_gate()

```
nnode_t* make_1port_logic_gate (
            operation_list type,
            int width,
            nnode_t * node,
            short mark )
```

Definition at line 138 of file node_creation_library.cpp.

Here is the caller graph for this function:

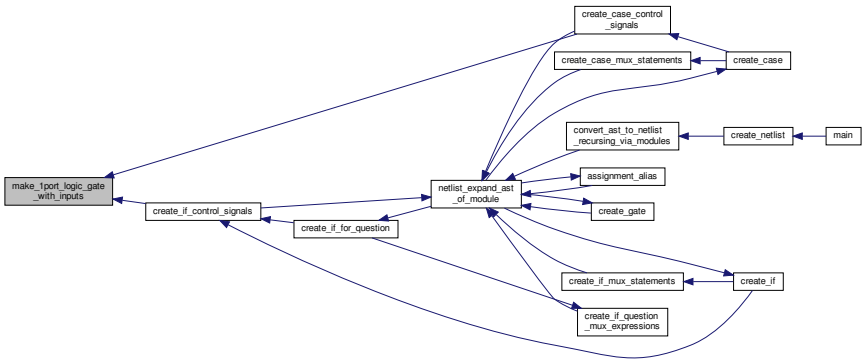


2.38.1.7 make_1port_logic_gate_with_inputs()

```
nnode_t* make_1port_logic_gate_with_inputs (
             operation_list type,
             int width,
             signal_list_t * pin_list,
             nnode_t * node,
             short mark )
```

Definition at line 149 of file node_creation_library.cpp.

Here is the caller graph for this function:

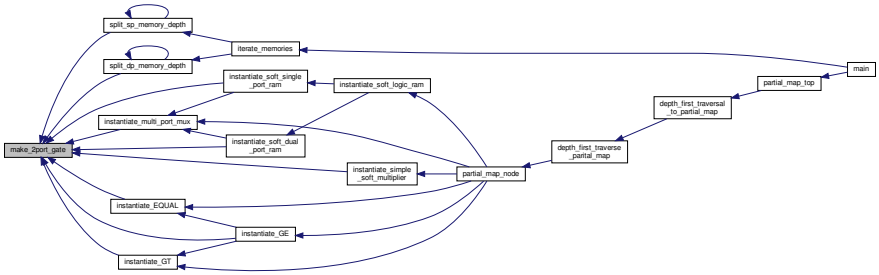


2.38.1.8 make_2port_gate()

```
nnode_t* make_2port_gate (
             operation_list type,
             int width_port1,
             int width_port2,
             int width_output,
             nnode_t * node,
             short mark )
```

Definition at line 196 of file node_creation_library.cpp.

Here is the caller graph for this function:

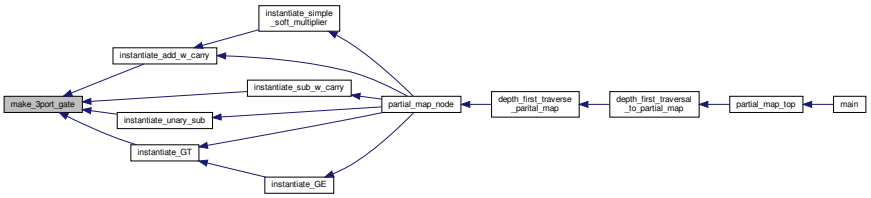


2.38.1.9 make_3port_gate()

```
nnode_t* make_3port_gate (
            operation_list type,
            int width_port1,
            int width_port2,
            int width_port3,
            int width_output,
            nnode_t * node,
            short mark )
```

Definition at line 169 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.38.1.10 make_mult_block()

```
nnode_t* make_mult_block (
            nnode_t * node,
            short mark )
```

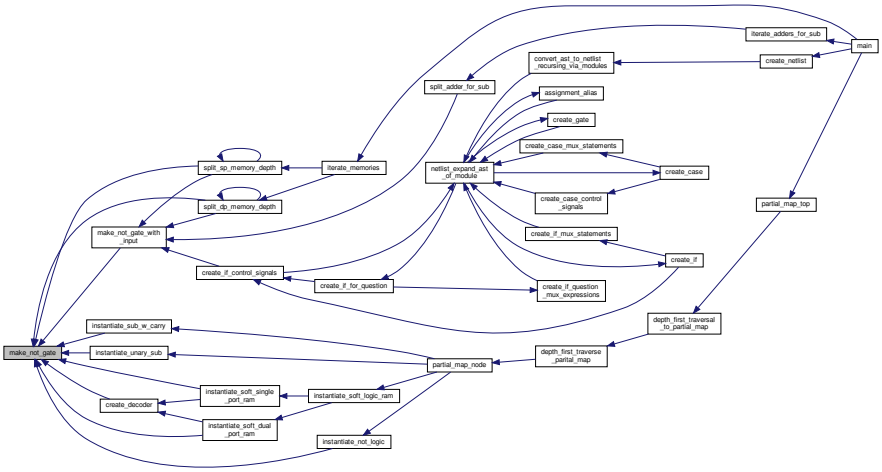
Definition at line 468 of file node_creation_library.cpp.

2.38.1.11 make_not_gate()

```
nnode_t* make_not_gate (
            nnode_t * node,
            short mark )
```

Definition at line 94 of file node_creation_library.cpp.

Here is the caller graph for this function:

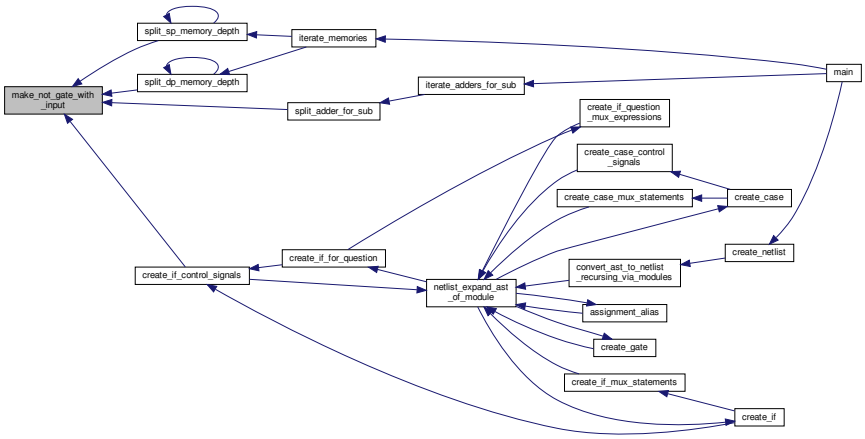


2.38.1.12 make_not_gate_with_input()

```
nnode_t* make_not_gate_with_input (
            npin_t * input_pin,
            nnode_t * node,
            short mark )
```

Definition at line 77 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.38.1.13 make_nport_gate()

```
nnode_t* make_nport_gate (
             operation_list type,
             int port_sizes,
             int width,
             int width_output,
             nnode_t * node,
             short mark )
```

Definition at line 220 of file node_creation_library.cpp.

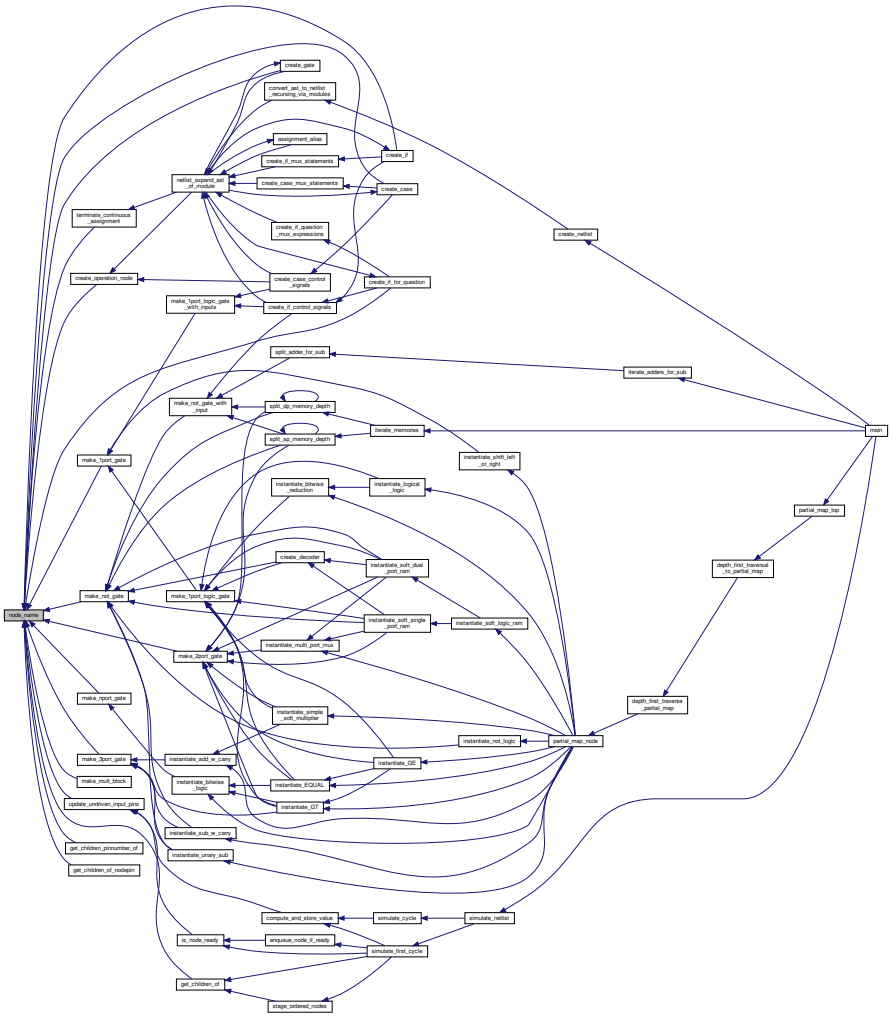
Here is the caller graph for this function:

2.38.1.14 node_name()

```
char* node_name (
             nnode_t * node,
             char * instance_name_prefix )
```

Definition at line 450 of file node_creation_library.cpp.

Here is the caller graph for this function:

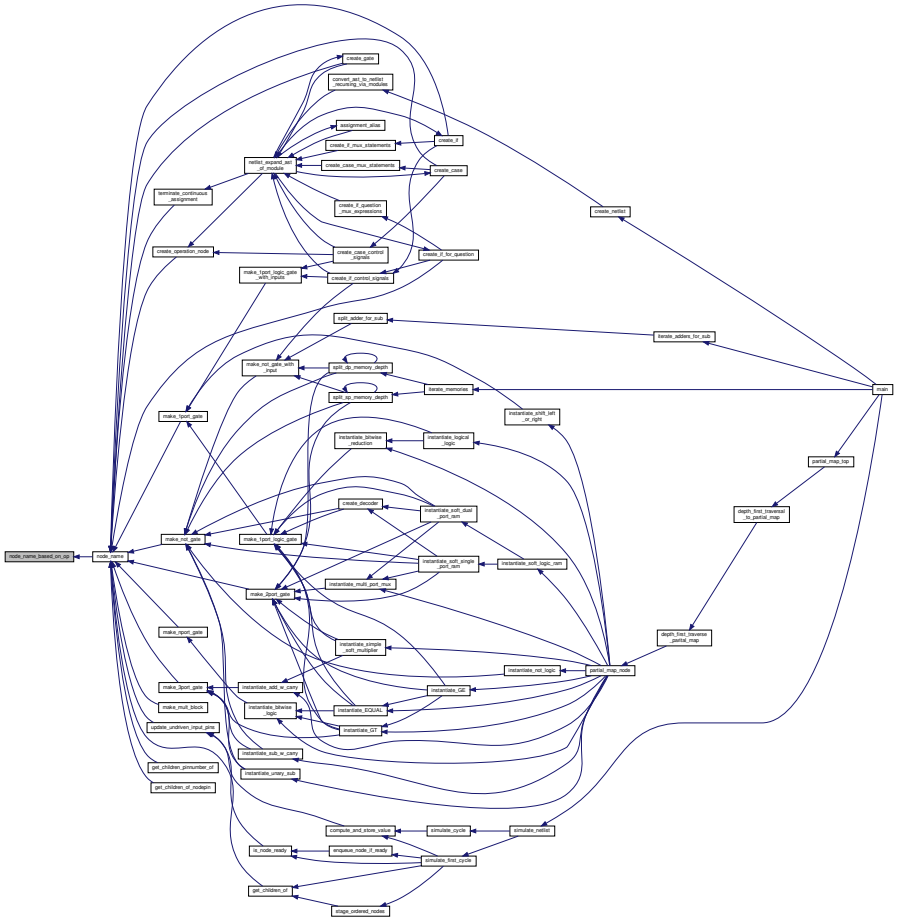


2.38.1.15 node_name_based_on_op()

```
const char* node_name_based_on_op (
            nnode_t * node )
```

Definition at line 290 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.38.2 Variable Documentation

2.38.2.1 ADD_string

```
const char* ADD_string = "ADD"
```

Definition at line 251 of file node_creation_library.cpp.

2.38.2.2 ADDER_FUNC_string

```
const char* ADDER_FUNC_string = "ADDER_FUNC"
```

Definition at line 280 of file node_creation_library.cpp.

2.38.2.3 BITWISE_AND_string

```
const char* BITWISE_AND_string = "BITWISE_AND"
```

Definition at line 254 of file node_creation_library.cpp.

2.38.2.4 BITWISE_NAND_string

```
const char* BITWISE_NAND_string = "BITWISE_NAND"
```

Definition at line 256 of file node_creation_library.cpp.

2.38.2.5 BITWISE_NOR_string

```
const char* BITWISE_NOR_string = "BITWISE_NOR"
```

Definition at line 257 of file node_creation_library.cpp.

2.38.2.6 BITWISE_NOT_string

```
const char* BITWISE_NOT_string = "BITWISE_NOT"
```

Definition at line 253 of file node_creation_library.cpp.

2.38.2.7 BITWISE_OR_string

```
const char* BITWISE_OR_string = "BITWISE_OR"
```

Definition at line 255 of file node_creation_library.cpp.

2.38.2.8 BITWISE_XNOR_string

```
const char* BITWISE_XNOR_string = "BITWISE_XNOR"
```

Definition at line 258 of file node_creation_library.cpp.

2.38.2.9 BITWISE_XOR_string

```
const char* BITWISE_XOR_string = "BITWISE_XOR"
```

Definition at line 259 of file node_creation_library.cpp.

2.38.2.10 BUF_NODE_string

```
const char* BUF_NODE_string = "BUF_NODE"
```

Definition at line 245 of file node_creation_library.cpp.

2.38.2.11 CARRY_FUNC_string

```
const char* CARRY_FUNC_string = "CARRY_FUNC"
```

Definition at line 281 of file node_creation_library.cpp.

2.38.2.12 CASE_EQUAL_string

```
const char* CASE_EQUAL_string = "CASE_EQUAL"
```

Definition at line 278 of file node_creation_library.cpp.

2.38.2.13 CASE_NOT_EQUAL_string

```
const char* CASE_NOT_EQUAL_string = "CASE_NOT_EQUAL"
```

Definition at line 279 of file node_creation_library.cpp.

2.38.2.14 CLOCK_NODE_string

```
const char* CLOCK_NODE_string = "CLOCK_NODE"
```

Definition at line 247 of file node_creation_library.cpp.

2.38.2.15 DIVIDE_string

```
const char* DIVIDE_string = "DIVIDE"
```

Definition at line 268 of file node_creation_library.cpp.

2.38.2.16 FF_NODE_string

```
const char* FF_NODE_string = "FF_NODE"
```

Definition at line 244 of file node_creation_library.cpp.

2.38.2.17 GND_NODE_string

```
const char* GND_NODE_string = "GND_NODE"
```

Definition at line 249 of file node_creation_library.cpp.

2.38.2.18 GT_string

```
const char* GT_string = "GT"
```

Definition at line 271 of file node_creation_library.cpp.

2.38.2.19 GTE_string

```
const char* GTE_string = "GTE"
```

Definition at line 275 of file node_creation_library.cpp.

2.38.2.20 HARD_IP_string

```
const char* HARD_IP_string = "HARD_IP"
```

Definition at line 283 of file node_creation_library.cpp.

2.38.2.21 INPUT_NODE_string

```
const char* INPUT_NODE_string = "INPUT_NODE"
```

Definition at line 246 of file node_creation_library.cpp.

2.38.2.22 LOGICAL_AND_string

```
const char* LOGICAL_AND_string = "LOGICAL_AND"
```

Definition at line 262 of file node_creation_library.cpp.

2.38.2.23 LOGICAL_EQUAL_string

```
const char* LOGICAL_EQUAL_string = "LOGICAL_EQUAL"
```

Definition at line 272 of file node_creation_library.cpp.

2.38.2.24 LOGICAL_NAND_string

```
const char* LOGICAL_NAND_string = "LOGICAL_NAND"
```

Definition at line 263 of file node_creation_library.cpp.

2.38.2.25 LOGICAL_NOR_string

```
const char* LOGICAL_NOR_string = "LOGICAL_NOR"
```

Definition at line 264 of file node_creation_library.cpp.

2.38.2.26 LOGICAL_NOT_string

```
const char* LOGICAL_NOT_string = "LOGICAL_NOT"
```

Definition at line 260 of file node_creation_library.cpp.

2.38.2.27 LOGICAL_OR_string

```
const char* LOGICAL_OR_string = "LOGICAL_OR"
```

Definition at line 261 of file node_creation_library.cpp.

2.38.2.28 LOGICAL_XNOR_string

```
const char* LOGICAL_XNOR_string = "LOGICAL_XNOR"
```

Definition at line 266 of file node_creation_library.cpp.

2.38.2.29 LOGICAL_XOR_string

```
const char* LOGICAL_XOR_string = "LOGICAL_XOR"
```

Definition at line 265 of file node_creation_library.cpp.

2.38.2.30 LT_string

```
const char* LT_string = "LT"
```

Definition at line 270 of file node_creation_library.cpp.

2.38.2.31 LTE_string

```
const char* LTE_string = "LTE"
```

Definition at line 274 of file node_creation_library.cpp.

2.38.2.32 MEMORY_string

```
const char* MEMORY_string = "MEMORY"
```

Definition at line 284 of file node_creation_library.cpp.

2.38.2.33 MINUS_string

```
const char* MINUS_string = "MINUS"
```

Definition at line 252 of file node_creation_library.cpp.

2.38.2.34 MODULO_string

```
const char* MODULO_string = "MODULO"
```

Definition at line 269 of file node_creation_library.cpp.

2.38.2.35 MULTI_PORT_MUX_string

```
const char* MULTI_PORT_MUX_string = "MULTI_PORT_MUX"
```

Definition at line 243 of file node_creation_library.cpp.

2.38.2.36 MULTIPLY_string

```
const char* MULTIPLY_string = "MULTIPLY"
```

Definition at line 267 of file node_creation_library.cpp.

2.38.2.37 MUX_2_string

```
const char* MUX_2_string = "MUX_2"
```

Definition at line 282 of file node_creation_library.cpp.

2.38.2.38 NOT_EQUAL_string

```
const char* NOT_EQUAL_string = "NOT_EQUAL"
```

Definition at line 273 of file node_creation_library.cpp.

2.38.2.39 OUTPUT_NODE_string

```
const char* OUTPUT_NODE_string = "OUTPUT_NODE"
```

Definition at line 248 of file node_creation_library.cpp.

2.38.2.40 SL_string

```
const char* SL_string = "SL"
```

Definition at line 277 of file node_creation_library.cpp.

2.38.2.41 SR_string

```
const char* SR_string = "SR"
```

Definition at line 276 of file node_creation_library.cpp.

2.38.2.42 unique_node_name_id

```
long unique_node_name_id = 0
```

Definition at line 34 of file node_creation_library.cpp.

2.38.2.43 VCC_NODE_string

```
const char* VCC_NODE_string = "VCC_NODE"
```

Definition at line 250 of file node_creation_library.cpp.

2.39 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/node_creation_library.h File Reference

```
#include "types.h"
```

Functions

- nnode_t * make_not_gate_with_input (npin_t *input_pin, nnode_t *node, short mark)
- nnode_t * make_1port_logic_gate_with_inputs (operation_list type, int width, signal_list_t *pin_list, nnode_t *node, short mark)
- nnode_t * make_2port_logic_gates_with_inputs (operation_list type, int width_port1, signal_list_t *pin_list1, int width_port2, signal_list_t *pin_list2, nnode_t *node, short mark)
- nnode_t * make_not_gate (nnode_t *node, short mark)
- nnode_t * make_1port_logic_gate (operation_list type, int width, nnode_t *node, short mark)
- nnode_t * make_1port_gate (operation_list type, int width_input, int width_output, nnode_t *node, short mark)
- nnode_t * make_2port_gate (operation_list type, int width_port1, int width_port2, int width_output, nnode_t *node, short mark)
- nnode_t * make_3port_gate (operation_list type, int width_port1, int width_port2, int width_port3, int width_output, nnode_t *node, short mark)
- nnode_t * make_nport_gate (operation_list type, int port_sizes, int width, int width_output, nnode_t *node, short mark)
- npin_t * get_zero_pin ()
- npin_t * get_one_pin ()
- const char * node_name_based_on_op (nnode_t *node)
- char * node_name (nnode_t *node, char *instance_prefix_name)
- char * hard_node_name (nnode_t *node, char *instance_name_prefix, char *hb_name, char *hb_inst)
- nnode_t * make_mult_block (nnode_t *node, short mark)

2.39.1 Function Documentation

2.39.1.1 get_one_pin()

```
npin_t* get_one_pin ( )
```

2.39.1.2 get_zero_pin()

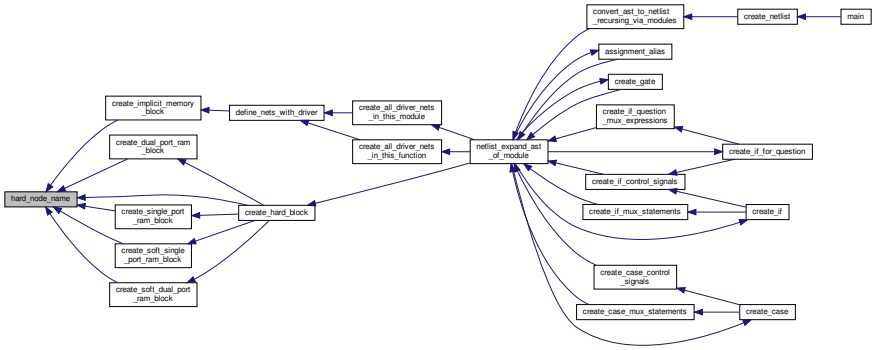
```
npin_t* get_zero_pin ( )
```

2.39.1.3 hard_node_name()

```
char* hard_node_name (
            nnode_t * node,
            char * instance_name_prefix,
            char * hb_name,
            char * hb_inst )
```

Definition at line 434 of file node_creation_library.cpp.

Here is the caller graph for this function:

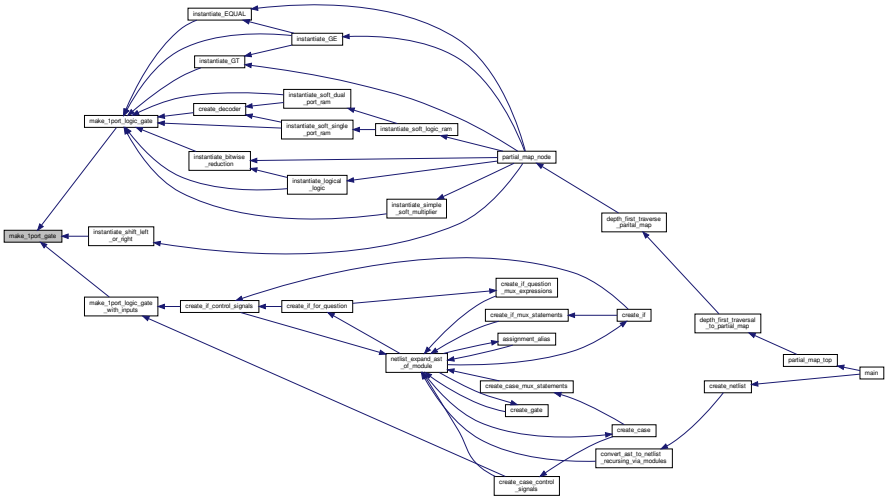


2.39.1.4 make_1port_gate()

```
nnode_t* make_1port_gate (
            operation_list type,
            int width_input,
            int width_output,
            nnode_t * node,
            short mark )
```

Definition at line 115 of file node_creation_library.cpp.

Here is the caller graph for this function:

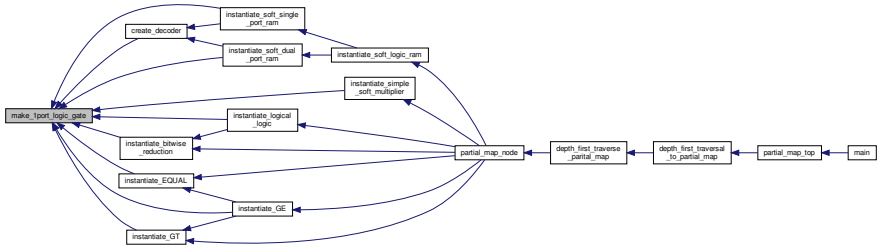


2.39.1.5 make_1port_logic_gate()

```
nnode_t* make_1port_logic_gate (
             operation_list type,
             int width,
             nnode_t * node,
             short mark )
```

Definition at line 138 of file node_creation_library.cpp.

Here is the caller graph for this function:

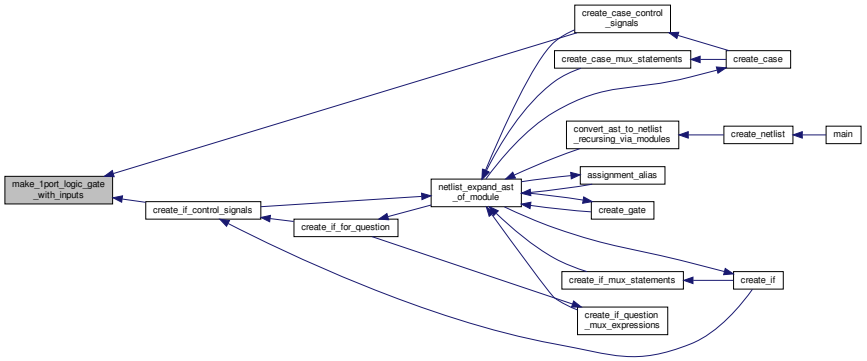


2.39.1.6 make_1port_logic_gate_with_inputs()

```
nnode_t* make_1port_logic_gate_with_inputs (
             operation_list type,
             int width,
             signal_list_t * pin_list,
             nnode_t * node,
             short mark )
```

Definition at line 149 of file node_creation_library.cpp.

Here is the caller graph for this function:

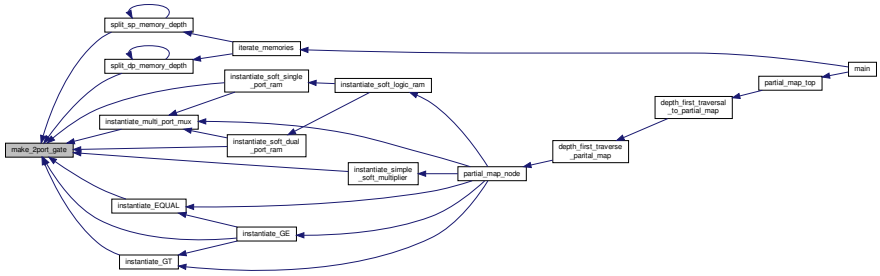


2.39.1.7 make_2port_gate()

```
nnode_t* make_2port_gate (
             operation_list type,
             int width_port1,
             int width_port2,
             int width_output,
             nnode_t * node,
             short mark )
```

Definition at line 196 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.39.1.8 make_2port_logic_gates_with_inputs()

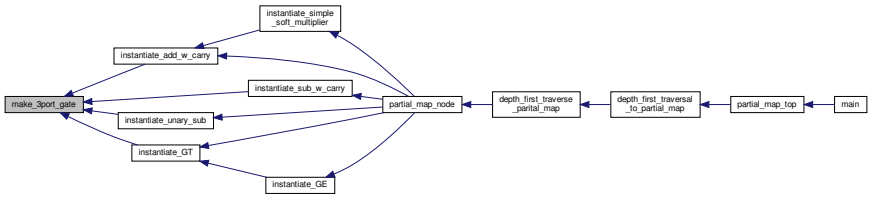
```
nnode_t* make_2port_logic_gates_with_inputs (
             operation_list type,
             int width_port1,
             signal_list_t * pin_list1,
             int width_port2,
             signal_list_t * pin_list2,
             nnode_t * node,
             short mark )
```

2.39.1.9 make_3port_gate()

```
nnode_t* make_3port_gate (
             operation_list type,
             int width_port1,
             int width_port2,
             int width_port3,
             int width_output,
             nnode_t * node,
             short mark )
```

Definition at line 169 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.39.1.10 make_mult_block()

```
nnode_t* make_mult_block (
             nnode_t * node,
             short mark )
```

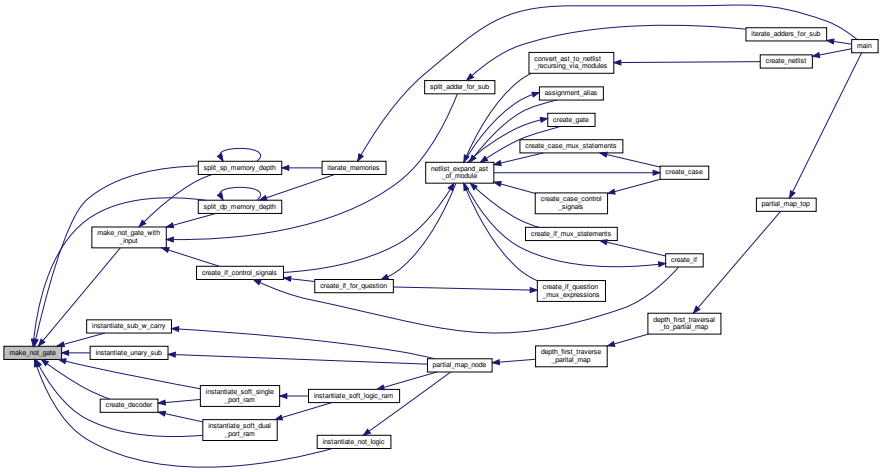
Definition at line 468 of file node_creation_library.cpp.

2.39.1.11 make_not_gate()

```
nnode_t* make_not_gate (
            nnode_t * node,
            short mark )
```

Definition at line 94 of file node_creation_library.cpp.

Here is the caller graph for this function:

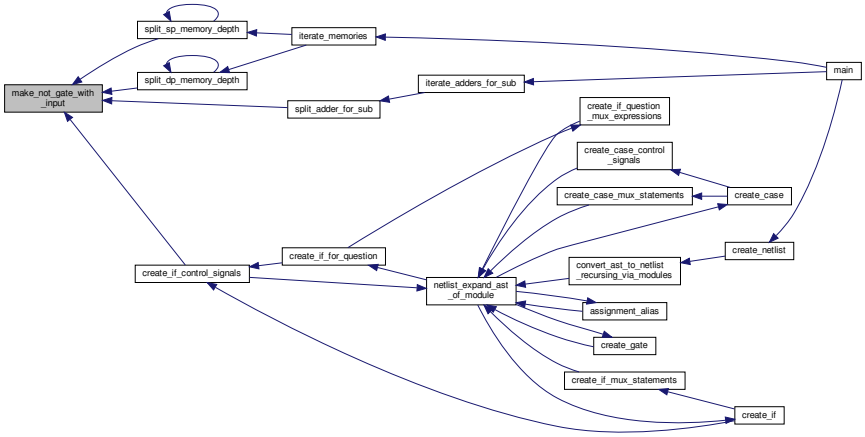


2.39.1.12 make_not_gate_with_input()

```
nnode_t* make_not_gate_with_input (
            npin_t * input_pin,
            nnode_t * node,
            short mark )
```

Definition at line 77 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.39.1.13 make_nport_gate()

```
nnode_t* make_nport_gate (
            operation_list type,
            int port_sizes,
            int width,
            int width_output,
            nnode_t * node,
            short mark )
```

Definition at line 220 of file node_creation_library.cpp.

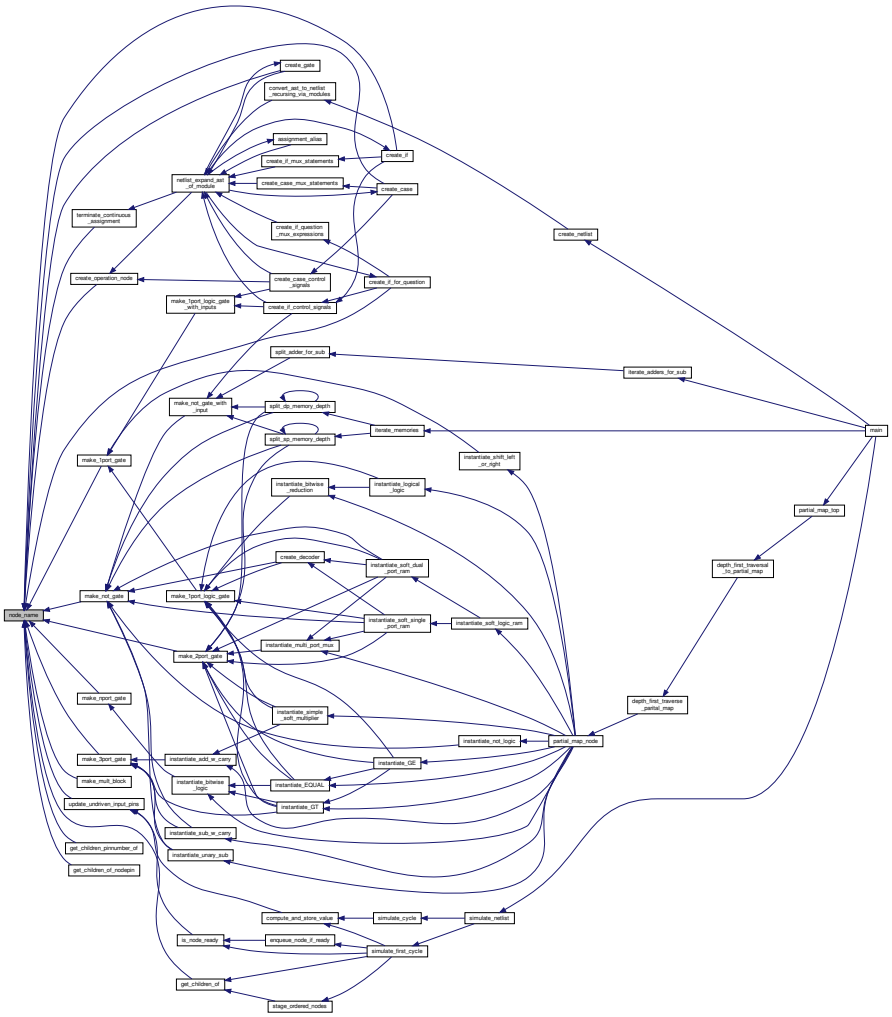
Here is the caller graph for this function:

2.39.1.14 node_name()

```
char* node_name (
            nnode_t * node,
            char * instance_prefix_name )
```

Definition at line 450 of file node_creation_library.cpp.

Here is the caller graph for this function:

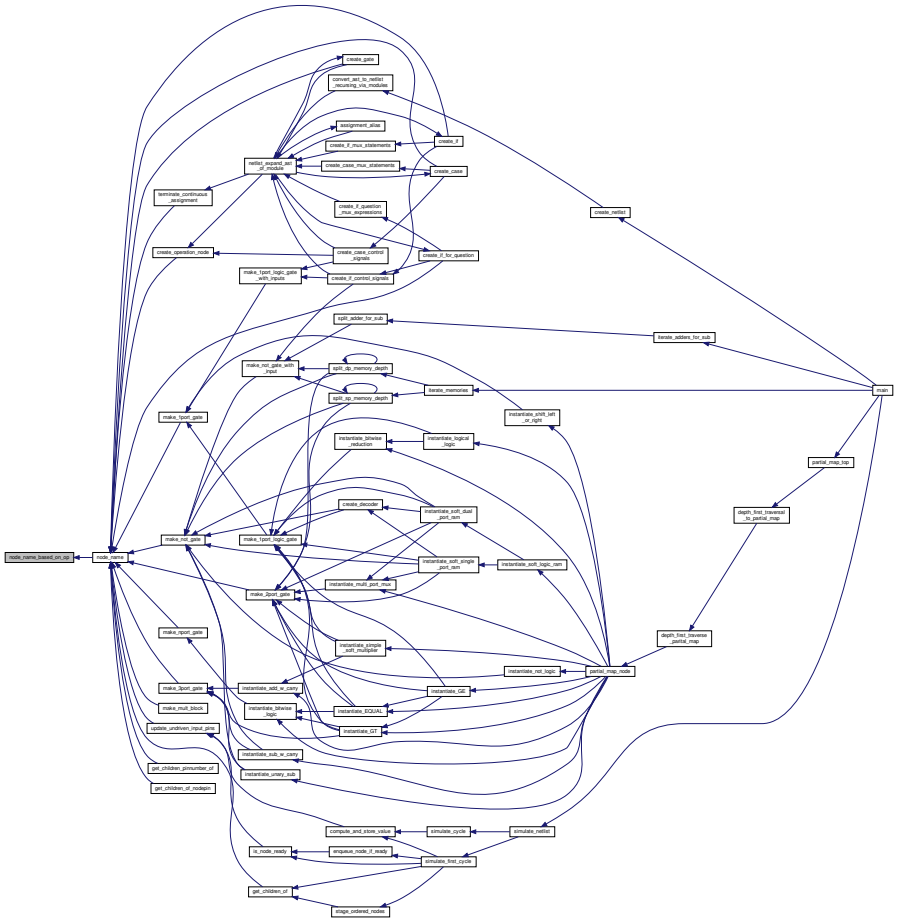


2.39.1.15 node_name_based_on_op()

```
const char* node_name_based_on_op (
            nnode_t * node )
```

Definition at line 290 of file node_creation_library.cpp.

Here is the caller graph for this function:



2.40 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/partial_map.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdarg.h>
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "node_creation_library.h"
#include "odin_util.h"
#include "partial_map.h"
#include "multipliers.h"
#include "hard_blocks.h"
#include "math.h"
#include "memories.h"
#include "adders.h"
#include "subtractions.h"
#include "vtr_memory.h"
```

Functions

- void depth_first_traversal_to_partial_map (short marker_value, netlist_t *netlist)
- void depth_first_traverse_parital_map (nnode_t *node, int traverse_mark_number, netlist_t *netlist)
- void partial_map_node (nnode_t *node, short traverse_number, netlist_t *netlist)
- void instantiate_not_logic (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_buffer (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_bitwise_logic (nnode_t *node, operation_list op, short mark, netlist_t *netlist)
- void instantiate_bitwise_reduction (nnode_t *node, operation_list op, short mark, netlist_t *netlist)
- void instantiate_logical_logic (nnode_t *node, operation_list op, short mark, netlist_t *netlist)
- void instantiate_EQUAL (nnode_t *node, short type, short mark, netlist_t *netlist)
- void instantiate_GE (nnode_t *node, short type, short mark, netlist_t *netlist)
- void instantiate_GT (nnode_t *node, short type, short mark, netlist_t *netlist)
- void instantiate_shift_left_or_right (nnode_t *node, short type, short mark, netlist_t *netlist)
- void instantiate_unary_sub (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_sub_w_carry (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_soft_logic_ram (nnode_t *node, short mark, netlist_t *netlist)
- void partial_map_top (netlist_t *netlist)
- void instantiate_multi_port_mux (nnode_t *node, short mark, netlist_t *)
- void instantiate_add_w_carry (nnode_t *node, short mark, netlist_t *netlist)

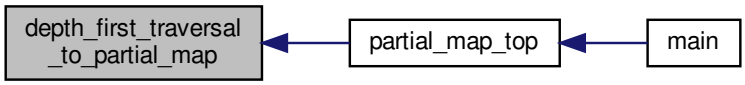
2.40.1 Function Documentation

2.40.1.1 depth_first_traversal_to_partial_map()

```
void depth_first_traversal_to_partial_map (
             short marker_value,
             netlist_t * netlist )
```

Definition at line 79 of file partial_map.cpp.

Here is the caller graph for this function:

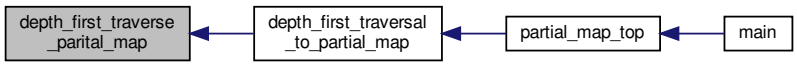


2.40.1.2 depth_first_traverse_parital_map()

```
void depth_first_traverse_parital_map (
             nnode_t * node,
             int traverse_mark_number,
             netlist_t * netlist )
```

Definition at line 100 of file partial_map.cpp.

Here is the caller graph for this function:

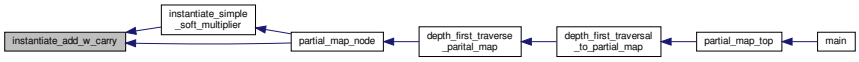


2.40.1.3 instantiate_add_w_carry()

```
void instantiate_add_w_carry (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

Definition at line 642 of file partial_map.cpp.

Here is the caller graph for this function:

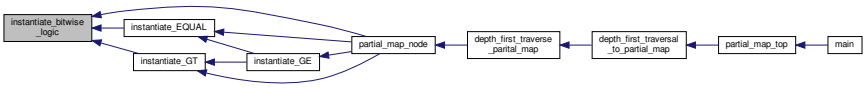


2.40.1.4 instantiate_bitwise_logic()

```
void instantiate_bitwise_logic (
             nnode_t * node,
             operation_list op,
             short mark,
             netlist_t * netlist )
```

Definition at line 554 of file partial_map.cpp.

Here is the caller graph for this function:



2.40.1.5 instantiate_bitwise_reduction()

```
void instantiate_bitwise_reduction (
            nnode_t * node,
            operation_list op,
            short mark,
            netlist_t * netlist )
```

Definition at line 485 of file partial_map.cpp.

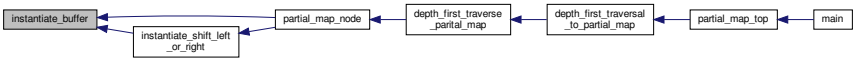
Here is the caller graph for this function:

2.40.1.6 instantiate_buffer()

```
void instantiate_buffer (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 401 of file partial_map.cpp.

Here is the caller graph for this function:

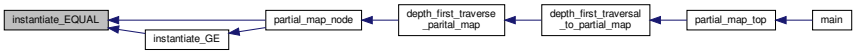


2.40.1.7 instantiate_EQUAL()

```
void instantiate_EQUAL (
            nnode_t * node,
            short type,
            short mark,
            netlist_t * netlist )
```

Definition at line 1006 of file partial_map.cpp.

Here is the caller graph for this function:



2.40.1.8 instantiate_GE()

```
void instantiate_GE (
            nnode_t * node,
            short type,
            short mark,
            netlist_t * netlist )
```

Definition at line 1242 of file partial_map.cpp.

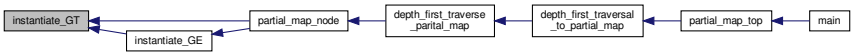
Here is the caller graph for this function:

2.40.1.9 instantiate_GT()

```
void instantiate_GT (
            nnode_t * node,
            short type,
            short mark,
            netlist_t * netlist )
```

Definition at line 1092 of file partial_map.cpp.

Here is the caller graph for this function:

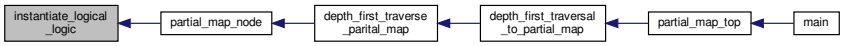


2.40.1.10 instantiate_logical_logic()

```
void instantiate_logical_logic (
             nnode_t * node,
             operation_list op,
             short mark,
             netlist_t * netlist )
```

Definition at line 422 of file partial_map.cpp.

Here is the caller graph for this function:

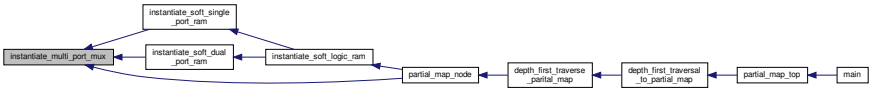


2.40.1.11 instantiate_multi_port_mux()

```
void instantiate_multi_port_mux (
             nnode_t * node,
             short mark,
             netlist_t *  )
```

Definition at line 324 of file partial_map.cpp.

Here is the caller graph for this function:

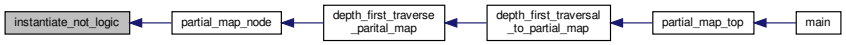


2.40.1.12 instantiate_not_logic()

```
void instantiate_not_logic (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 373 of file partial_map.cpp.

Here is the caller graph for this function:

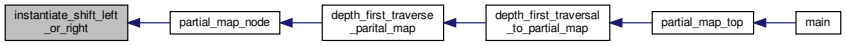


2.40.1.13 instantiate_shift_left_or_right()

```
void instantiate_shift_left_or_right (
            nnode_t * node,
            short type,
            short mark,
            netlist_t * netlist )
```

Definition at line 1323 of file partial_map.cpp.

Here is the caller graph for this function:

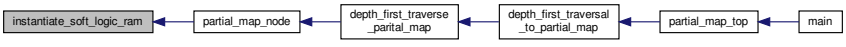


2.40.1.14 instantiate_soft_logic_ram()

```
void instantiate_soft_logic_ram (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 309 of file partial_map.cpp.

Here is the caller graph for this function:

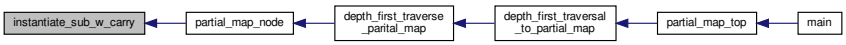


2.40.1.15 instantiate_sub_w_carry()

```
void instantiate_sub_w_carry (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 765 of file partial_map.cpp.

Here is the caller graph for this function:

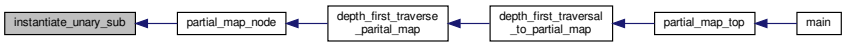


2.40.1.16 instantiate_unary_sub()

```
void instantiate_unary_sub (
            nnode_t * node,
            short mark,
            netlist_t * netlist )
```

Definition at line 896 of file partial_map.cpp.

Here is the caller graph for this function:

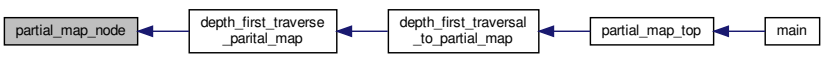


2.40.1.17 partial_map_node()

```
void partial_map_node (
            nnode_t * node,
            short traverse_number,
            netlist_t * netlist )
```

Definition at line 141 of file partial_map.cpp.

Here is the caller graph for this function:

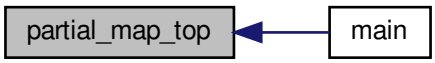


2.40.1.18 partial_map_top()

```
void partial_map_top (
             netlist_t * netlist )
```

Definition at line 66 of file partial_map.cpp.

Here is the caller graph for this function:



2.41 vtr-verilog-to-routing/ODIN_II/SRC/lib_netlist/partial_map.h File Reference

Functions

- void partial_map_top (netlist_t *netlist)
- void instantiate_add_w_carry (nnode_t *node, short mark, netlist_t *netlist)
- void instantiate_multi_port_mux (nnode_t *node, short mark, netlist_t *netlist)

2.41.1 Function Documentation

2.41.1.1 instantiate_add_w_carry()

```
void instantiate_add_w_carry (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

Definition at line 642 of file partial_map.cpp.

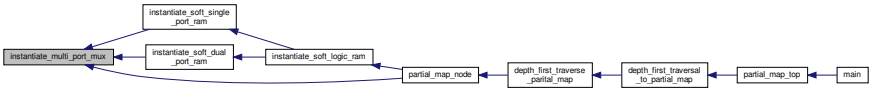
Here is the caller graph for this function:

2.41.1.2 instantiate_multi_port_mux()

```
void instantiate_multi_port_mux (
             nnode_t * node,
             short mark,
             netlist_t * netlist )
```

Definition at line 324 of file partial_map.cpp.

Here is the caller graph for this function:

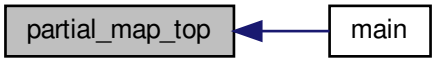


2.41.1.3 partial_map_top()

```
void partial_map_top (
             netlist_t * netlist )
```

Definition at line 66 of file partial_map.cpp.

Here is the caller graph for this function:



2.42 vtr-verilog-to-routing/ODIN_II/SRC/odin_ii.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <sstream>
#include "vtr_error.h"
#include "argparse.hpp"
#include "globals.h"
#include "types.h"
#include "netlist_utils.h"
```

```
#include "arch_types.h"
#include "parse_making_ast.h"
#include "netlist_create_from_ast.h"
#include "ast_util.h"
#include "read_xml_config_file.h"
#include "read_xml_arch_file.h"
#include "partial_map.h"
#include "multipliers.h"
#include "netlist_check.h"
#include "read_blif.h"
#include "output_blif.h"
#include "netlist_cleanup.h"
#include "hard_blocks.h"
#include "memories.h"
#include "simulate_blif.h"
#include "netlist_visualizer.h"
#include "adders.h"
#include "subtractions.h"
#include "vtr_util.h"
```

Data Structures

- struct ParseInitRegState

Functions

- void set_default_config ()
- void get_options (int argc, char **argv)
- void print_usage ()
- int main (int argc, char **argv)

Variables

- size_t current_parse_file
- t_arch Arch
- global_args_t global_args
- t_type_descriptor * type_descriptors
- int block_tag

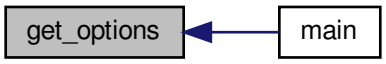
2.42.1 Function Documentation

2.42.1.1 get_options()

```
void get_options (
            int argc,
            char ** argv )
```

Definition at line 298 of file odin_ii.cpp.

Here is the caller graph for this function:



2.42.1.2 main()

```
int main (
            int argc,
            char ** argv )
```

Definition at line 67 of file odin_ii.cpp.

2.42.1.3 print_usage()

```
void print_usage ( )
```

Definition at line 222 of file odin_ii.cpp.

2.42.1.4 set_default_config()

```
void set_default_config ( )
```

Definition at line 439 of file odin_ii.cpp.

Here is the caller graph for this function:

2.42.2 Variable Documentation

2.42.2.1 Arch

```
t_arch Arch
```

Definition at line 58 of file odin_ii.cpp.

2.42.2.2 block_tag

```
int block_tag
```

Definition at line 61 of file odin_ii.cpp.

2.42.2.3 current_parse_file

```
size_t current_parse_file
```

Definition at line 57 of file odin_ii.cpp.

2.42.2.4 global_args

```
global_args_t global_args
```

Definition at line 59 of file odin_ii.cpp.

2.42.2.5 type_descriptors

```
t_type_descriptor* type_descriptors
```

Definition at line 60 of file odin_ii.cpp.

2.43 vtr-verilog-to-routing/ODIN_II/SRC/odin_util.cpp File Reference

```
#include <string>
#include <sstream>
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <limits.h>
#include <errno.h>
#include "types.h"
#include "globals.h"
#include "odin_util.h"
#include "vtr_util.h"
#include "vtr_memory.h"
#include <regex>
#include <stdbool.h>
```

Functions

- char * make_signal_name (char *signal_name, int bit)
- char * make_full_ref_name (const char *previous, char *module_name, char *module_instance_name, const char *signal_name, long bit)
- char * twos_complement (char *str)
- char * convert_string_of_radix_to_bit_string (char *string, int radix, int binary_size)
- char * convert_long_long_to_bit_string (long long orig_long, int num_bits)
- long long convert_dec_string_of_size_to_long_long (char *orig_string, int)
- long long convert_string_of_radix_to_long_long (char *orig_string, int radix)
- int is_string_of_radix (char *string, int radix)
- char * convert_hex_string_of_size_to_bit_string (short is_dont_care_number, char *orig_string, int binary_size)
- char * convert_oct_string_of_size_to_bit_string (char *orig_string, int binary_size)
- char * convert_binary_string_of_size_to_bit_string (short is_dont_care_number, char *orig_string, int binary_↩ size)
- int is_hex_string (char *string)
- int is_dont_care_string (char *string)
- int is_decimal_string (char *string)
- int is_octal_string (char *string)
- int is_binary_string (char *string)
- char * get_pin_name (char *name)
- char * get_port_name (char *name)
- int get_pin_number (char *name)
- long long int my_power (long long int x, long long int y)
- char * make_string_based_on_id (nnode_t *node)
- char * make_simple_name (char *input, const char *flatten_string, char flatten_char)
- void * my_malloc_struct (size_t bytes_to_alloc)
- long long int pow2 (int to_the_power)
- void string_to_upper (char *string)
- void string_to_lower (char *string)
- char * append_string (const char *string, const char *appendage,...)

- void reverse_string (char *string, int length)
- short get_bit (char in)
- void error_message (short error_type, int line_number, int file, const char *message,...)
- void warning_message (short, int line_number, int file, const char *message,...)
- char * search_replace (char *src, const char *sKey, const char *rKey, int flag)
- char * find_substring (char *src, const char *sKey, int flag)
- bool validate_string_regex (const char *str_in, const char *pattern_in)

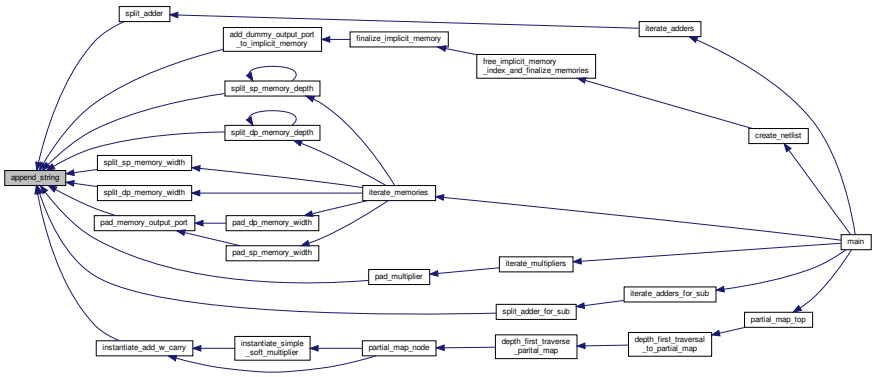
2.43.1 Function Documentation

2.43.1.1 append_string()

```
char* append_string (
            const char * string,
            const char * appendage,
             ...  )
```

Definition at line 647 of file odin_util.cpp.

Here is the caller graph for this function:

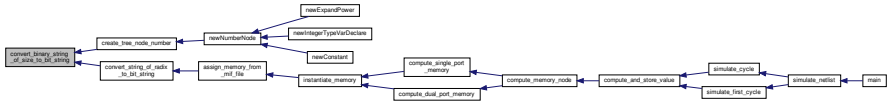


2.43.1.2 convert_binary_string_of_size_to_bit_string()

```
char* convert_binary_string_of_size_to_bit_string (
            short is_dont_care_number,
            char * orig_string,
            int binary_size )
```

Definition at line 366 of file odin_util.cpp.

Here is the caller graph for this function:

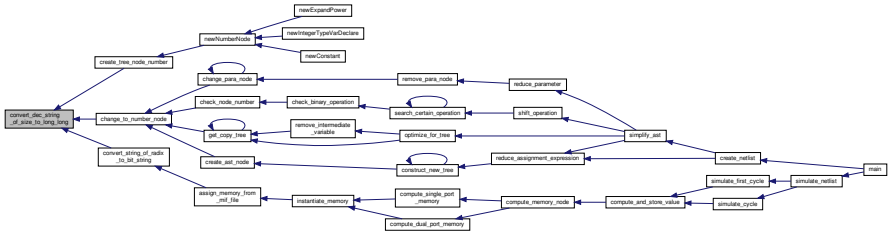


2.43.1.3 convert_dec_string_of_size_to_long_long()

```
long long convert_dec_string_of_size_to_long_long (
            char * orig_string,
            int  )
```

Definition at line 158 of file odin_util.cpp.

Here is the caller graph for this function:

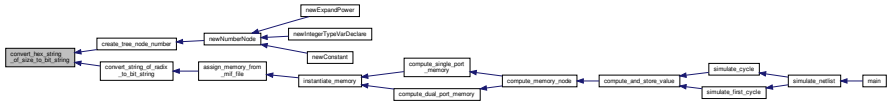


2.43.1.4 convert_hex_string_of_size_to_bit_string()

```
char* convert_hex_string_of_size_to_bit_string (
            short is_dont_care_number,
            char * orig_string,
            int binary_size )
```

Definition at line 207 of file odin_util.cpp.

Here is the caller graph for this function:

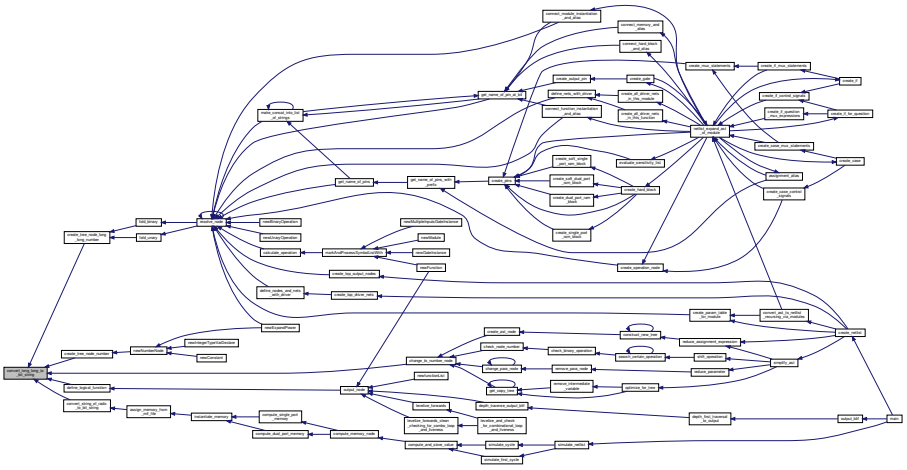


2.43.1.5 convert_long_long_to_bit_string()

```
char* convert_long_long_to_bit_string (
            long long orig_long,
            int num_bits )
```

Definition at line 137 of file odin_util.cpp.

Here is the caller graph for this function:

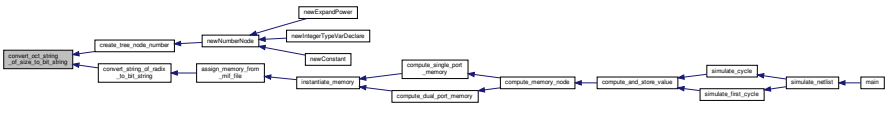


2.43.1.6 convert_oct_string_of_size_to_bit_string()

```
char* convert_oct_string_of_size_to_bit_string (
            char * orig_string,
            int binary_size )
```

Definition at line 313 of file odin_util.cpp.

Here is the caller graph for this function:

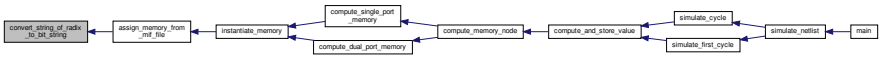


2.43.1.7 convert_string_of_radix_to_bit_string()

```
char* convert_string_of_radix_to_bit_string (
            char * string,
            int radix,
            int binary_size )
```

Definition at line 108 of file odin_util.cpp.

Here is the caller graph for this function:

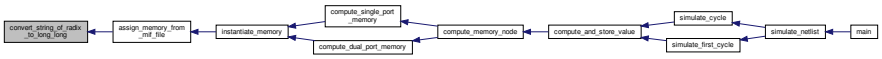


2.43.1.8 convert_string_of_radix_to_long_long()

```
long long convert_string_of_radix_to_long_long (
            char * orig_string,
            int radix )
```

Definition at line 171 of file odin_util.cpp.

Here is the caller graph for this function:

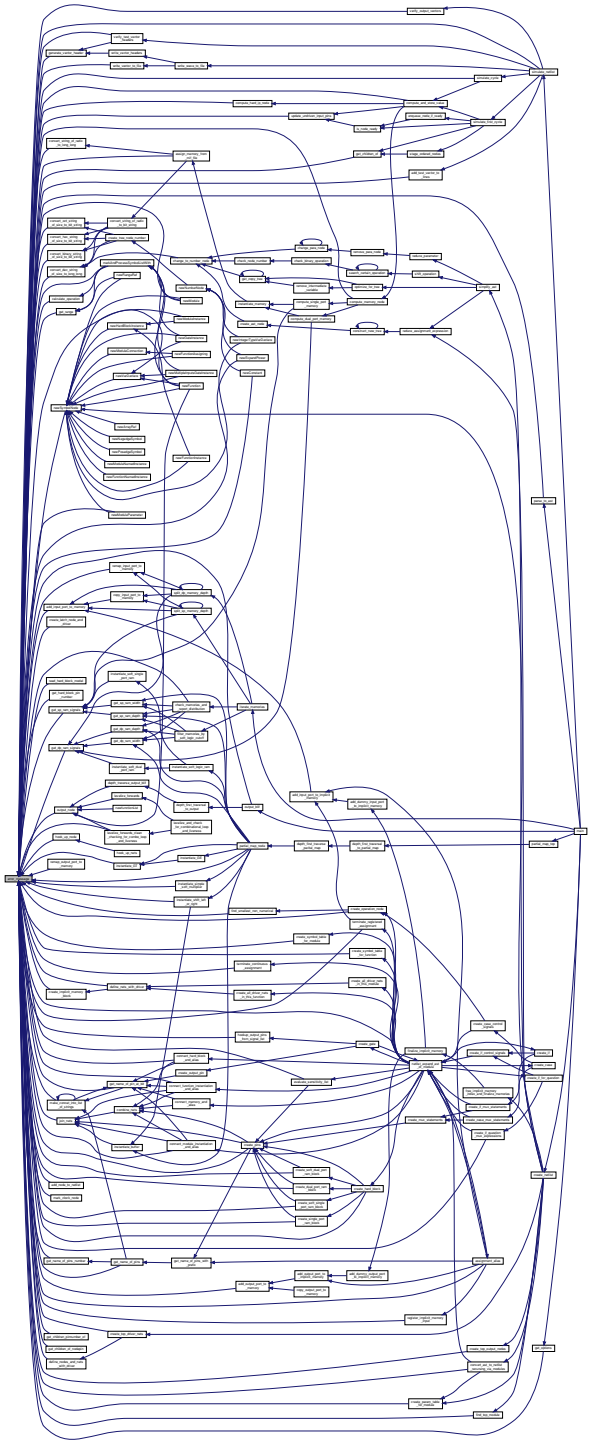


2.43.1.9 error_message()

```
void error_message (
            short error_type,
            int line_number,
            int file,
            const char * message,
             ... )
```

Definition at line 691 of file odin_util.cpp.

Here is the caller graph for this function:



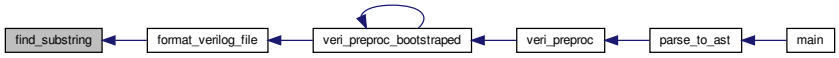
2.43.1.10 find_substring()

```
char* find_substring (
```

```
            char * src,
            const char * sKey,
            int flag )
```

Definition at line 769 of file odin_util.cpp.

Here is the caller graph for this function:

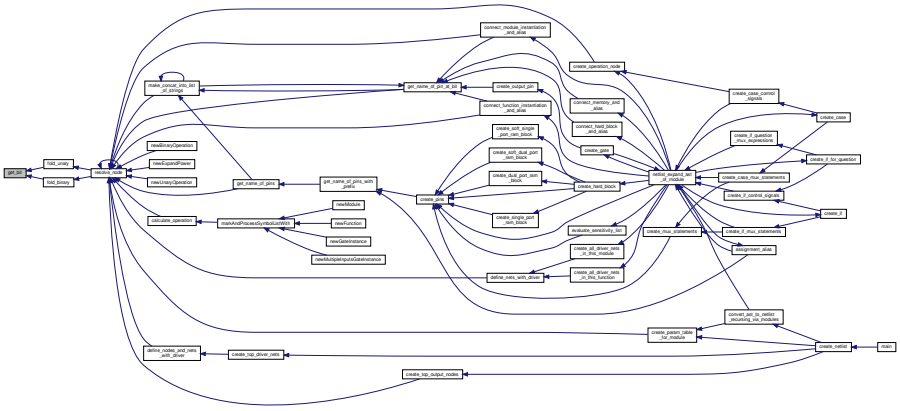


2.43.1.11 get_bit()

```
short get_bit (
            char in )
```

Definition at line 680 of file odin_util.cpp.

Here is the caller graph for this function:

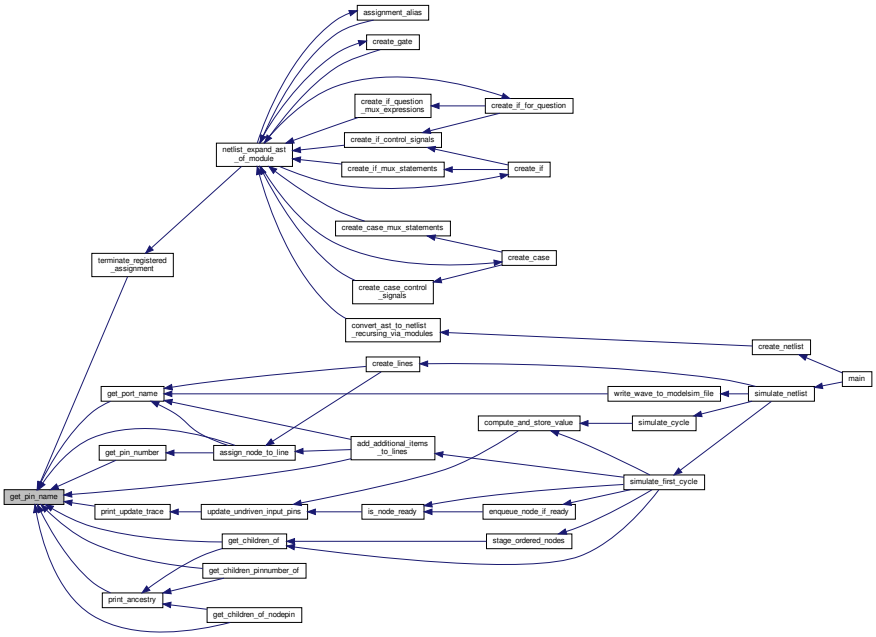


2.43.1.12 get_pin_name()

```
char* get_pin_name (
            char * name )
```

Definition at line 469 of file odin_util.cpp.

Here is the caller graph for this function:

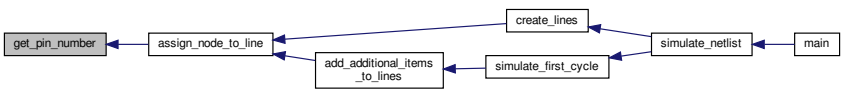


2.43.1.13 get_pin_number()

```
int get_pin_number (
            char * name )
```

Definition at line 499 of file odin_util.cpp.

Here is the caller graph for this function:

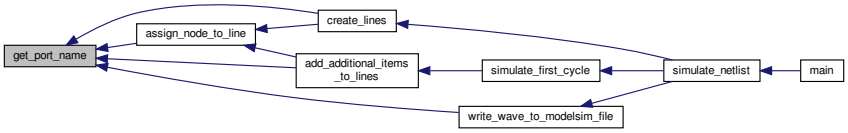


2.43.1.14 get_port_name()

```
char* get_port_name (
            char * name )
```

Definition at line 482 of file odin_util.cpp.

Here is the caller graph for this function:

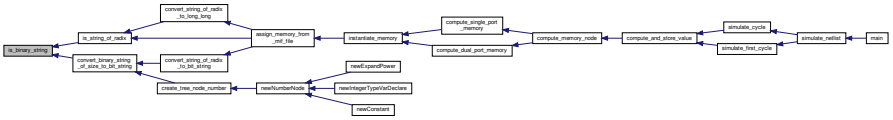


2.43.1.15 is_binary_string()

```
int is_binary_string (
            char * string )
```

Definition at line 453 of file odin_util.cpp.

Here is the caller graph for this function:

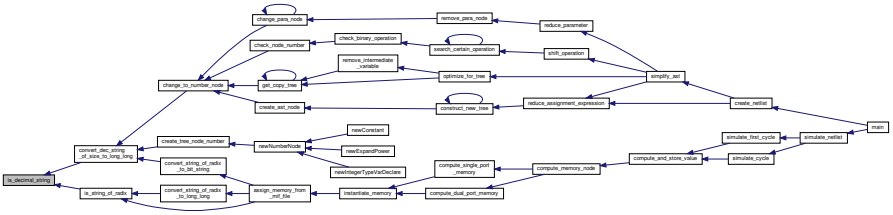


2.43.1.16 is_decimal_string()

```
int is_decimal_string (
            char * string )
```

Definition at line 427 of file odin_util.cpp.

Here is the caller graph for this function:

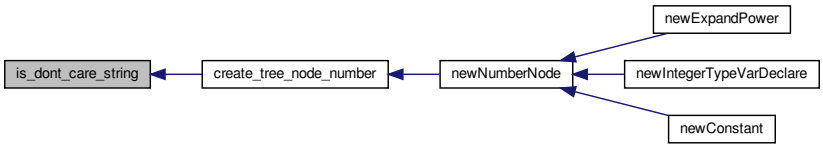


2.43.1.17 is_dont_care_string()

```
int is_dont_care_string (
            char * string )
```

Definition at line 414 of file odin_util.cpp.

Here is the caller graph for this function:

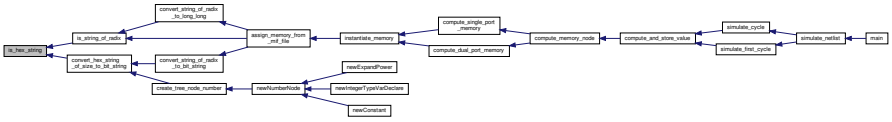


2.43.1.18 is_hex_string()

```
int is_hex_string (
            char * string )
```

Definition at line 401 of file odin_util.cpp.

Here is the caller graph for this function:

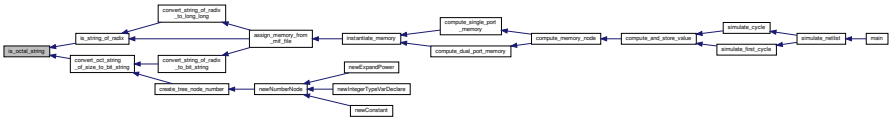


2.43.1.19 is_octal_string()

```
int is_octal_string (
            char * string )
```

Definition at line 440 of file odin_util.cpp.

Here is the caller graph for this function:



2.43.1.20 is_string_of_radix()

```
int is_string_of_radix (
            char * string,
            int radix )
```

Definition at line 189 of file odin_util.cpp.

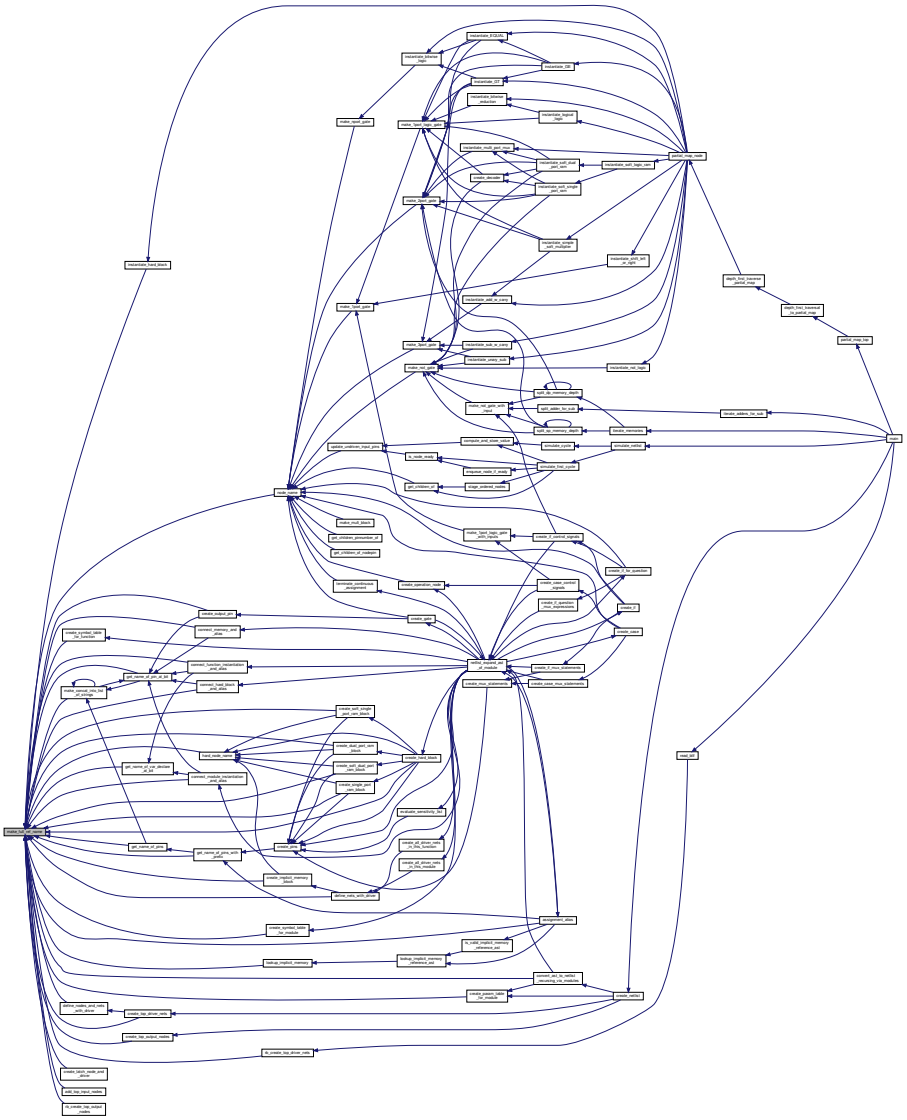
Here is the caller graph for this function:

2.43.1.21 make_full_ref_name()

```
char* make_full_ref_name (
            const char * previous,
            char * module_name,
            char * module_instance_name,
            const char * signal_name,
            long bit )
```

Definition at line 61 of file odin_util.cpp.

Here is the caller graph for this function:

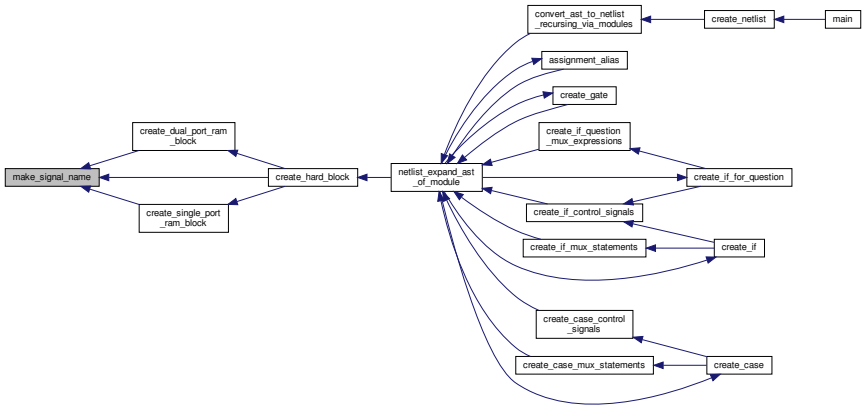


2.43.1.22 make_signal_name()

```
char* make_signal_name (
            char * signal_name,
            int bit )
```

Definition at line 46 of file odin_util.cpp.

Here is the caller graph for this function:

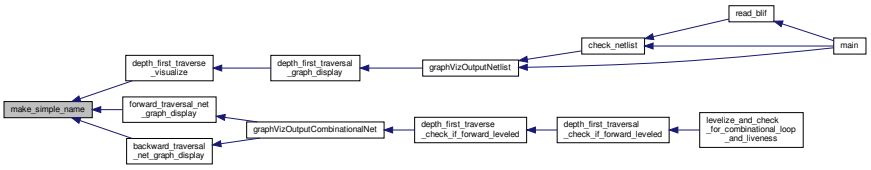


2.43.1.23 make_simple_name()

```
char* make_simple_name (
            char * input,
            const char * flatten_string,
            char flatten_char )
```

Definition at line 544 of file odin_util.cpp.

Here is the caller graph for this function:



2.43.1.24 make_string_based_on_id()

```
char* make_string_based_on_id (
            nnode_t * node )
```

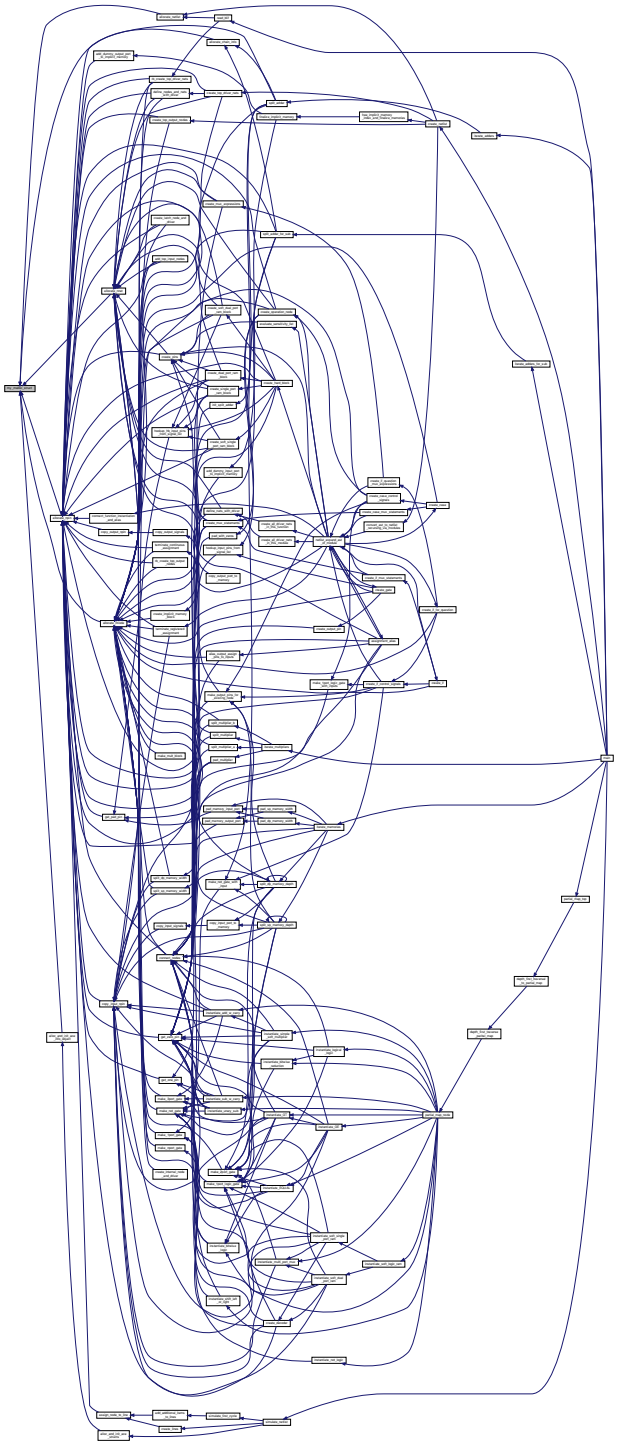
Definition at line 533 of file odin_util.cpp.

2.43.1.25 my_malloc_struct()

```
void* my_malloc_struct (
            size_t bytes_to_alloc )
```

Definition at line 574 of file odin_util.cpp.

Here is the caller graph for this function:

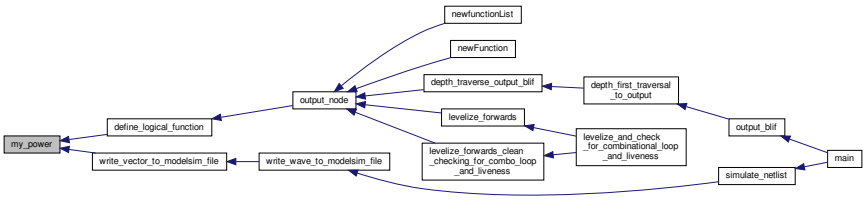


2.43.1.26 my_power()

```
long long int my_power (
            long long int x,
            long long int y )
```

Definition at line 517 of file odin_util.cpp.

Here is the caller graph for this function:



2.43.1.27 pow2()

```
long long int pow2 (
            int to_the_power )
```

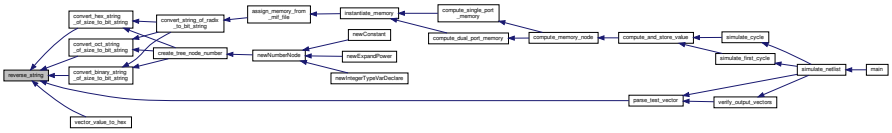
Definition at line 597 of file odin_util.cpp.

2.43.1.28 reverse_string()

```
void reverse_string (
            char * string,
            int length )
```

Definition at line 665 of file odin_util.cpp.

Here is the caller graph for this function:



2.43.1.29 search_replace()

```
char* search_replace (
             char * src,
             const char * sKey,
             const char * rKey,
             int flag )
```

Definition at line 748 of file odin_util.cpp.

Here is the caller graph for this function:

2.43.1.30 string_to_lower()

```
void string_to_lower (
             char * string )
```

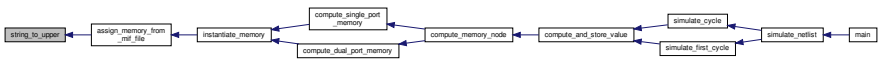
Definition at line 628 of file odin_util.cpp.

2.43.1.31 string_to_upper()

```
void string_to_upper (
             char * string )
```

Definition at line 613 of file odin_util.cpp.

Here is the caller graph for this function:

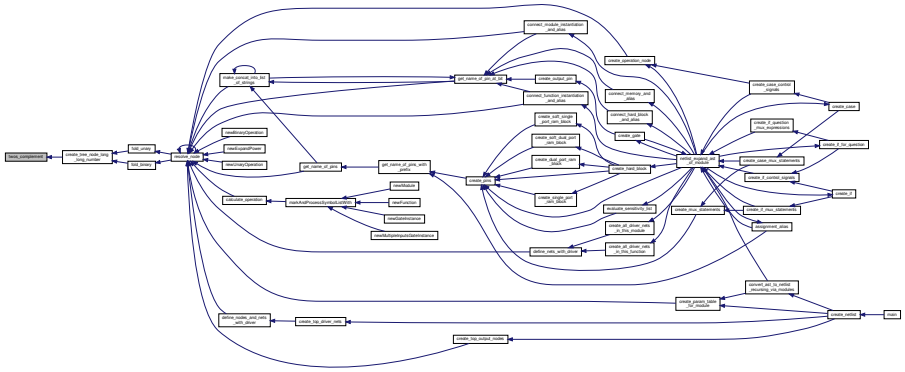


2.43.1.32 twos_complement()

```
char* twos_complement (
            char * str )
```

Definition at line 80 of file odin_util.cpp.

Here is the caller graph for this function:

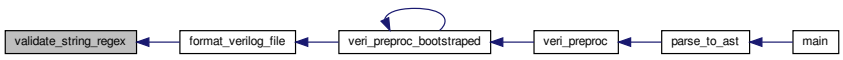


2.43.1.33 validate_string_regex()

```
bool validate_string_regex (
            const char * str_in,
            const char * pattern_in )
```

Definition at line 797 of file odin_util.cpp.

Here is the caller graph for this function:

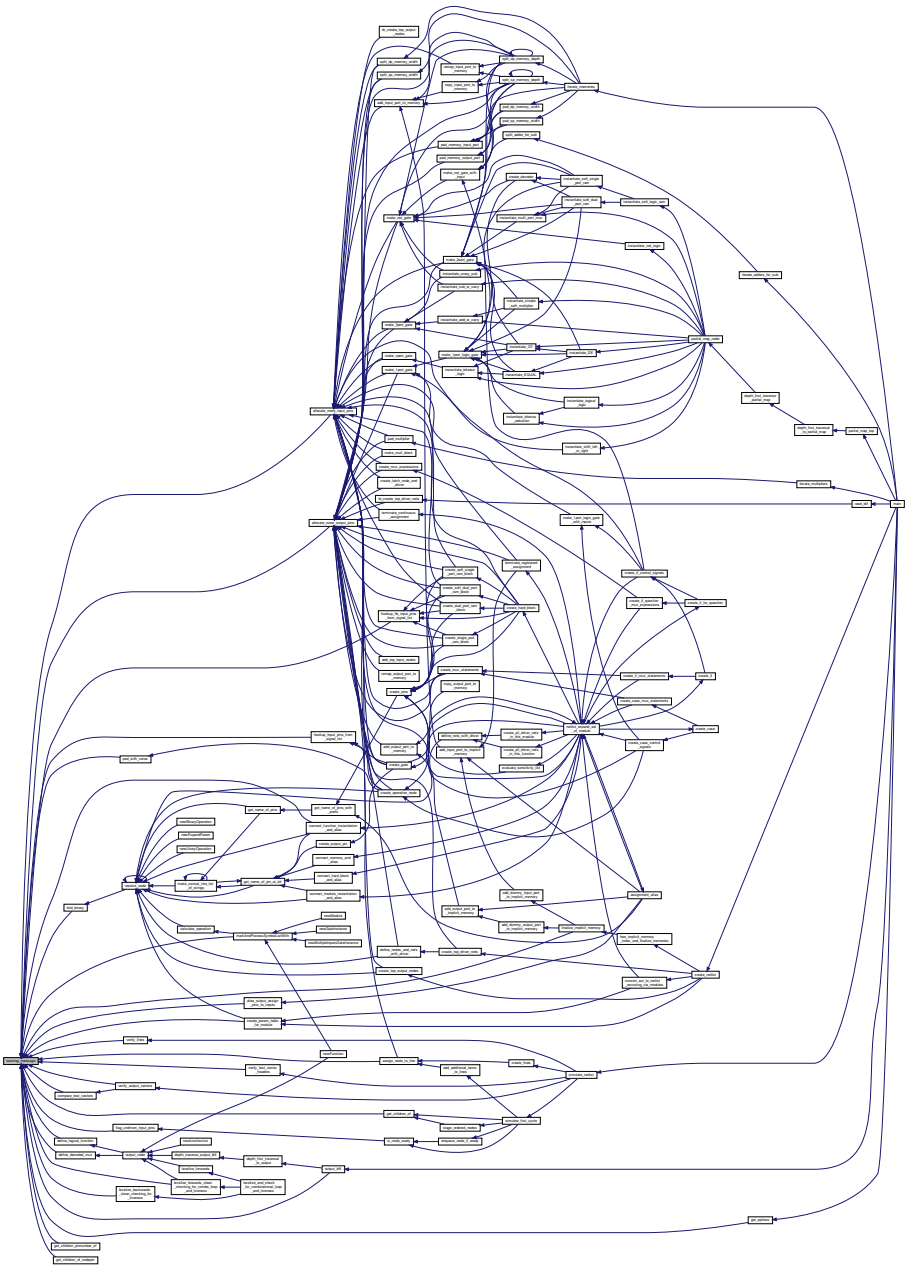


2.43.1.34 warning_message()

```
void warning_message (
            short ,
            int line_number,
            int file,
            const char * message,
             ...  )
```

Definition at line 718 of file odin_util.cpp.

Here is the caller graph for this function:



2.44 vtr-verilog-to-routing/ODIN_II/SRC/odin_util.h File Reference

```
#include "types.h"
```

Macros

- #define MAX_BUF 256

Functions

- char * make_signal_name (char *signal_name, int bit)
- char * make_full_ref_name (const char *previous, char *module_name, char *module_instance_name, const char *signal_name, long bit)
- char * twos_complement (char *str)
- int is_string_of_radix (char *string, int radix)
- char * convert_string_of_radix_to_bit_string (char *string, int radix, int binary_size)
- long long convert_string_of_radix_to_long_long (char *orig_string, int radix)
- char * convert_long_long_to_bit_string (long long orig_long, int num_bits)
- long long convert_dec_string_of_size_to_long_long (char *orig_string, int size)
- char * convert_hex_string_of_size_to_bit_string (short is_dont_care_number, char *orig_string, int size)
- char * convert_oct_string_of_size_to_bit_string (char *orig_string, int size)
- char * convert_binary_string_of_size_to_bit_string (short is_dont_care_number, char *orig_string, int binary_↩ size)
- long long int my_power (long long int x, long long int y)
- long long int pow2 (int to_the_power)
- char * make_string_based_on_id (nnode_t *node)
- char * make_simple_name (char *input, const char *flatten_string, char flatten_char)
- void * my_malloc_struct (size_t bytes_to_alloc)
- void reverse_string (char *token, int length)
- char * append_string (const char *string, const char *appendage,...)
- void string_to_upper (char *string)
- void string_to_lower (char *string)
- int is_binary_string (char *string)
- int is_octal_string (char *string)
- int is_decimal_string (char *string)
- int is_hex_string (char *string)
- int is_dont_care_string (char *string)
- char * get_pin_name (char *name)
- char * get_port_name (char *name)
- int get_pin_number (char *name)
- short get_bit (char in)
- char * search_replace (char *src, const char *sKey, const char *rKey, int flag)
- bool validate_string_regex (const char *str, const char *pattern)
- char * find_substring (char *src, const char *sKey, int flag)

2.44.1 Macro Definition Documentation

2.44.1.1 MAX_BUF

```
#define MAX_BUF 256
```

Definition at line 5 of file odin_util.h.

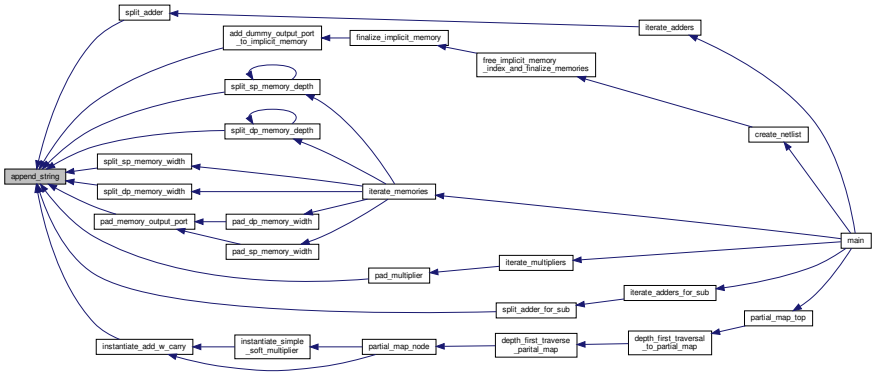
2.44.2 Function Documentation

2.44.2.1 append_string()

```
char* append_string (
            const char * string,
            const char * appendage,
             ...  )
```

Definition at line 647 of file odin_util.cpp.

Here is the caller graph for this function:

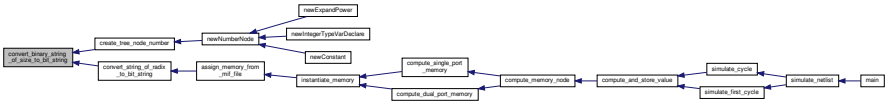


2.44.2.2 convert_binary_string_of_size_to_bit_string()

```
char* convert_binary_string_of_size_to_bit_string (
            short is_dont_care_number,
            char * orig_string,
            int binary_size )
```

Definition at line 366 of file odin_util.cpp.

Here is the caller graph for this function:

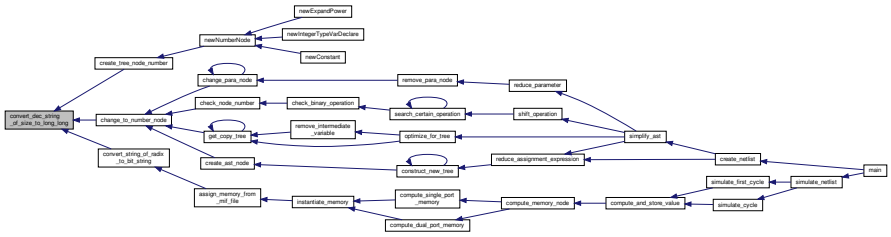


2.44.2.3 convert_dec_string_of_size_to_long_long()

```
long long convert_dec_string_of_size_to_long_long (
            char * orig_string,
            int size )
```

Definition at line 158 of file odin_util.cpp.

Here is the caller graph for this function:

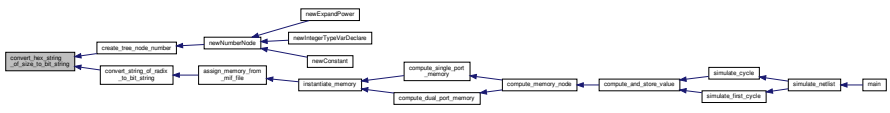


2.44.2.4 convert_hex_string_of_size_to_bit_string()

```
char* convert_hex_string_of_size_to_bit_string (
            short is_dont_care_number,
            char * orig_string,
            int size )
```

Definition at line 207 of file odin_util.cpp.

Here is the caller graph for this function:

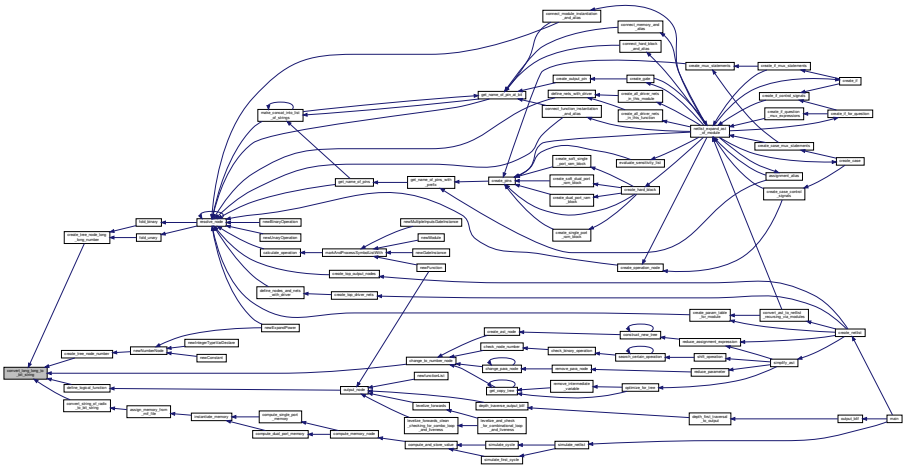


2.44.2.5 convert_long_long_to_bit_string()

```
char* convert_long_long_to_bit_string (
            long long orig_long,
            int num_bits )
```

Definition at line 137 of file odin_util.cpp.

Here is the caller graph for this function:

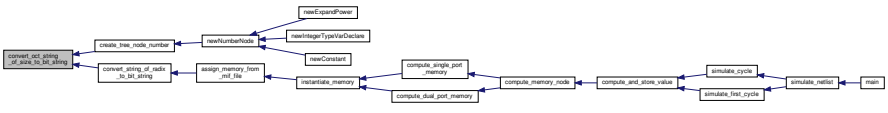


2.44.2.6 convert_oct_string_of_size_to_bit_string()

```
char* convert_oct_string_of_size_to_bit_string (
            char * orig_string,
            int size )
```

Definition at line 313 of file odin_util.cpp.

Here is the caller graph for this function:



2.44.2.7 convert_string_of_radix_to_bit_string()

```
char* convert_string_of_radix_to_bit_string (
            char * string,
            int radix,
            int binary_size )
```

Definition at line 108 of file odin_util.cpp.

Here is the caller graph for this function:

2.44.2.8 convert_string_of_radix_to_long_long()

```
long long convert_string_of_radix_to_long_long (
            char * orig_string,
            int radix )
```

Definition at line 171 of file odin_util.cpp.

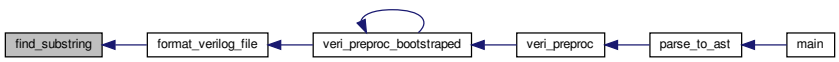
Here is the caller graph for this function:

2.44.2.9 find_substring()

```
char* find_substring (
            char * src,
            const char * sKey,
            int flag )
```

Definition at line 769 of file odin_util.cpp.

Here is the caller graph for this function:

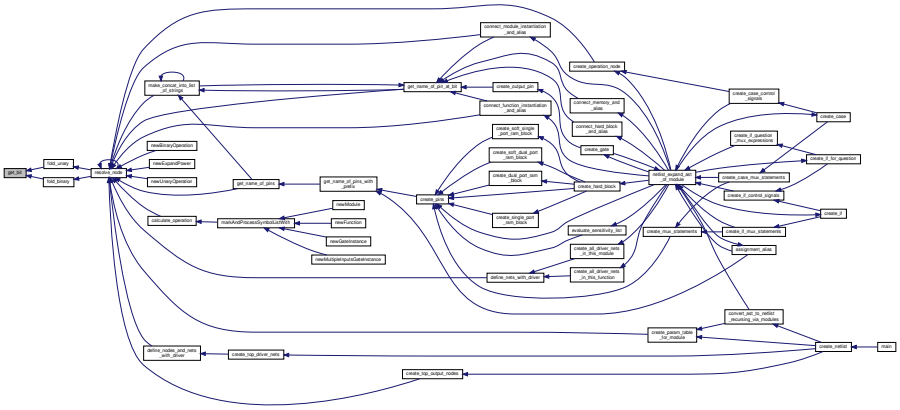


2.44.2.10 get_bit()

```
short get_bit (
            char in )
```

Definition at line 680 of file odin_util.cpp.

Here is the caller graph for this function:

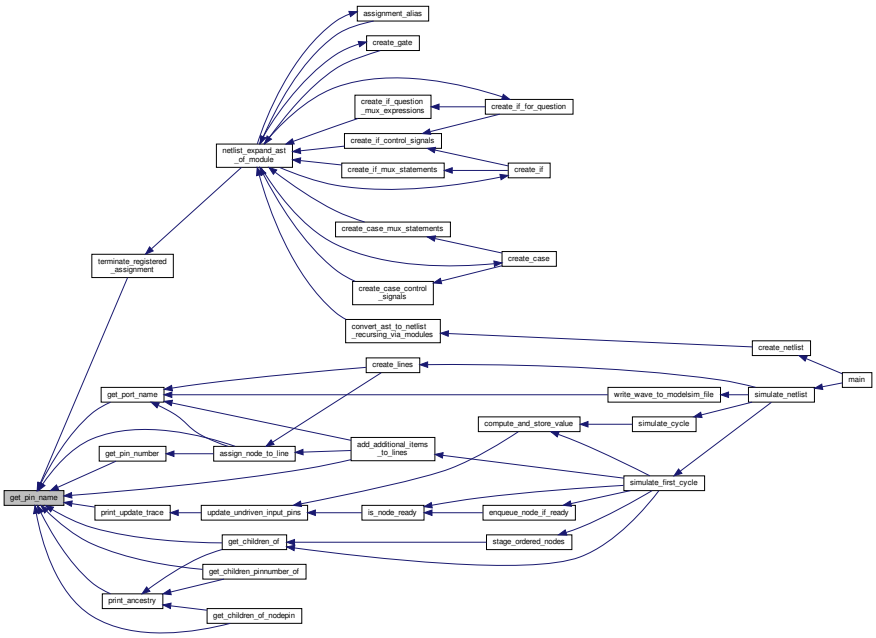


2.44.2.11 get_pin_name()

```
char* get_pin_name (
            char * name )
```

Definition at line 469 of file odin_util.cpp.

Here is the caller graph for this function:

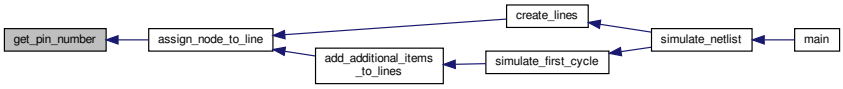


2.44.2.12 get_pin_number()

```
int get_pin_number (
            char * name )
```

Definition at line 499 of file odin_util.cpp.

Here is the caller graph for this function:

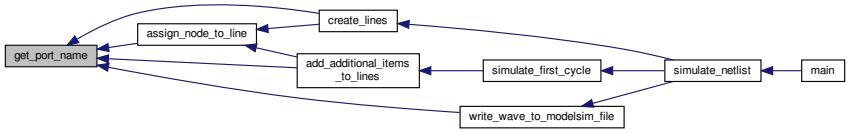


2.44.2.13 get_port_name()

```
char* get_port_name (
            char * name )
```

Definition at line 482 of file odin_util.cpp.

Here is the caller graph for this function:

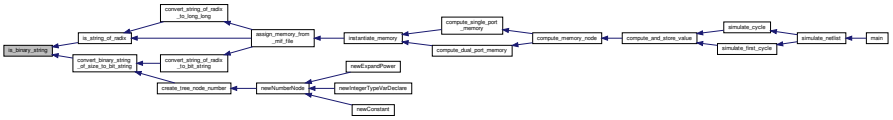


2.44.2.14 is_binary_string()

```
int is_binary_string (
            char * string )
```

Definition at line 453 of file odin_util.cpp.

Here is the caller graph for this function:

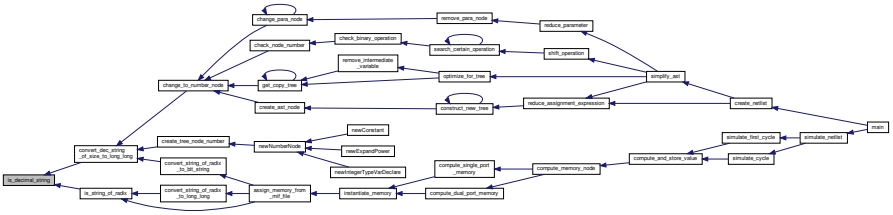


2.44.2.15 is_decimal_string()

```
int is_decimal_string (
            char * string )
```

Definition at line 427 of file odin_util.cpp.

Here is the caller graph for this function:

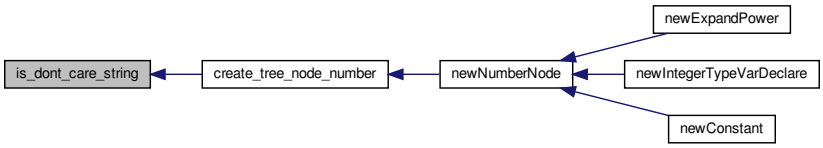


2.44.2.16 is_dont_care_string()

```
int is_dont_care_string (
            char * string )
```

Definition at line 414 of file odin_util.cpp.

Here is the caller graph for this function:

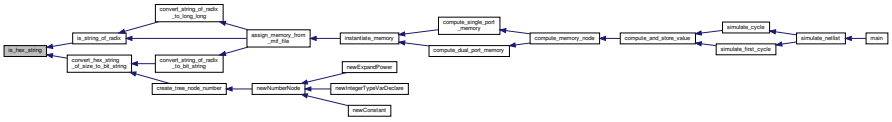


2.44.2.17 is_hex_string()

```
int is_hex_string (
            char * string )
```

Definition at line 401 of file odin_util.cpp.

Here is the caller graph for this function:

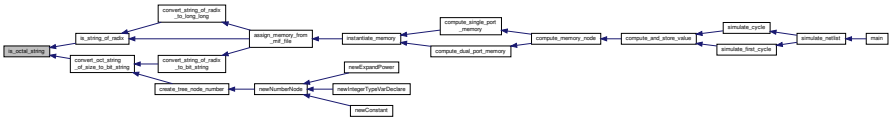


2.44.2.18 is_octal_string()

```
int is_octal_string (
            char * string )
```

Definition at line 440 of file odin_util.cpp.

Here is the caller graph for this function:



2.44.2.19 is_string_of_radix()

```
int is_string_of_radix (
            char * string,
            int radix )
```

Definition at line 189 of file odin_util.cpp.

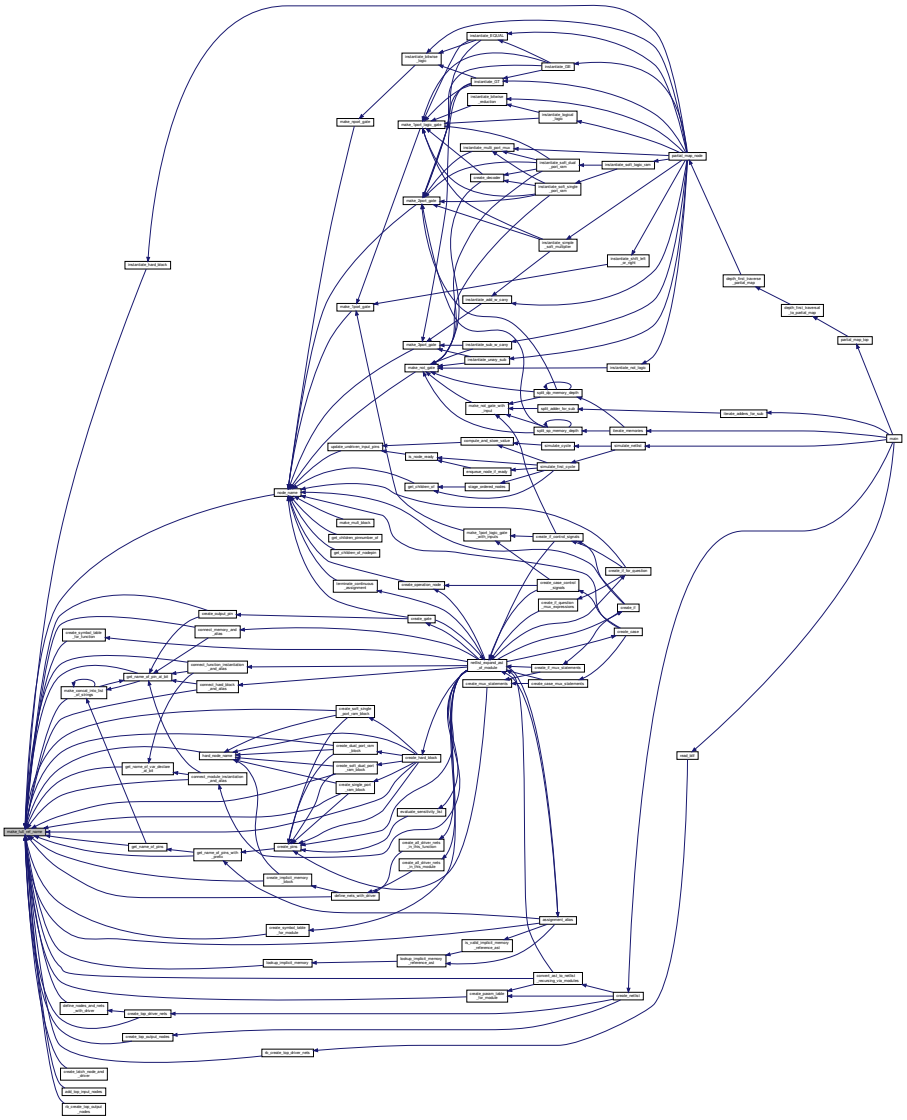
Here is the caller graph for this function:

2.44.2.20 make_full_ref_name()

```
char* make_full_ref_name (
            const char * previous,
            char * module_name,
            char * module_instance_name,
            const char * signal_name,
            long bit )
```

Definition at line 61 of file odin_util.cpp.

Here is the caller graph for this function:

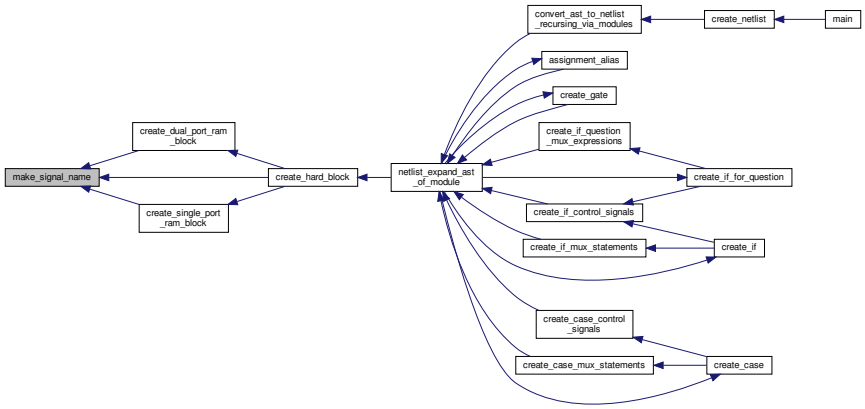


2.44.2.21 make_signal_name()

```
char* make_signal_name (
            char * signal_name,
            int bit )
```

Definition at line 46 of file odin_util.cpp.

Here is the caller graph for this function:

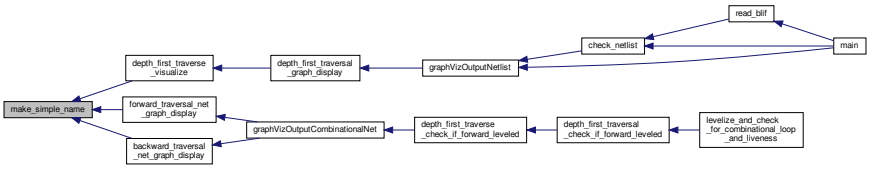


2.44.2.22 make_simple_name()

```
char* make_simple_name (
            char * input,
            const char * flatten_string,
            char flatten_char )
```

Definition at line 544 of file odin_util.cpp.

Here is the caller graph for this function:



2.44.2.23 make_string_based_on_id()

```
char* make_string_based_on_id (
            nnode_t * node )
```

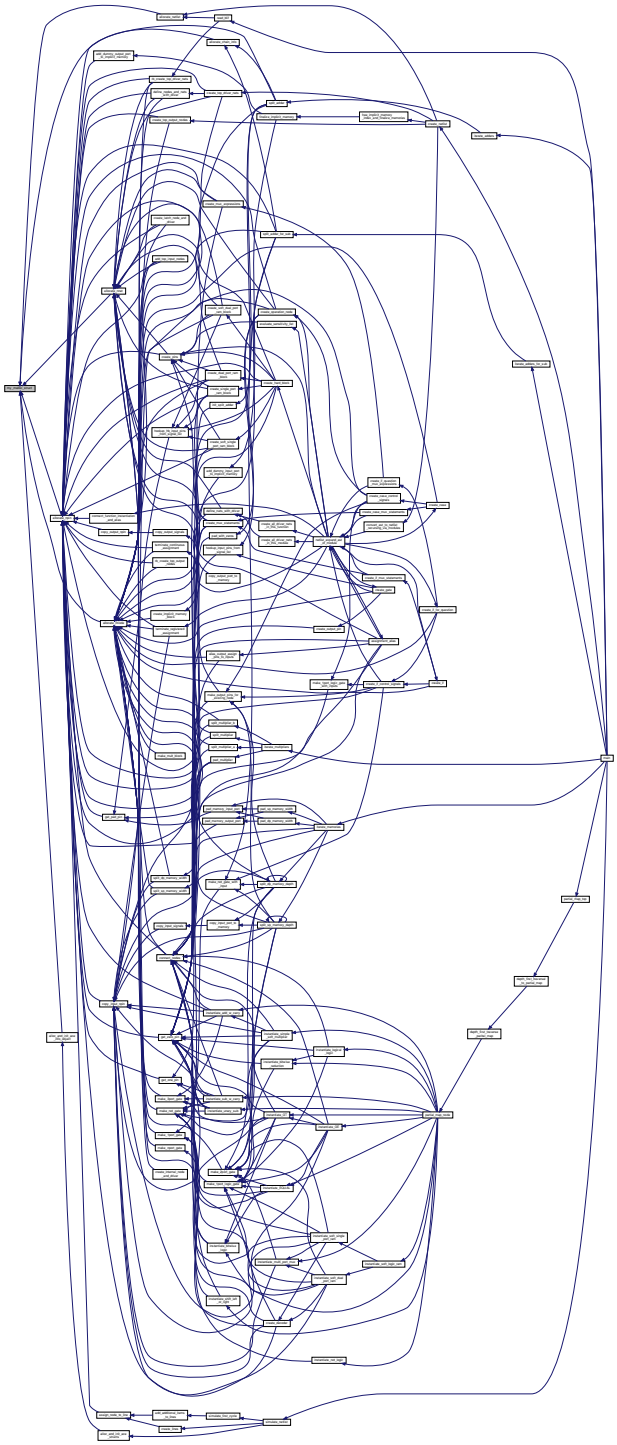
Definition at line 533 of file odin_util.cpp.

2.44.2.24 my_malloc_struct()

```
void* my_malloc_struct (
            size_t bytes_to_alloc )
```

Definition at line 574 of file odin_util.cpp.

Here is the caller graph for this function:

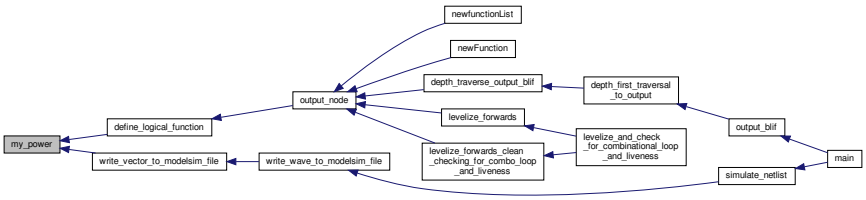


2.44.2.25 my_power()

```
long long int my_power (
            long long int x,
            long long int y )
```

Definition at line 517 of file odin_util.cpp.

Here is the caller graph for this function:



2.44.2.26 pow2()

```
long long int pow2 (
            int to_the_power )
```

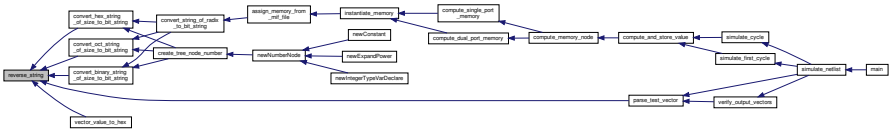
Definition at line 597 of file odin_util.cpp.

2.44.2.27 reverse_string()

```
void reverse_string (
            char * token,
            int length )
```

Definition at line 665 of file odin_util.cpp.

Here is the caller graph for this function:



2.44.2.28 search_replace()

```
char* search_replace (
             char * src,
             const char * sKey,
             const char * rKey,
             int flag )
```

Definition at line 748 of file odin_util.cpp.

Here is the caller graph for this function:

2.44.2.29 string_to_lower()

```
void string_to_lower (
             char * string )
```

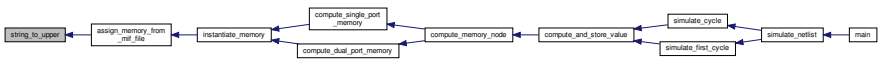
Definition at line 628 of file odin_util.cpp.

2.44.2.30 string_to_upper()

```
void string_to_upper (
             char * string )
```

Definition at line 613 of file odin_util.cpp.

Here is the caller graph for this function:

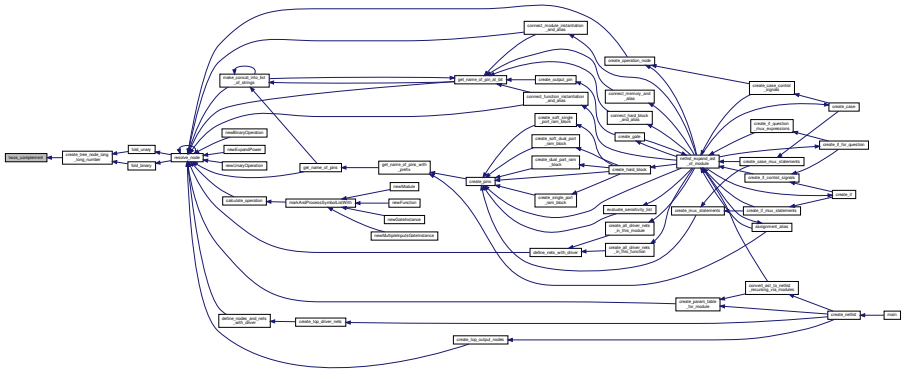


2.44.2.31 twos_complement()

```
char* twos_complement (
            char * str )
```

Definition at line 80 of file odin_util.cpp.

Here is the caller graph for this function:

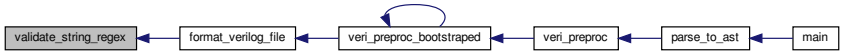


2.44.2.32 validate_string_regex()

```
bool validate_string_regex (
            const char * str,
            const char * pattern )
```

Definition at line 797 of file odin_util.cpp.

Here is the caller graph for this function:



2.45 vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/read_xml_config_file.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <stdarg.h>
#include "types.h"
#include "globals.h"
#include "read_xml_config_file.h"
#include "read_xml_util.h"
#include "pugixml.hpp"
#include "pugixml_util.hpp"
#include "vtr_util.h"
#include "vtr_memory.h"
```

Functions

- void read_verilog_files (pugi::xml_node a_node, config_t *config, const pugiutil::loc_data &loc_data)
- void read_outputs (pugi::xml_node a_node, config_t *config, const pugiutil::loc_data &loc_data)
- void read_debug_switches (pugi::xml_node a_node, config_t *config, const pugiutil::loc_data &loc_data)
- void read_optimizations (pugi::xml_node a_node, config_t *config, const pugiutil::loc_data &loc_data)
- void set_default_optimization_settings (config_t *config)
- void read_config_file (char *file_name)

Variables

- config_t configuration
- char empty_string [ ] = ""

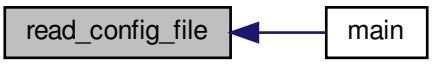
2.45.1 Function Documentation

2.45.1.1 read_config_file()

```
void read_config_file (
             char * file_name )
```

Definition at line 53 of file read_xml_config_file.cpp.

Here is the caller graph for this function:

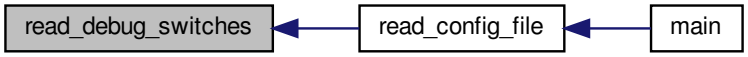


2.45.1.2 read_debug_switches()

```
void read_debug_switches (
             pugi::xml_node a_node,
             config_t * config,
             const pugiutil::loc_data & loc_data )
```

Definition at line 159 of file read_xml_config_file.cpp.

Here is the caller graph for this function:

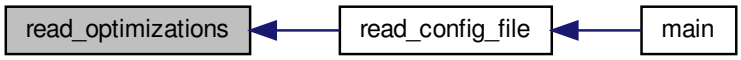


2.45.1.3 read_optimizations()

```
void read_optimizations (
             pugi::xml_node a_node,
             config_t * config,
             const pugiutil::loc_data & loc_data )
```

Definition at line 217 of file read_xml_config_file.cpp.

Here is the caller graph for this function:

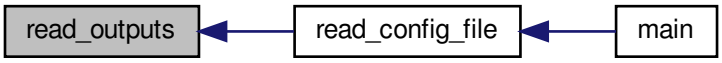


2.45.1.4 read_outputs()

```
void read_outputs (
            pugi::xml_node a_node,
            config_t * config,
            const pugiutil::loc_data & loc_data )
```

Definition at line 122 of file read_xml_config_file.cpp.

Here is the caller graph for this function:

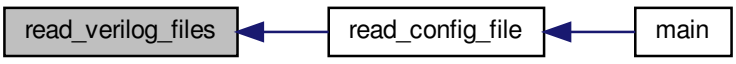


2.45.1.5 read_verilog_files()

```
void read_verilog_files (
            pugi::xml_node a_node,
            config_t * config,
            const pugiutil::loc_data & loc_data )
```

Definition at line 100 of file read_xml_config_file.cpp.

Here is the caller graph for this function:

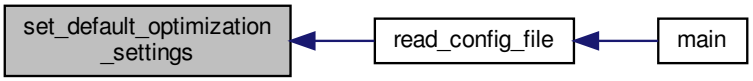


2.45.1.6 set_default_optimization_settings()

```
void set_default_optimization_settings (
            config_t * config )
```

Definition at line 199 of file read_xml_config_file.cpp.

Here is the caller graph for this function:



2.45.2 Variable Documentation

2.45.2.1 configuration

```
config_t configuration
```

Definition at line 38 of file read_xml_config_file.cpp.

2.45.2.2 empty_string

```
char empty_string[] = ""
```

Definition at line 39 of file read_xml_config_file.cpp.

2.46 vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/read_xml_config_file.h File Reference

```
#include "types.h"
```

Functions

- void read_config_file (char *file_name)

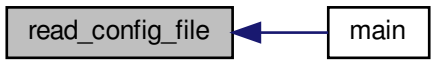
2.46.1 Function Documentation

2.46.1.1 read_config_file()

```
void read_config_file (
             char * file_name )
```

Definition at line 53 of file read_xml_config_file.cpp.

Here is the caller graph for this function:



2.47 vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_bison_user_defined.h File Reference

Functions

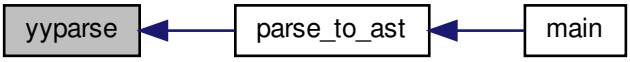
- int yyparse (void)

2.47.1 Function Documentation

2.47.1.1 yyparse()

```
int yyparse (
             void  )
```

Here is the caller graph for this function:



2.48 vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.cpp File Reference

```
#include <ctype.h>
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include "verilog_preprocessor.h"
#include "types.h"
#include "vtr_util.h"
#include "vtr_memory.h"
#include "odin_util.h"
#include <stdbool.h>
```

Functions

- FILE * open_source_file (char *filename)
- FILE * remove_comments (FILE *source)
- FILE * format_verilog_file (FILE *source)
- FILE * format_verilog_variable (FILE *src, FILE *dest)
- int init_veri_preproc ()
- int cleanup_veri_preproc ()
- void clean_veri_define (veri_define *current)
- void clean_veri_include (veri_include *current)
- int add_veri_define (char *symbol, char *value, int line, veri_include *defined_in)
- veri_include * add_veri_include (char *path, int line, veri_include *included_from)
- char * ret_veri_definedval (char *symbol)
- int veri_is_defined (char *symbol)
- FILE * veri_preproc (FILE *source)
- void veri_preproc_bootstraped (FILE *original_source, FILE *preproc_producer, veri_include *current_include)
- char * trim (char *string)
- int top (veri_flag_stack *stack)
- int pop (veri_flag_stack *stack)
- void push (veri_flag_stack *stack, int flag)

Variables

- struct veri_Includes veri_includes
- struct veri_Defines veri_defines

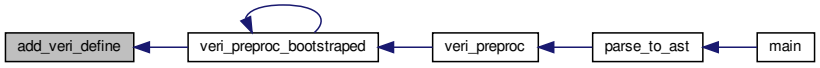
2.48.1 Function Documentation

2.48.1.1 add_veri_define()

```
int add_veri_define (
             char * symbol,
             char * value,
             int line,
             veri_include * defined_in )
```

Definition at line 120 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

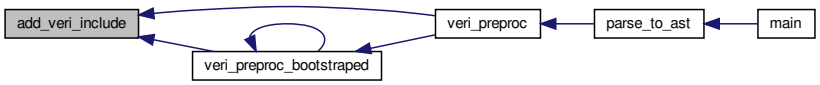


2.48.1.2 add_veri_include()

```
veri_include* add_veri_include (
             char * path,
             int line,
             veri_include * included_from )
```

Definition at line 189 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

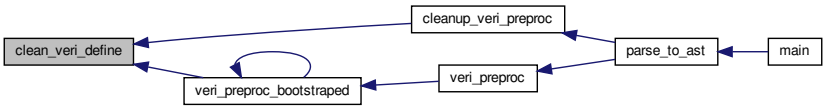


2.48.1.3 clean_veri_define()

```
void clean_veri_define (
            veri_define * current )
```

Definition at line 83 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

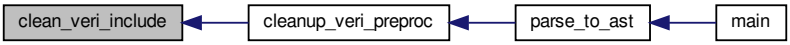


2.48.1.4 clean_veri_include()

```
void clean_veri_include (
            veri_include * current )
```

Definition at line 103 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

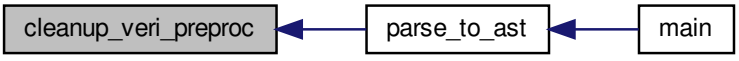


2.48.1.5 cleanup_veri_preproc()

```
int cleanup_veri_preproc ( )
```

Definition at line 49 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

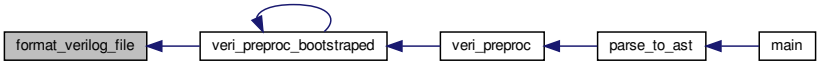


2.48.1.6 format_verilog_file()

```
FILE * format_verilog_file (
            FILE * source )
```

Definition at line 698 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

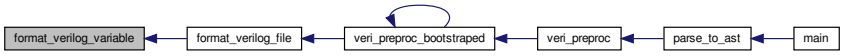


2.48.1.7 format_verilog_variable()

```
FILE * format_verilog_variable (
            FILE * src,
            FILE * dest )
```

Definition at line 766 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

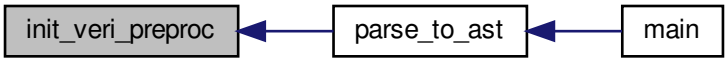


2.48.1.8 init_veri_preproc()

```
int init_veri_preproc ( )
```

Definition at line 24 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

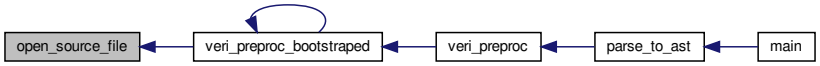


2.48.1.9 open_source_file()

```
FILE * open_source_file (
            char * filename )
```

Definition at line 269 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

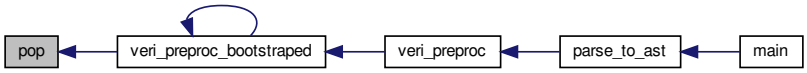


2.48.1.10 pop()

```
int pop (
            veri_flag_stack * stack )
```

Definition at line 673 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

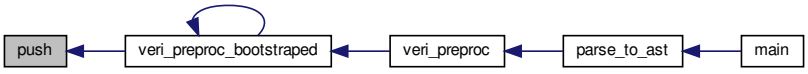


2.48.1.11 push()

```
void push (
            veri_flag_stack * stack,
            int flag )
```

Definition at line 687 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

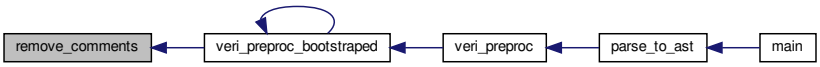


2.48.1.12 remove_comments()

```
FILE * remove_comments (
            FILE * source )
```

Definition at line 358 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

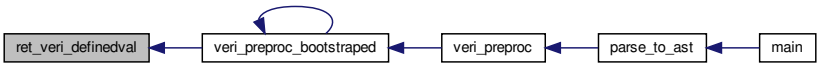


2.48.1.13 ret_veri_definedval()

```
char* ret_veri_definedval (
            char * symbol )
```

Definition at line 233 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

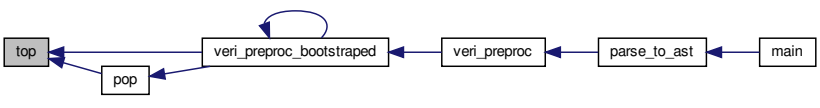


2.48.1.14 top()

```
int top (
            veri_flag_stack * stack )
```

Definition at line 663 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

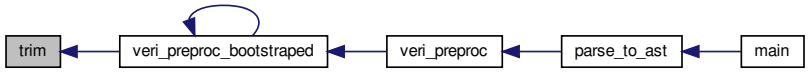


2.48.1.15 trim()

```
char* trim (
            char * string )
```

Definition at line 636 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

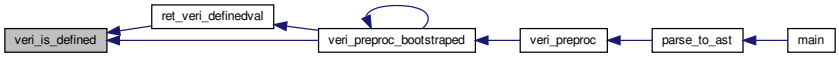


2.48.1.16 veri_is_defined()

```
int veri_is_defined (
            char * symbol )
```

Definition at line 247 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

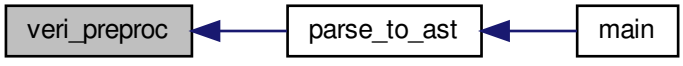


2.48.1.17 veri_preproc()

```
FILE* veri_preproc (
            FILE * source )
```

Definition at line 320 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

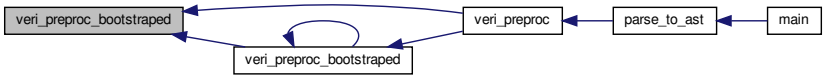


2.48.1.18 veri_preproc_bootstraped()

```
void veri_preproc_bootstraped (
            FILE * original_source,
            FILE * preproc_producer,
            veri_include * current_include )
```

Definition at line 406 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:



2.48.2 Variable Documentation

2.48.2.1 veri_defines

```
struct veri_Defines veri_defines
```

Definition at line 14 of file verilog_preprocessor.cpp.

2.48.2.2 veri_includes

```
struct veri_Includes veri_includes
```

Definition at line 13 of file verilog_preprocessor.cpp.

2.49 vtr-verilog-to-routing/ODIN_II/SRC/PARSE_TOOL/verilog_preprocessor.h File Reference

Data Structures

- struct veri_include
- struct veri_define
- struct veri_Includes
- struct veri_Defines
- struct veri_flag_node
- struct veri_flag_stack

Macros

- #define DefaultSize 20
- #define MaxLine 4096

Typedefs

- typedef struct veri_include veri_include
- typedef struct veri_define veri_define
- typedef struct veri_flag_node veri_flag_node

Functions

- int init_veri_preproc ()
- int cleanup_veri_preproc ()
- void clean_veri_define (veri_define ∗current)
- void clean_veri_include (veri_include ∗current)
- int add_veri_define (char ∗symbol, char ∗value, int line, veri_include ∗included_from)
- char ∗ ret_veri_definedval (char ∗symbol)
- int veri_is_defined (char ∗symbol)
- veri_include ∗ add_veri_include (char ∗path, int line, veri_include ∗included_from)
- FILE ∗ veri_preproc (FILE ∗source)
- void veri_preproc_bootstraped (FILE ∗source, FILE ∗preproc_producer, veri_include ∗current_include)
- int top (veri_flag_stack ∗stack)
- int pop (veri_flag_stack ∗stack)
- void push (veri_flag_stack ∗stack, int flag)
- char ∗ trim (char ∗string)

Variables

- struct veri_Includes veri_includes
- struct veri_Defines veri_defines

2.49.1 Macro Definition Documentation

2.49.1.1 DefaultSize

```
#define DefaultSize 20
```

Definition at line 4 of file verilog_preprocessor.h.

2.49.1.2 MaxLine

```
#define MaxLine 4096
```

Definition at line 5 of file verilog_preprocessor.h.

2.49.2 Typedef Documentation

2.49.2.1 veri_define

```
typedef struct veri_define veri_define
```

2.49.2.2 veri_flag_node

```
typedef struct veri_flag_node veri_flag_node
```

2.49.2.3 veri_include

```
typedef struct veri_include veri_include
```

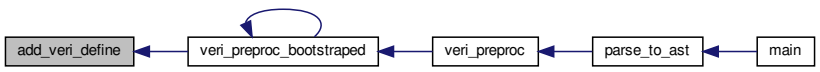
2.49.3 Function Documentation

2.49.3.1 add_veri_define()

```
int add_veri_define (
             char * symbol,
             char * value,
             int line,
             veri_include * included_from )
```

Definition at line 120 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

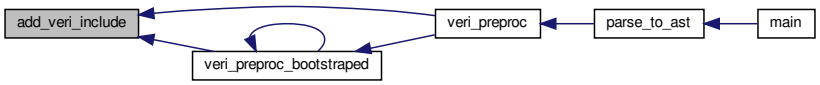


2.49.3.2 add_veri_include()

```
veri_include* add_veri_include (
            char * path,
            int line,
            veri_include * included_from )
```

Definition at line 189 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

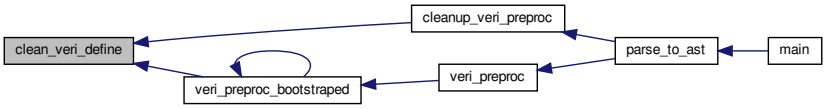


2.49.3.3 clean_veri_define()

```
void clean_veri_define (
            veri_define * current )
```

Definition at line 83 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

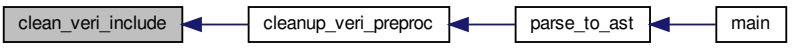


2.49.3.4 clean_veri_include()

```
void clean_veri_include (
            veri_include * current )
```

Definition at line 103 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

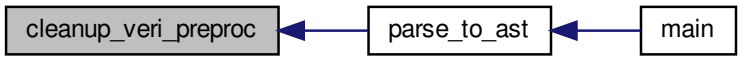


2.49.3.5 cleanup_veri_preproc()

```
int cleanup_veri_preproc ( )
```

Definition at line 49 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:



2.49.3.6 init_veri_preproc()

```
int init_veri_preproc ( )
```

Definition at line 24 of file verilog_preprocessor.cpp.

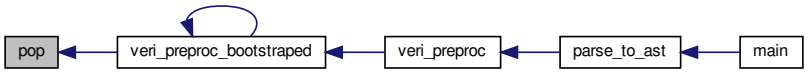
Here is the caller graph for this function:

2.49.3.7 pop()

```
int pop (
            veri_flag_stack * stack )
```

Definition at line 673 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

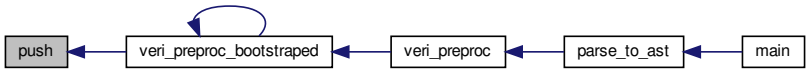


2.49.3.8 push()

```
void push (
            veri_flag_stack * stack,
            int flag )
```

Definition at line 687 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

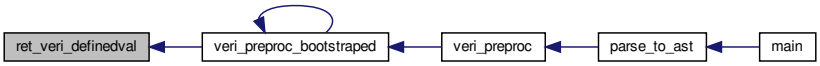


2.49.3.9 ret_veri_definedval()

```
char* ret_veri_definedval (
            char * symbol )
```

Definition at line 233 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

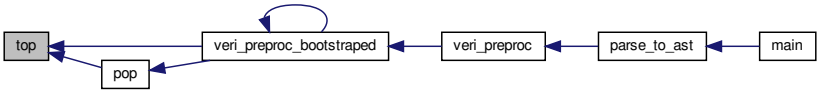


2.49.3.10 top()

```
int top (
            veri_flag_stack * stack )
```

Definition at line 663 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

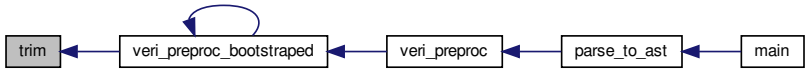


2.49.3.11 trim()

```
char* trim (
            char * string )
```

Definition at line 636 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

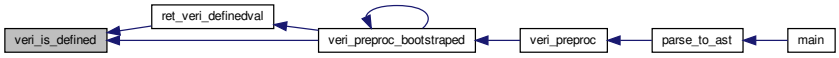


2.49.3.12 veri_is_defined()

```
int veri_is_defined (
            char * symbol )
```

Definition at line 247 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

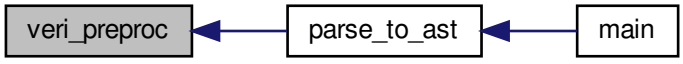


2.49.3.13 veri_preproc()

```
FILE* veri_preproc (
            FILE * source )
```

Definition at line 320 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:

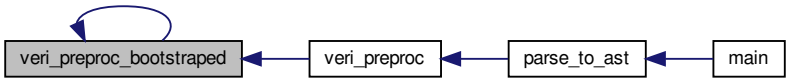


2.49.3.14 veri_preproc_bootstraped()

```
void veri_preproc_bootstraped (
            FILE * source,
            FILE * preproc_producer,
            veri_include * current_include )
```

Definition at line 406 of file verilog_preprocessor.cpp.

Here is the caller graph for this function:



2.49.4 Variable Documentation

2.49.4.1 veri_defines

```
struct veri_Defines veri_defines
```

Definition at line 14 of file verilog_preprocessor.cpp.

2.49.4.2 veri_includes

```
struct veri_Includes veri_includes
```

Definition at line 13 of file verilog_preprocessor.cpp.

2.50 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/ace.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include "cudd.h"
#include "ace.h"
#include "st.h"
#include "vtr_memory.h"
```

Data Structures

- struct ace_cube_t

Macros

- #define ACE_P0TO1(P1, PS) ((P1)==0.0)?0.0:(((P1)==1.0)?1.0:0.5∗PS/(1.0-(P1)))
- #define ACE_P1TO0(P1, PS) ((P1)==0.0)?1.0:(((P1)==0.0)?0.0:0.5∗PS/(P1))
- #define MAX(a, b) (a > b ? a : b)
- #define TWO 3
- #define DASH 3
- #define ONE 2
- #define ZERO 1
- #define BPI 32
- #define LOGBPI 5
- #define fail(why)
- #define LOOPINIT(size) ((size <= BPI) ? 1 : WHICH_WORD((size)-1))
- #define WHICH_WORD(element) (((element) >> LOGBPI) + 1)
- #define WHICH_BIT(element) ((element) & (BPI-1))
- #define GETINPUT(c, pos) ((c[WHICH_WORD(2∗pos)] >> WHICH_BIT(2∗pos)) & 3)
- #define node_get_literal(c_, j_) ((c_) ? GETINPUT((c_), (j_)) : node_error(2))
- #define ALLOC(type, num) ((type ∗) malloc(sizeof(type) ∗ (num)))
- #define set_remove(set, e) (set[WHICH_WORD(e)] &= ∼ (1 << WHICH_BIT(e)))
- #define set_insert(set, e) (set[WHICH_WORD(e)] |= 1 << WHICH_BIT(e))
- #define set_new(size) set_clear(ALLOC(unsigned int, set_size(size)), size)
- #define set_size(size) ((size) <= BPI ? 2 : (WHICH_WORD((size)-1) + 1))

Typedefs

- typedef unsigned int ∗ pset

Functions

- ace_obj_info_t ∗ alloc_and_init_ace_info_object ()
- int calc_node_depth (nnode_t ∗node)
- void compute_switching_activities (netlist_t ∗net)
- void prob_epsilon_fix (double ∗d)
- void output_ace_info (netlist_t ∗net, FILE ∗act_out)
- void output_ace_info_node (char ∗name, ace_obj_info_t ∗info, FILE ∗act_out)
- pset set_clear (pset r, int size)
- ace_cube_t ∗ ace_cube_dup (ace_cube_t ∗cube)
- ace_cube_t ∗ ace_cube_new_dc (int num_literals)
- DdNode ∗ build_bdd_for_node (DdManager ∗dd, nnode_t ∗node)
- void ace_bdd_count_paths (DdManager ∗mgr, DdNode ∗bdd, int ∗num_one_paths, int ∗num_zero_paths)
- double calc_cube_switch_prob_recur (DdManager ∗mgr, DdNode ∗bdd, ace_cube_t ∗cube, nnode_t ∗node, st↩ _table ∗visited, int phase)
- double calc_cube_switch_prob (DdManager ∗mgr, DdNode ∗bdd, ace_cube_t ∗cube, nnode_t ∗node, int phase)
- double calc_switch_prob_recur (DdManager ∗mgr, DdNode ∗bdd_next, DdNode ∗bdd, ace_cube_t ∗cube, nnode_t ∗node, double P1, int phase)
- int node_error (int code)
- void alloc_and_init_ace_structs (netlist_t ∗net)
- void calculate_activity (netlist_t ∗net, int max_cycles, FILE ∗act_out)

2.50.1 Macro Definition Documentation

2.50.1.1 ACE_P0TO1

```
#define ACE_P0TO1(
              P1,
              PS ) ((P1)==0.0)?0.0:(((P1)==1.0)?1.0:0.5*PS/(1.0-(P1)))
```

Definition at line 30 of file ace.cpp.

2.50.1.2 ACE_P1TO0

```
#define ACE_P1TO0(
              P1,
              PS ) ((P1)==0.0)?1.0:(((P1)==0.0)?0.0:0.5*PS/(P1))
```

Definition at line 31 of file ace.cpp.

2.50.1.3 ALLOC

```
#define ALLOC(
              type,
              num ) ((type *) malloc(sizeof(type) * (num)))
```

Definition at line 62 of file ace.cpp.

2.50.1.4 BPI

```
#define BPI 32
```

Definition at line 41 of file ace.cpp.

2.50.1.5 DASH

```
#define DASH 3
```

Definition at line 37 of file ace.cpp.

2.50.1.6 fail

```
#define fail(
               why )
```

Value:

```
{\
        (void) fprintf(stderr, "Fatal error: file %s, line %d\n%s\n",\
               __FILE__, __LINE__, why);\
               (void) fflush(stdout);\
               abort();\
               }
```

Definition at line 44 of file ace.cpp.

2.50.1.7 GETINPUT

```
#define GETINPUT(
               c,
               pos ) ((c[WHICH_WORD(2*pos)] >> WHICH_BIT(2*pos)) & 3)
```

Definition at line 56 of file ace.cpp.

2.50.1.8 LOGBPI

```
#define LOGBPI 5
```

Definition at line 42 of file ace.cpp.

2.50.1.9 LOOPINIT

```
#define LOOPINIT(
               size ) ((size <= BPI) ? 1 :  WHICH_WORD((size)-1))
```

Definition at line 51 of file ace.cpp.

2.50.1.10 MAX

```
#define MAX(
               a,
               b ) (a > b ?  a :  b)
```

Definition at line 33 of file ace.cpp.

2.50.1.11 node_get_literal

```
#define node_get_literal(
              c_,
              j_ ) ((c_) ?  GETINPUT((c_), (j_)) :  node_error(2))
```

Definition at line 58 of file ace.cpp.

2.50.1.12 ONE

```
#define ONE 2
```

Definition at line 38 of file ace.cpp.

2.50.1.13 set_insert

```
#define set_insert(
              set,
              e ) (set[WHICH_WORD(e)] |= 1 << WHICH_BIT(e))
```

Definition at line 65 of file ace.cpp.

2.50.1.14 set_new

```
#define set_new(
              size ) set_clear(ALLOC(unsigned int, set_size(size)), size)
```

Definition at line 66 of file ace.cpp.

2.50.1.15 set_remove

```
#define set_remove(
              set,
              e ) (set[WHICH_WORD(e)] &= ~ (1 << WHICH_BIT(e)))
```

Definition at line 64 of file ace.cpp.

2.50.1.16 set_size

```
#define set_size(
              size ) ((size) <= BPI ? 2 :  (WHICH_WORD((size)-1) + 1))
```

Definition at line 67 of file ace.cpp.

2.50.1.17 TWO

```
#define TWO 3
```

Definition at line 36 of file ace.cpp.

2.50.1.18 WHICH_BIT

```
#define WHICH_BIT(
              element ) ((element) & (BPI-1))
```

Definition at line 54 of file ace.cpp.

2.50.1.19 WHICH_WORD

```
#define WHICH_WORD(
              element ) (((element) >> LOGBPI) + 1)
```

Definition at line 53 of file ace.cpp.

2.50.1.20 ZERO

```
#define ZERO 1
```

Definition at line 39 of file ace.cpp.

2.50.2 Typedef Documentation

2.50.2.1 pset

```
typedef unsigned int* pset
```

Definition at line 60 of file ace.cpp.

2.50.3 Function Documentation

2.50.3.1 ace_bdd_count_paths()

```
void ace_bdd_count_paths (
            DdManager * mgr,
            DdNode * bdd,
            int * num_one_paths,
            int * num_zero_paths )
```

Definition at line 560 of file ace.cpp.

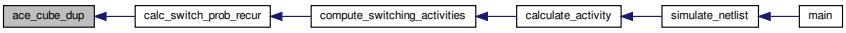
Here is the caller graph for this function:

2.50.3.2 ace_cube_dup()

```
ace_cube_t * ace_cube_dup (
            ace_cube_t * cube )
```

Definition at line 464 of file ace.cpp.

Here is the caller graph for this function:



2.50.3.3 ace_cube_new_dc()

```
ace_cube_t * ace_cube_new_dc (
            int num_literals )
```

Definition at line 498 of file ace.cpp.

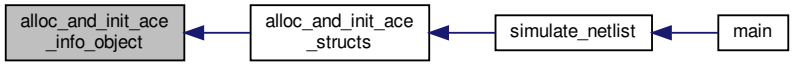
Here is the caller graph for this function:

2.50.3.4 alloc_and_init_ace_info_object()

```
ace_obj_info_t * alloc_and_init_ace_info_object ( )
```

Definition at line 163 of file ace.cpp.

Here is the caller graph for this function:

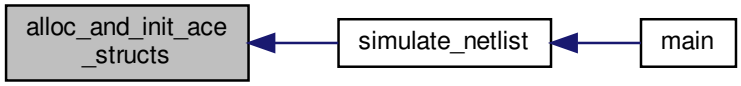


2.50.3.5 alloc_and_init_ace_structs()

```
void alloc_and_init_ace_structs (
            netlist_t * net )
```

Definition at line 101 of file ace.cpp.

Here is the caller graph for this function:



2.50.3.6 build_bdd_for_node()

```
DdNode * build_bdd_for_node (
            DdManager * dd,
            nnode_t * node )
```

Definition at line 524 of file ace.cpp.

Here is the caller graph for this function:

2.50.3.7 calc_cube_switch_prob()

```
double calc_cube_switch_prob (
            DdManager * mgr,
            DdNode * bdd,
            ace_cube_t * cube,
            nnode_t * node,
            int phase )
```

Definition at line 650 of file ace.cpp.

Here is the caller graph for this function:

2.50.3.8 calc_cube_switch_prob_recur()

```
double calc_cube_switch_prob_recur (
            DdManager * mgr,
            DdNode * bdd,
            ace_cube_t * cube,
            nnode_t * node,
            st_table * visited,
            int phase )
```

Definition at line 584 of file ace.cpp.

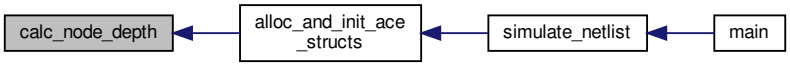
Here is the caller graph for this function:

2.50.3.9 calc_node_depth()

```
int calc_node_depth (
            nnode_t * node )
```

Definition at line 184 of file ace.cpp.

Here is the caller graph for this function:



2.50.3.10 calc_switch_prob_recur()

```
double calc_switch_prob_recur (
            DdManager * mgr,
            DdNode * bdd_next,
            DdNode * bdd,
            ace_cube_t * cube,
            nnode_t * node,
            double P1,
            int phase )
```

Definition at line 668 of file ace.cpp.

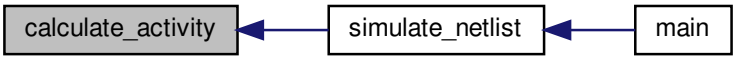
Here is the caller graph for this function:

2.50.3.11 calculate_activity()

```
void calculate_activity (
             netlist_t * net,
             int max_cycles,
             FILE * act_out )
```

Definition at line 203 of file ace.cpp.

Here is the caller graph for this function:

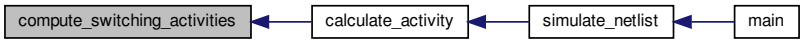


2.50.3.12 compute_switching_activities()

```
void compute_switching_activities (
             netlist_t * net )
```

Definition at line 282 of file ace.cpp.

Here is the caller graph for this function:



2.50.3.13 node_error()

```
int node_error (
             int code )
```

Definition at line 436 of file ace.cpp.

2.50.3.14 output_ace_info()

```
void output_ace_info (
            netlist_t * net,
            FILE * act_out )
```

Definition at line 360 of file ace.cpp.

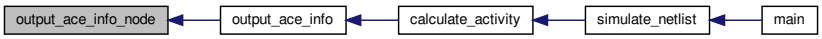
Here is the caller graph for this function:

2.50.3.15 output_ace_info_node()

```
void output_ace_info_node (
            char * name,
            ace_obj_info_t * info,
            FILE * act_out )
```

Definition at line 394 of file ace.cpp.

Here is the caller graph for this function:

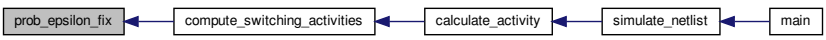


2.50.3.16 prob_epsilon_fix()

```
void prob_epsilon_fix (
            double * d )
```

Definition at line 344 of file ace.cpp.

Here is the caller graph for this function:



2.50.3.17 set_clear()

```
pset set_clear (
            pset r,
            int size )
```

Definition at line 424 of file ace.cpp.

2.51 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/ace.h File Reference

```
#include "types.h"
```

Functions

- void alloc_and_init_ace_structs (netlist_t *net)
- void calculate_activity (netlist_t *net, int max_cycles, FILE *act_out)

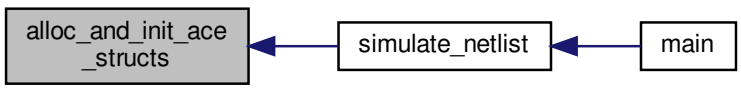
2.51.1 Function Documentation

2.51.1.1 alloc_and_init_ace_structs()

```
void alloc_and_init_ace_structs (
            netlist_t * net )
```

Definition at line 101 of file ace.cpp.

Here is the caller graph for this function:

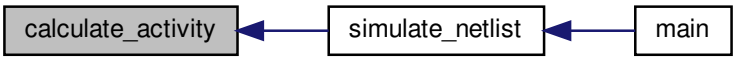


2.51.1.2 calculate_activity()

```
void calculate_activity (
             netlist_t * net,
             int max_cycles,
             FILE * act_out )
```

Definition at line 203 of file ace.cpp.

Here is the caller graph for this function:



2.52 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/queue.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "queue.h"
#include "types.h"
#include "vtr_memory.h"
```

Functions

- void ___queue_add (queue_t *q, void *item)
- void * ___queue_remove (queue_t *q)
- void ** ___queue_remove_all (queue_t *q)
- int ___queue_is_empty (queue_t *q)
- void ___queue_destroy (queue_t *q)
- queue_t * create_queue ()

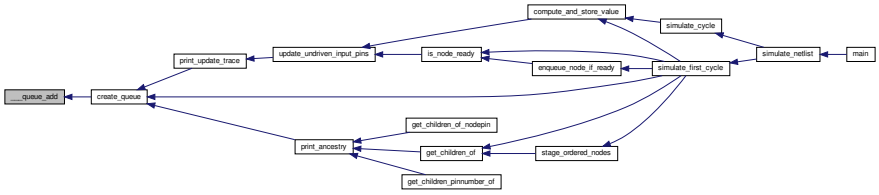
2.52.1 Function Documentation

2.52.1.1 ___queue_add()

```
void ___queue_add (
            queue_t * q,
            void * item )
```

Definition at line 59 of file queue.cpp.

Here is the caller graph for this function:

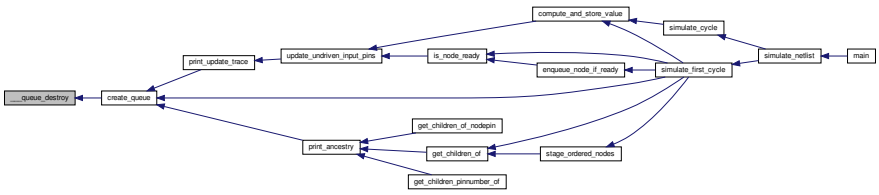


2.52.1.2 ___queue_destroy()

```
void ___queue_destroy (
            queue_t * q )
```

Definition at line 53 of file queue.cpp.

Here is the caller graph for this function:

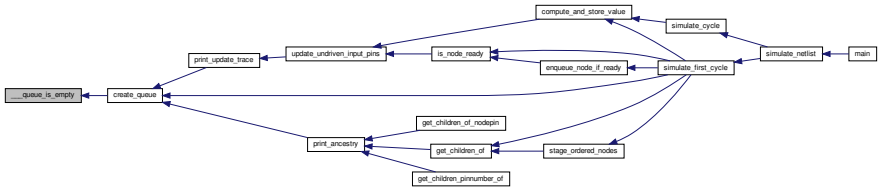


2.52.1.3 ___queue_is_empty()

```
int ___queue_is_empty (
            queue_t * q )
```

Definition at line 111 of file queue.cpp.

Here is the caller graph for this function:

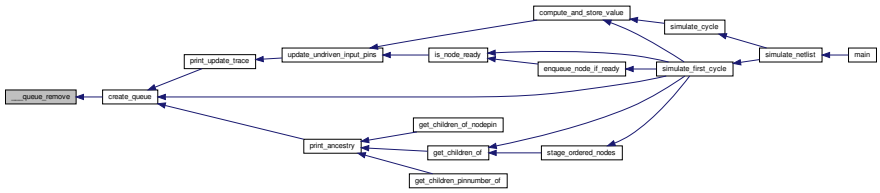


2.52.1.4 ___queue_remove()

```
void * ___queue_remove (
            queue_t * q )
```

Definition at line 77 of file queue.cpp.

Here is the caller graph for this function:

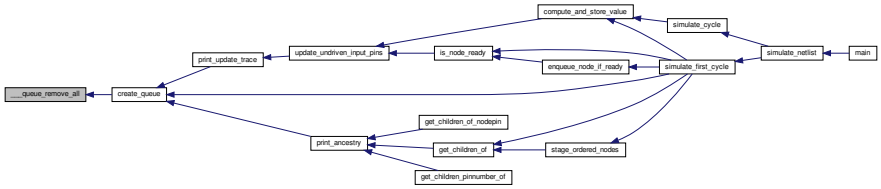


2.52.1.5 ___queue_remove_all()

```
void ** ___queue_remove_all (
            queue_t * q )
```

Definition at line 97 of file queue.cpp.

Here is the caller graph for this function:

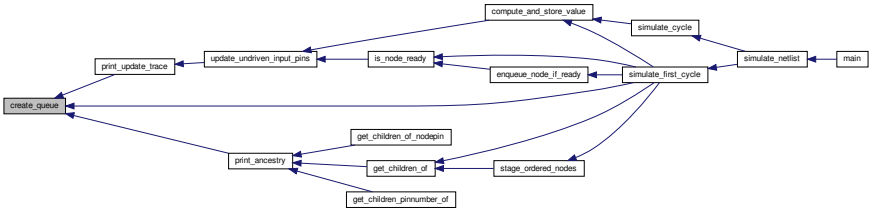


2.52.1.6 create_queue()

```
queue_t* create_queue ( )
```

Definition at line 36 of file queue.cpp.

Here is the caller graph for this function:



2.53 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/queue.h File Reference

Data Structures

- struct queue_t_t
- struct queue_node_t_t

Macros

- #define queue_t struct queue_t_t
- #define queue_node_t struct queue_node_t_t

Functions

- queue_t * create_queue ()

2.53.1 Macro Definition Documentation

2.53.1.1 queue_node_t

```
#define queue_node_t struct queue_node_t_t
```

Definition at line 26 of file queue.h.

2.53.1.2 queue_t

```
#define queue_t struct queue_t_t
```

Definition at line 25 of file queue.h.

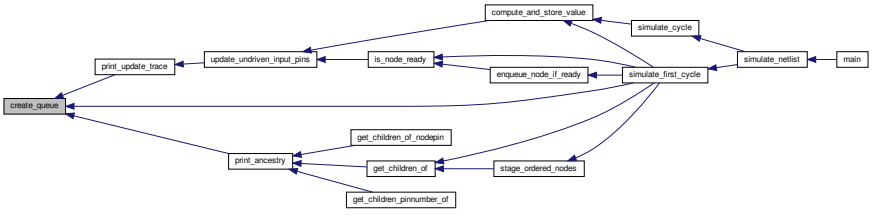
2.53.2 Function Documentation

2.53.2.1 create_queue()

```
queue_t* create_queue ( )
```

Definition at line 36 of file queue.cpp.

Here is the caller graph for this function:



2.54 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/sim_block.h File Reference

```
#include "types.h"
```

Functions

- void simulate_block_cycle (int cycle, int num_input_pins, int *inputs, int num_output_pins, int *outputs)

2.54.1 Function Documentation

2.54.1.1 simulate_block_cycle()

```
void simulate_block_cycle (
            int cycle,
            int num_input_pins,
            int * inputs,
            int num_output_pins,
            int * outputs )
```

2.55 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.cpp File Reference

```
#include "simulate_blif.h"
#include "math.h"
#include "vtr_util.h"
#include "vtr_memory.h"
#include <string>
#include <sstream>
#include <chrono>
#include <dlfcn.h>
```

Macros

- #define max(a, b) (((a) > (b))? (a) : (b))
- #define min(a, b) ((a) > (b)? (b) : (a))

Functions

- void simulate_netlist (netlist_t *netlist)
- void simulate_cycle (int cycle, stages_t *s)
- stages_t * simulate_first_cycle (netlist_t *netlist, int cycle, pin_names *p, lines_t *l)
- stages_t * stage_ordered_nodes (nnode_t **ordered_nodes, int num_ordered_nodes)
- void compute_and_store_value (nnode_t *node, int cycle)
- void update_undriven_input_pins (nnode_t *node, int cycle)
- void flag_undriven_input_pins (nnode_t *node)
- int get_num_covered_nodes (stages_t *s)
- int enqueue_node_if_ready (queue_t *queue, nnode_t *node, int cycle)
- int is_node_complete (nnode_t *node, int cycle)
- int is_node_ready (nnode_t *node, int cycle)

- int verify_output_vectors (char *output_vector_file, int num_vectors)
- hashtable_t * index_pin_name_list (pin_names *list)
- pin_names * parse_pin_name_list (char *list)
- void add_additional_items_to_lines (nnode_t *node, pin_names *p, lines_t *l)
- char * get_mif_filename (nnode_t *node)
- void trim_string (char *string, const char *chars)
- int line_has_unknown_pin (line_t *line, int cycle)
- signed char get_line_pin_value (line_t *line, int pin_num, int cycle)
- char * vector_value_to_hex (signed char *value, int length)
- int count_test_vectors (FILE *in)
- int is_vector (char *buffer)
- int get_next_vector (FILE *file, char *buffer)
- void free_lines (lines_t *l)
- void free_stages (stages_t *s)
- void free_test_vector (test_vector *v)
- void free_pin_name_list (pin_names *p)
- int print_progress_bar (double completion, int position, int length, double time)
- void print_netlist_stats (stages_t *stages, int)
- void print_simulation_stats (stages_t *stages, int, double total_time, double simulation_time)
- void print_time (double time)
- void print_ancestry (nnode_t *bottom_node, int n)
- nnode_t * print_update_trace (nnode_t *bottom_node, int cycle)
- double wall_time ()
- char * get_circuit_filename ()

2.55.1 Macro Definition Documentation

2.55.1.1 max

```
#define max(
              a,
              b ) (((a) > (b))?  (a) :  (b))
```

Definition at line 36 of file simulate_blif.cpp.

2.55.1.2 min

```
#define min(
              a,
              b ) ((a) > (b)?  (b) :  (a))
```

Definition at line 37 of file simulate_blif.cpp.

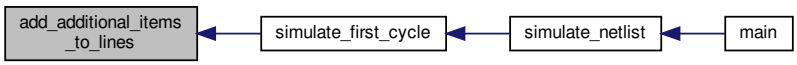
2.55.2 Function Documentation

2.55.2.1 add_additional_items_to_lines()

```
void add_additional_items_to_lines (
             nnode_t * node,
             pin_names * p,
             lines_t * l )
```

Definition at line 3138 of file simulate_blif.cpp.

Here is the caller graph for this function:

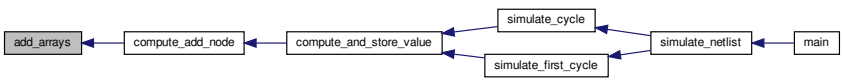


2.55.2.2 add_arrays()

```
int* add_arrays (
             int * a,
             int a_length,
             int * b,
             int b_length,
             int * c,
             int ,
             int  )
```

Definition at line 1795 of file simulate_blif.cpp.

Here is the caller graph for this function:

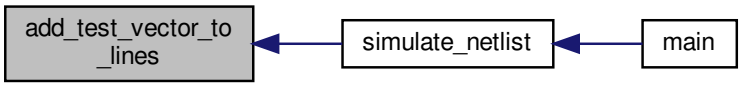


2.55.2.3 add_test_vector_to_lines()

```
void add_test_vector_to_lines (
             test_vector * v,
             lines_t * l,
             int cycle )
```

Definition at line 2638 of file simulate_blif.cpp.

Here is the caller graph for this function:

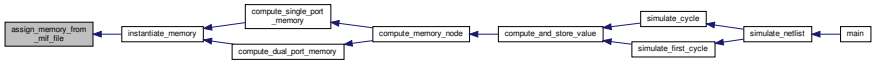


2.55.2.4 assign_memory_from_mif_file()

```
void assign_memory_from_mif_file (
             FILE * mif,
             char * filename,
             int width,
             long depth,
             signed char * memory )
```

Definition at line 2204 of file simulate_blif.cpp.

Here is the caller graph for this function:

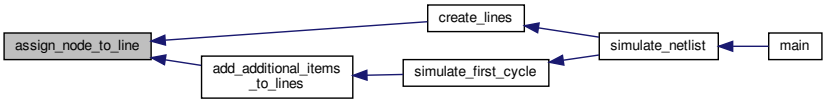


2.55.2.5 assign_node_to_line()

```
void assign_node_to_line (
             nnode_t * node,
             lines_t * l,
             int type,
             int single_pin )
```

Definition at line 2361 of file simulate_blif.cpp.

Here is the caller graph for this function:

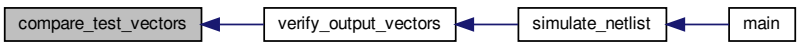


2.55.2.6 compare_test_vectors()

```
int compare_test_vectors (
             test_vector * v1,
             test_vector * v2 )
```

Definition at line 2666 of file simulate_blif.cpp.

Here is the caller graph for this function:

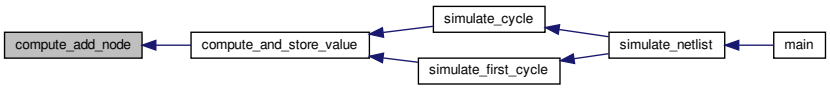


2.55.2.7 compute_add_node()

```
void compute_add_node (
            nnode_t * node,
            int cycle,
            int type )
```

Definition at line 1733 of file simulate_blif.cpp.

Here is the caller graph for this function:

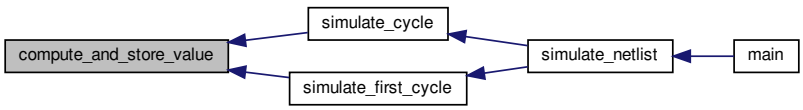


2.55.2.8 compute_and_store_value()

```
void compute_and_store_value (
            nnode_t * node,
            int cycle )
```

Definition at line 506 of file simulate_blif.cpp.

Here is the caller graph for this function:

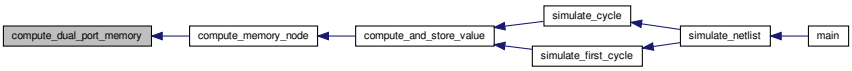


2.55.2.9 compute_dual_port_memory()

```
void compute_dual_port_memory (
             nnode_t * node,
             int cycle )
```

Definition at line 2026 of file simulate_blif.cpp.

Here is the caller graph for this function:

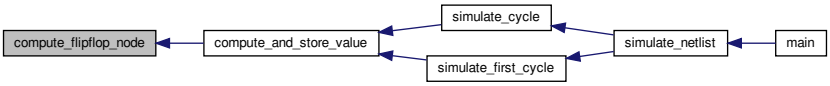


2.55.2.10 compute_flipflop_node()

```
void compute_flipflop_node (
             nnode_t * node,
             int cycle )
```

Definition at line 1458 of file simulate_blif.cpp.

Here is the caller graph for this function:

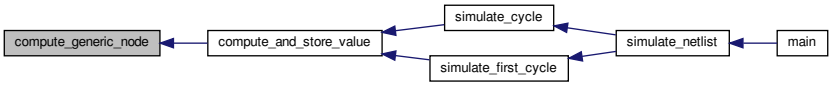


2.55.2.11 compute_generic_node()

```
void compute_generic_node (
             nnode_t * node,
             int cycle )
```

Definition at line 1658 of file simulate_blif.cpp.

Here is the caller graph for this function:

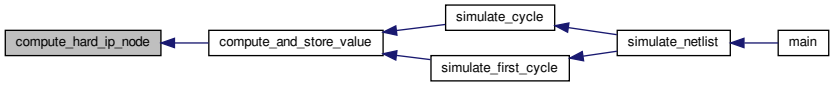


2.55.2.12 compute_hard_ip_node()

```
void compute_hard_ip_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1551 of file simulate_blif.cpp.

Here is the caller graph for this function:

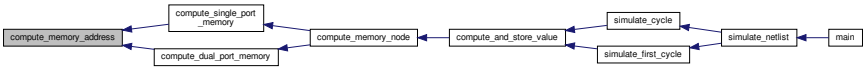


2.55.2.13 compute_memory_address()

```
long compute_memory_address (
            signal_list_t * addr,
            int cycle )
```

Definition at line 2096 of file simulate_blif.cpp.

Here is the caller graph for this function:

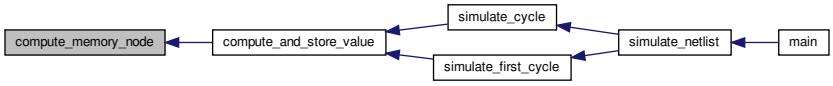


2.55.2.14 compute_memory_node()

```
void compute_memory_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1958 of file simulate_blif.cpp.

Here is the caller graph for this function:

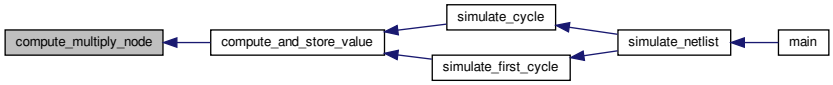


2.55.2.15 compute_multiply_node()

```
void compute_multiply_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1612 of file simulate_blif.cpp.

Here is the caller graph for this function:

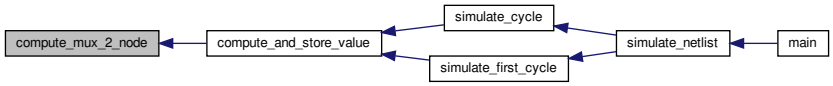


2.55.2.16 compute_mux_2_node()

```
void compute_mux_2_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1478 of file simulate_blif.cpp.

Here is the caller graph for this function:

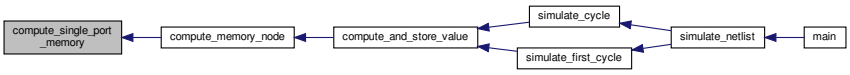


2.55.2.17 compute_single_port_memory()

```
void compute_single_port_memory (
            nnode_t * node,
            int cycle )
```

Definition at line 1972 of file simulate_blif.cpp.

Here is the caller graph for this function:

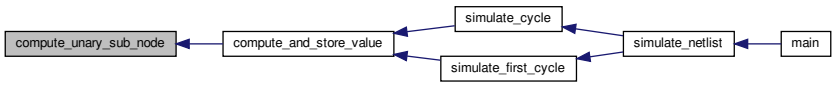


2.55.2.18 compute_unary_sub_node()

```
void compute_unary_sub_node (
             nnode_t * node,
             int cycle )
```

Definition at line 1873 of file simulate_blif.cpp.

Here is the caller graph for this function:

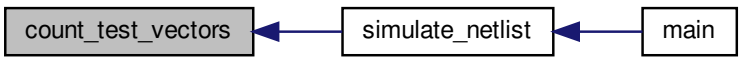


2.55.2.19 count_test_vectors()

```
int count_test_vectors (
             FILE * in )
```

Definition at line 3317 of file simulate_blif.cpp.

Here is the caller graph for this function:

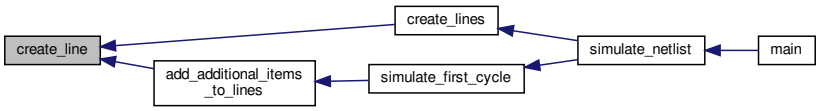


2.55.2.20 create_line()

```
line_t* create_line (
             char * name )
```

Definition at line 2591 of file simulate_blif.cpp.

Here is the caller graph for this function:

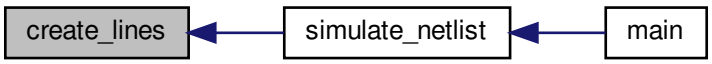


2.55.2.21 create_lines()

```
lines_t* create_lines (
            netlist_t * netlist,
            int type )
```

Definition at line 2448 of file simulate_blif.cpp.

Here is the caller graph for this function:

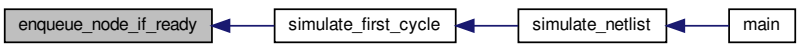


2.55.2.22 enqueue_node_if_ready()

```
int enqueue_node_if_ready (
            queue_t * queue,
            nnode_t * node,
            int cycle )
```

Definition at line 951 of file simulate_blif.cpp.

Here is the caller graph for this function:

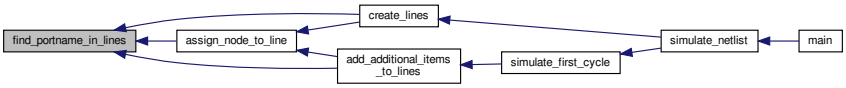


2.55.2.23 find_portname_in_lines()

```
int find_portname_in_lines (
            char * port_name,
            lines_t * l )
```

Definition at line 2578 of file simulate_blif.cpp.

Here is the caller graph for this function:

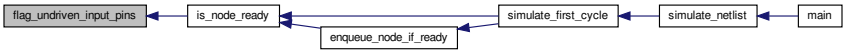


2.55.2.24 flag_undriven_input_pins()

```
void flag_undriven_input_pins (
            nnode_t * node )
```

Definition at line 885 of file simulate_blif.cpp.

Here is the caller graph for this function:

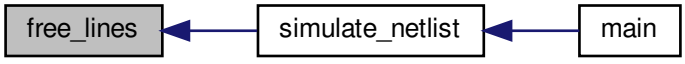


2.55.2.25 free_lines()

```
void free_lines (
            lines_t * l )
```

Definition at line 3373 of file simulate_blif.cpp.

Here is the caller graph for this function:

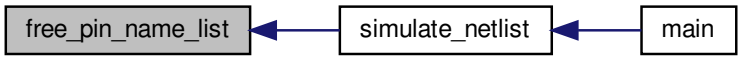


2.55.2.26 free_pin_name_list()

```
void free_pin_name_list (
            pin_names * p )
```

Definition at line 3414 of file simulate_blif.cpp.

Here is the caller graph for this function:

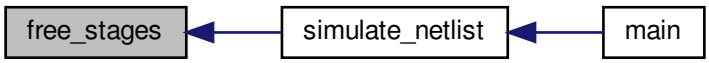


2.55.2.27 free_stages()

```
void free_stages (
            stages_t * s )
```

Definition at line 3390 of file simulate_blif.cpp.

Here is the caller graph for this function:

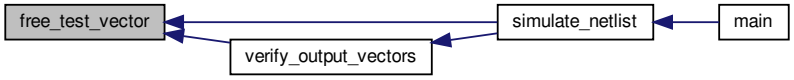


2.55.2.28 free_test_vector()

```
void free_test_vector (
             test_vector * v )
```

Definition at line 3402 of file simulate_blif.cpp.

Here is the caller graph for this function:

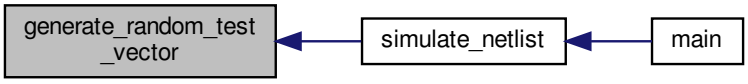


2.55.2.29 generate_random_test_vector()

```
test_vector* generate_random_test_vector (
             lines_t * l,
             int cycle,
             hashtable_t * hold_high_index,
             hashtable_t * hold_low_index )
```

Definition at line 2772 of file simulate_blif.cpp.

Here is the caller graph for this function:

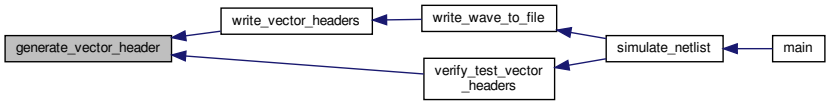


2.55.2.30 generate_vector_header()

```
char* generate_vector_header (
            lines_t * l )
```

Definition at line 2609 of file simulate_blif.cpp.

Here is the caller graph for this function:

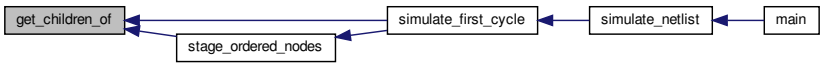


2.55.2.31 get_children_of()

```
nnode_t** get_children_of (
            nnode_t * node,
            int * num_children )
```

Definition at line 1058 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.32 get_children_of_nodepin()

```
nnode_t** get_children_of_nodepin (
            nnode_t * node,
            int * num_children,
            int output_pin )
```

Definition at line 1224 of file simulate_blif.cpp.

2.55.2.33 get_children_pinnumber_of()

```
int* get_children_pinnumber_of (
            nnode_t * node,
            int * num_children )
```

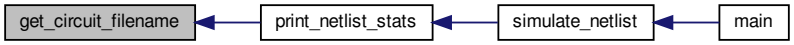
Definition at line 1141 of file simulate_blif.cpp.

2.55.2.34 get_circuit_filename()

```
char* get_circuit_filename ( )
```

Definition at line 3714 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.35 get_clock_ratio()

```
int get_clock_ratio (
            nnode_t * node )
```

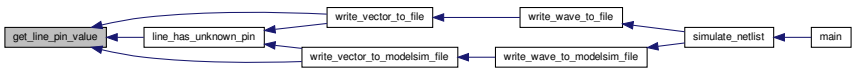
Definition at line 1036 of file simulate_blif.cpp.

2.55.2.36 get_line_pin_value()

```
signed char get_line_pin_value (
            line_t * line,
            int pin_num,
            int cycle )
```

Definition at line 3286 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.37 get_mif_filename()

```
char* get_mif_filename (
            nnode_t * node )
```

Definition at line 3219 of file simulate_blif.cpp.

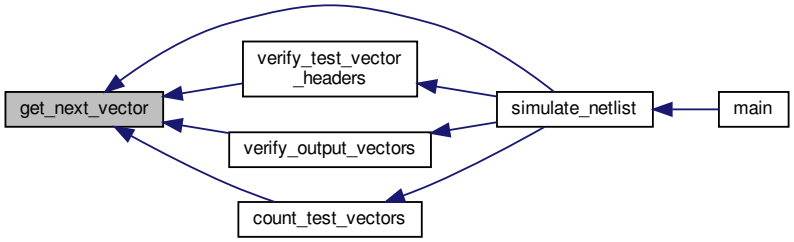
Here is the caller graph for this function:

2.55.2.38 get_next_vector()

```
int get_next_vector (
            FILE * file,
            char * buffer )
```

Definition at line 3361 of file simulate_blif.cpp.

Here is the caller graph for this function:

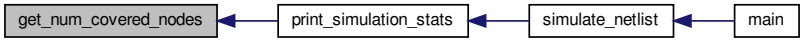


2.55.2.39 get_num_covered_nodes()

```
int get_num_covered_nodes (
            stages_t * s )
```

Definition at line 916 of file simulate_blif.cpp.

Here is the caller graph for this function:

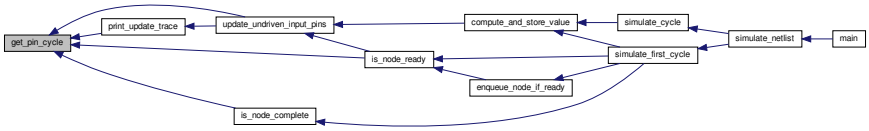


2.55.2.40 get_pin_cycle()

```
int get_pin_cycle (
            npin_t * pin )  [inline]
```

Definition at line 1349 of file simulate_blif.cpp.

Here is the caller graph for this function:

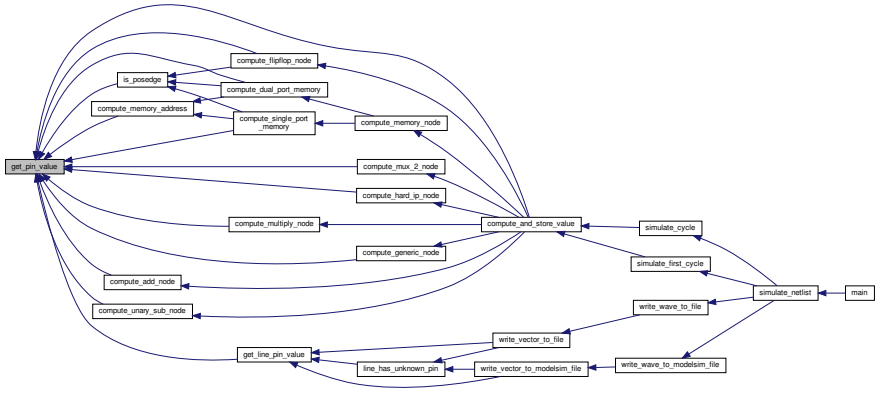


2.55.2.41 get_pin_value()

```
signed char get_pin_value (
            npin_t * pin,
            int cycle )
```

Definition at line 1324 of file simulate_blif.cpp.

Here is the caller graph for this function:

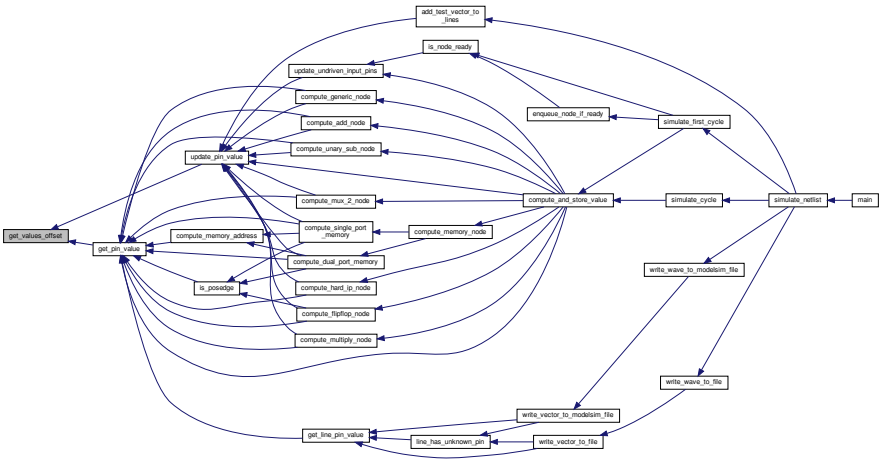


2.55.2.42 get_values_offset()

```
int get_values_offset (
            int cycle )  [inline]
```

Definition at line 1341 of file simulate_blif.cpp.

Here is the caller graph for this function:

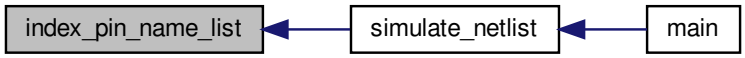


2.55.2.43 index_pin_name_list()

```
hashtable_t* index_pin_name_list (
            pin_names * list )
```

Definition at line 3094 of file simulate_blif.cpp.

Here is the caller graph for this function:

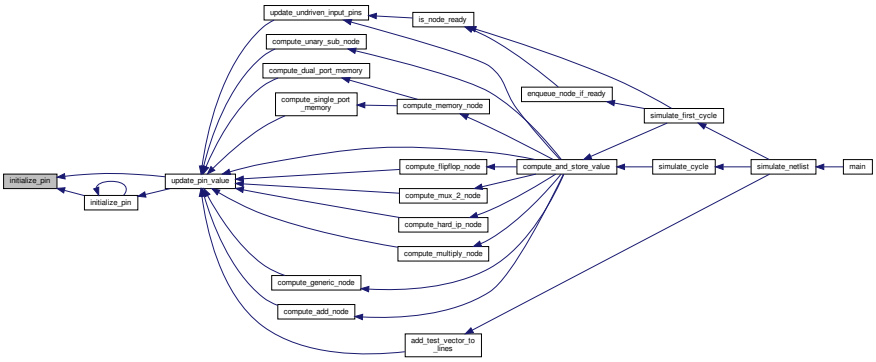


2.55.2.44 initialize_pin()

```
void initialize_pin (
            npin_t * pin )
```

Definition at line 1385 of file simulate_blif.cpp.

Here is the caller graph for this function:

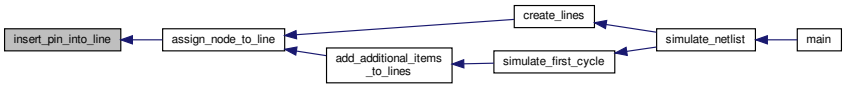


2.55.2.45 insert_pin_into_line()

```
void insert_pin_into_line (
             npin_t * pin,
             int pin_number,
             line_t * line,
             int type )
```

Definition at line 2413 of file simulate_blif.cpp.

Here is the caller graph for this function:

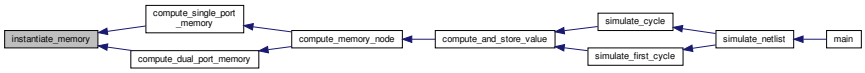


2.55.2.46 instantiate_memory()

```
void instantiate_memory (
             nnode_t * node,
             int data_width,
             int addr_width )
```

Definition at line 2116 of file simulate_blif.cpp.

Here is the caller graph for this function:

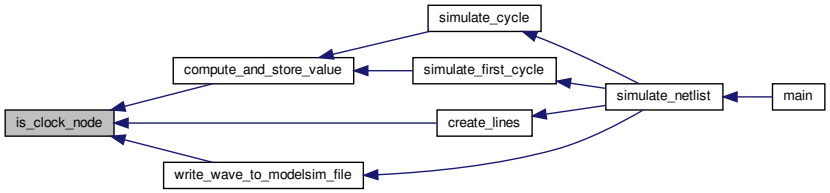


2.55.2.47 is_clock_node()

```
int is_clock_node (
             nnode_t * node )  [inline]
```

Definition at line 1434 of file simulate_blif.cpp.

Here is the caller graph for this function:

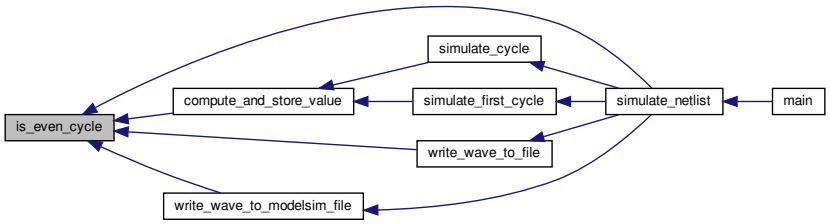


2.55.2.48 is_even_cycle()

```
int is_even_cycle (
            int cycle )
```

Definition at line 1370 of file simulate_blif.cpp.

Here is the caller graph for this function:

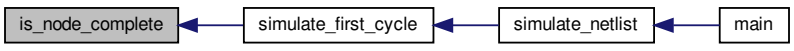


2.55.2.49 is_node_complete()

```
int is_node_complete (
            nnode_t * node,
            int cycle )
```

Definition at line 968 of file simulate_blif.cpp.

Here is the caller graph for this function:

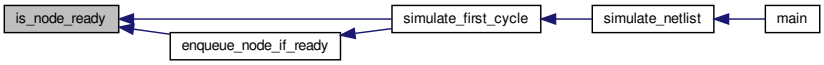


2.55.2.50 is_node_ready()

```
int is_node_ready (
            nnode_t * node,
            int cycle )
```

Definition at line 981 of file simulate_blif.cpp.

Here is the caller graph for this function:

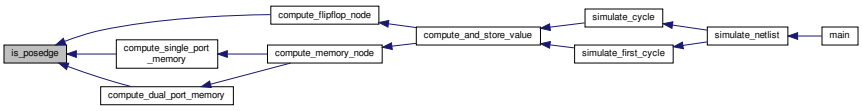


2.55.2.51 is_posedge()

```
int is_posedge (
            npin_t * pin,
            int cycle )
```

Definition at line 1447 of file simulate_blif.cpp.

Here is the caller graph for this function:

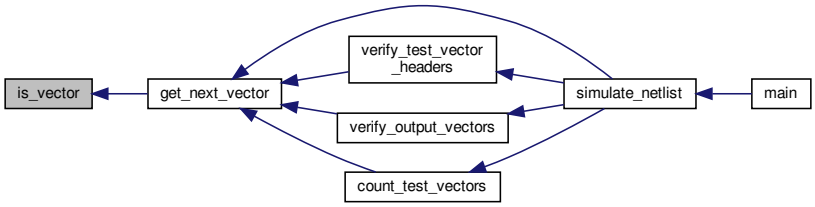


2.55.2.52 is_vector()

```
int is_vector (
            char * buffer )
```

Definition at line 3338 of file simulate_blif.cpp.

Here is the caller graph for this function:

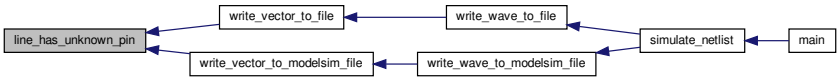


2.55.2.53 line_has_unknown_pin()

```
int line_has_unknown_pin (
            line_t * line,
            int cycle )
```

Definition at line 3267 of file simulate_blif.cpp.

Here is the caller graph for this function:

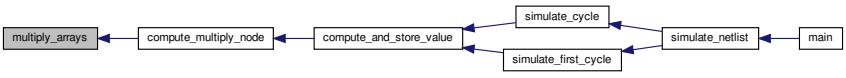


2.55.2.54 multiply_arrays()

```
int* multiply_arrays (
            int * a,
            int a_length,
            int * b,
            int b_length )
```

Definition at line 1703 of file simulate_blif.cpp.

Here is the caller graph for this function:

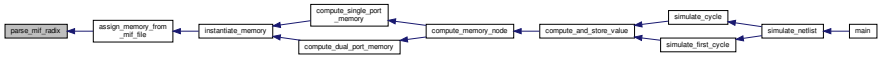


2.55.2.55 parse_mif_radix()

```
int parse_mif_radix (
            char * radix )
```

Definition at line 2183 of file simulate_blif.cpp.

Here is the caller graph for this function:

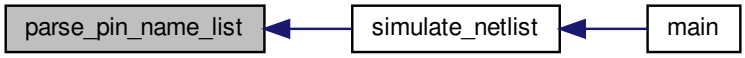


2.55.2.56 parse_pin_name_list()

```
pin_names* parse_pin_name_list (
            char * list )
```

Definition at line 3112 of file simulate_blif.cpp.

Here is the caller graph for this function:

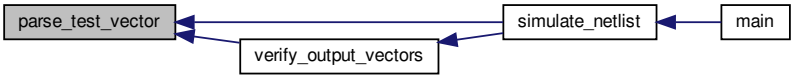


2.55.2.57 parse_test_vector()

```
test_vector* parse_test_vector (
            char * buffer )
```

Definition at line 2703 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.58 preprocess_mif_file()

```
FILE* preprocess_mif_file (
            FILE * source )
```

Definition at line 2145 of file simulate_blif.cpp.

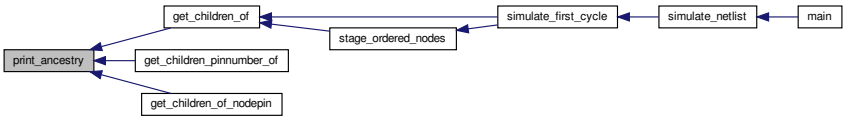
Here is the caller graph for this function:

2.55.2.59 print_ancestry()

```
void print_ancestry (
            nnode_t * bottom_node,
            int n )
```

Definition at line 3520 of file simulate_blif.cpp.

Here is the caller graph for this function:

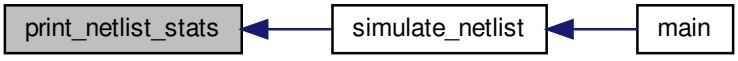


2.55.2.60 print_netlist_stats()

```
void print_netlist_stats (
            stages_t * stages,
            int  )
```

Definition at line 3473 of file simulate_blif.cpp.

Here is the caller graph for this function:

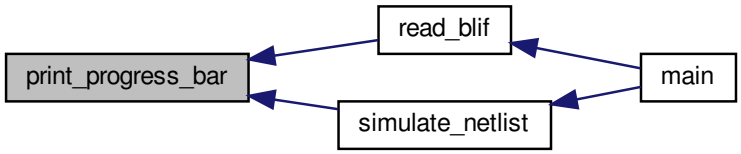


2.55.2.61 print_progress_bar()

```
int print_progress_bar (
            double completion,
            int position,
            int length,
            double time )
```

Definition at line 3431 of file simulate_blif.cpp.

Here is the caller graph for this function:

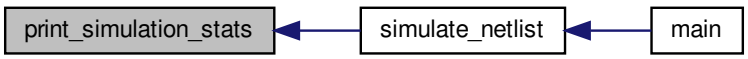


2.55.2.62 print_simulation_stats()

```
void print_simulation_stats (
            stages_t * stages,
            int ,
            double total_time,
            double simulation_time )
```

Definition at line 3491 of file simulate_blif.cpp.

Here is the caller graph for this function:

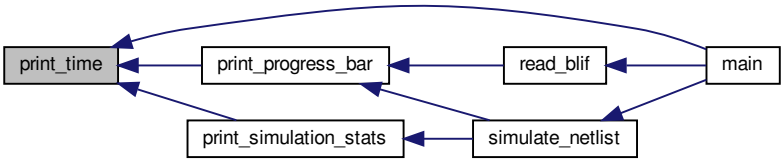


2.55.2.63 print_time()

```
void print_time (
             double time )
```

Definition at line 3507 of file simulate_blif.cpp.

Here is the caller graph for this function:

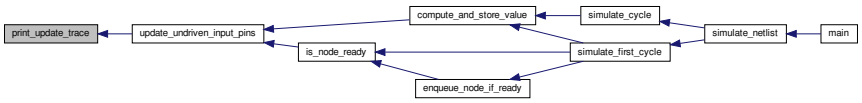


2.55.2.64 print_update_trace()

```
nnode_t* print_update_trace (
             nnode_t * bottom_node,
             int cycle )
```

Definition at line 3611 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.65 set_clock_ratio()

```
void set_clock_ratio (
             int rat,
             nnode_t * node )
```

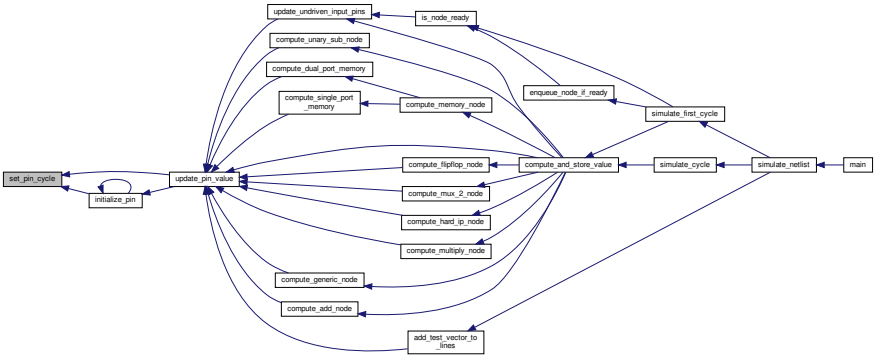
Definition at line 1044 of file simulate_blif.cpp.

2.55.2.66 set_pin_cycle()

```
void set_pin_cycle (
            npin_t * pin,
            int cycle )  [inline]
```

Definition at line 1362 of file simulate_blif.cpp.

Here is the caller graph for this function:

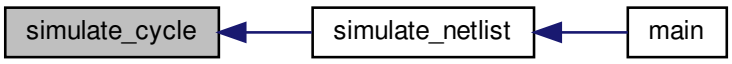


2.55.2.67 simulate_cycle()

```
void simulate_cycle (
            int cycle,
            stages_t * s )
```

Definition at line 275 of file simulate_blif.cpp.

Here is the caller graph for this function:

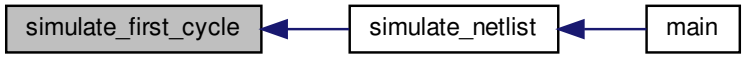


2.55.2.68 simulate_first_cycle()

```
stages_t* simulate_first_cycle (
             netlist_t * netlist,
             int cycle,
             pin_names * p,
             lines_t * l )
```

Definition at line 361 of file simulate_blif.cpp.

Here is the caller graph for this function:

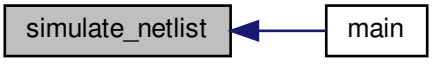


2.55.2.69 simulate_netlist()

```
void simulate_netlist (
             netlist_t * netlist )
```

Definition at line 43 of file simulate_blif.cpp.

Here is the caller graph for this function:

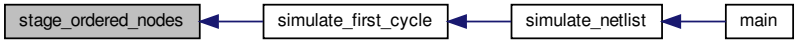


2.55.2.70 stage_ordered_nodes()

```
stages_t* stage_ordered_nodes (
            nnode_t ** ordered_nodes,
            int num_ordered_nodes )
```

Definition at line 420 of file simulate_blif.cpp.

Here is the caller graph for this function:

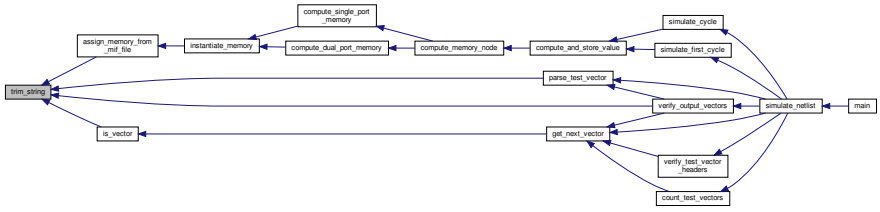


2.55.2.71 trim_string()

```
void trim_string (
            char * string,
            const char * chars )
```

Definition at line 3239 of file simulate_blif.cpp.

Here is the caller graph for this function:

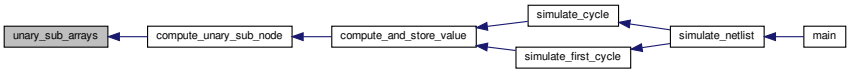


2.55.2.72 unary_sub_arrays()

```
int* unary_sub_arrays (
             int * a,
             int a_length,
             int * c,
             int  )
```

Definition at line 1931 of file simulate_blif.cpp.

Here is the caller graph for this function:

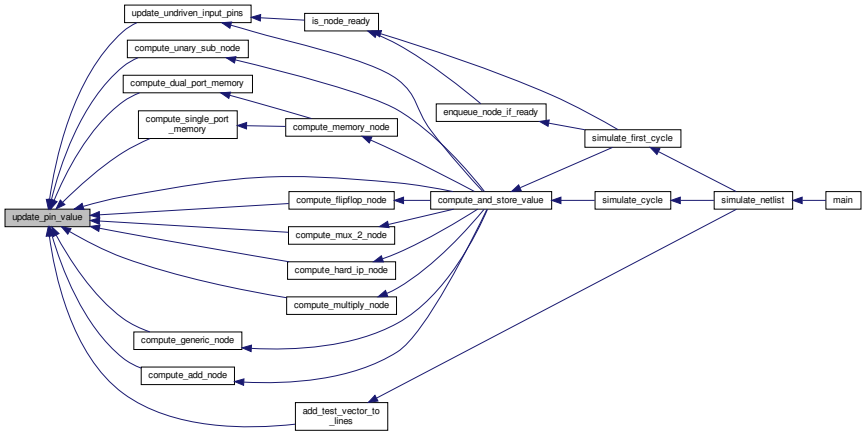


2.55.2.73 update_pin_value()

```
void update_pin_value (
             npin_t * pin,
             signed char value,
             int cycle )
```

Definition at line 1312 of file simulate_blif.cpp.

Here is the caller graph for this function:

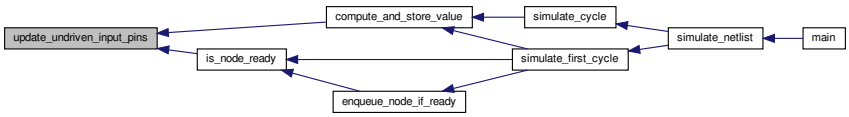


2.55.2.74 update_undriven_input_pins()

```
void update_undriven_input_pins (
             nnode_t * node,
             int cycle )
```

Definition at line 842 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.75 vector_value_to_hex()

```
char* vector_value_to_hex (
             signed char * value,
             int length )
```

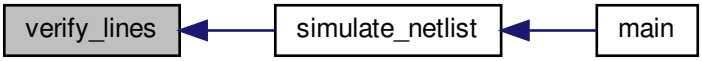
Definition at line 3295 of file simulate_blif.cpp.

2.55.2.76 verify_lines()

```
int verify_lines (
             lines_t * l )
```

Definition at line 2556 of file simulate_blif.cpp.

Here is the caller graph for this function:

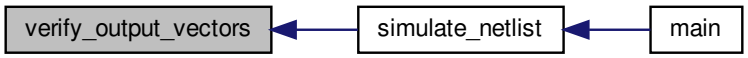


2.55.2.77 verify_output_vectors()

```
int verify_output_vectors (
             char * output_vector_file,
             int num_vectors )
```

Definition at line 2997 of file simulate_blif.cpp.

Here is the caller graph for this function:

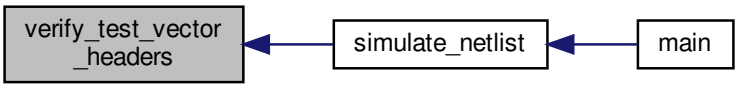


2.55.2.78 verify_test_vector_headers()

```
int verify_test_vector_headers (
             FILE * in,
             lines_t * l )
```

Definition at line 2496 of file simulate_blif.cpp.

Here is the caller graph for this function:

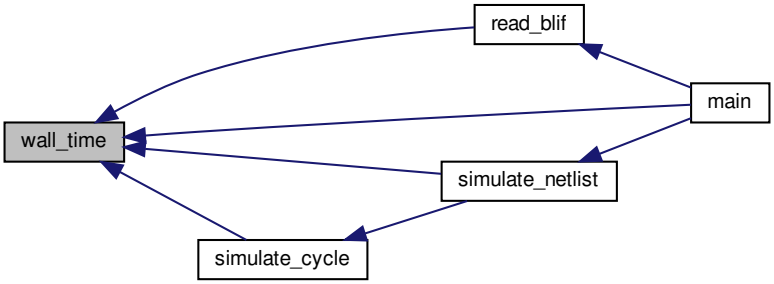


2.55.2.79 wall_time()

```
double wall_time ( )
```

Definition at line 3701 of file simulate_blif.cpp.

Here is the caller graph for this function:

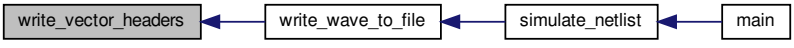


2.55.2.80 write_vector_headers()

```
void write_vector_headers (
            FILE * file,
            lines_t * l )
```

Definition at line 2482 of file simulate_blif.cpp.

Here is the caller graph for this function:

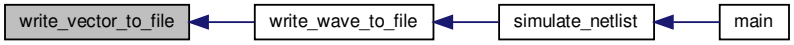


2.55.2.81 write_vector_to_file()

```
void write_vector_to_file (
             lines_t * l,
             FILE * file,
             int cycle )
```

Definition at line 2843 of file simulate_blif.cpp.

Here is the caller graph for this function:

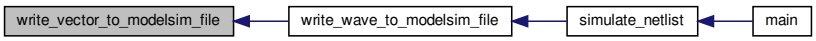


2.55.2.82 write_vector_to_modelsim_file()

```
void write_vector_to_modelsim_file (
             lines_t * l,
             FILE * modelsim_out,
             int cycle )
```

Definition at line 2945 of file simulate_blif.cpp.

Here is the caller graph for this function:

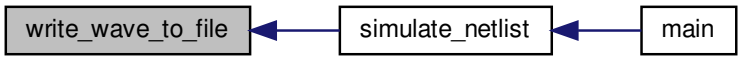


2.55.2.83 write_wave_to_file()

```
void write_wave_to_file (
             lines_t * l,
             FILE * file,
             int cycle_offset,
             int wave_length,
             int edge )
```

Definition at line 2826 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.55.2.84 write_wave_to_modelsim_file()

```
void write_wave_to_modelsim_file (
             netlist_t * netlist,
             lines_t * l,
             FILE * modelsim_out,
             int cycle_offset,
             int wave_length )
```

Definition at line 2914 of file simulate_blif.cpp.

Here is the caller graph for this function:

2.56 vtr-verilog-to-routing/ODIN_II/SRC/SIM_TOOLS/simulate_blif.h File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdarg.h>
#include "queue.h"
#include "hashtable.h"
#include "sim_block.h"
#include "types.h"
#include "globals.h"
#include "netlist_utils.h"
#include "odin_util.h"
#include "multipliers.h"
#include "hard_blocks.h"
#include "memories.h"
#include "ace.h"
```

Data Structures

- struct pin_names
- struct line_t
- struct lines_t
- struct stages_t
- struct test_vector

Macros

- #define SIM_WAVE_LENGTH 16
- #define BUFFER_MAX_SIZE 1024
- #define INPUT_VECTOR_FILE_NAME "input_vectors"
- #define OUTPUT_VECTOR_FILE_NAME "output_vectors"
- #define OUTPUT_ACTIVITY_FILE_NAME "output_activity"
- #define SINGLE_PORT_MEMORY_NAME "single_port_ram"
- #define DUAL_PORT_MEMORY_NAME "dual_port_ram"

Functions

- void simulate_netlist (netlist_t *netlist)
- void simulate_cycle (int cycle, stages_t *s)
- stages_t * simulate_first_cycle (netlist_t *netlist, int cycle, pin_names *p, lines_t *output_lines)
- stages_t * stage_ordered_nodes (nnode_t **ordered_nodes, int num_ordered_nodes)
- void free_stages (stages_t *s)
- int get_num_covered_nodes (stages_t *s)
- int get_clock_ratio (nnode_t *node)
- void set_clock_ratio (int rat, nnode_t *node)
- nnode_t ** get_children_of (nnode_t *node, int *count)
- int * get_children_pinnumber_of (nnode_t *node, int *num_children)
- nnode_t ** get_children_of_nodepin (nnode_t *node, int *count, int output_pin)
- int is_node_ready (nnode_t *node, int cycle)
- int is_node_complete (nnode_t *node, int cycle)
- int enqueue_node_if_ready (queue_t *queue, nnode_t *node, int cycle)
- void compute_and_store_value (nnode_t *node, int cycle)
- void compute_memory_node (nnode_t *node, int cycle)
- void compute_hard_ip_node (nnode_t *node, int cycle)
- void compute_multiply_node (nnode_t *node, int cycle)
- void compute_generic_node (nnode_t *node, int cycle)
- void compute_add_node (nnode_t *node, int cycle, int type)
- void compute_unary_sub_node (nnode_t *node, int cycle)
- void update_pin_value (npin_t *pin, signed char value, int cycle)
- signed char get_pin_value (npin_t *pin, int cycle)
- int get_values_offset (int cycle)
- int get_pin_cycle (npin_t *pin)
- void set_pin_cycle (npin_t *pin, int cycle)
- void initialize_pin (npin_t *pin)
- int is_even_cycle (int cycle)
- int is_clock_node (nnode_t *node)

- char * get_circuit_filename ()
- void update_undriven_input_pins (nnode_t *node, int cycle)
- void flag_undriven_input_pins (nnode_t *node)
- void print_ancestry (nnode_t *node, int generations)
- nnode_t * print_update_trace (nnode_t *bottom_node, int cycle)
- int is_posedge (npin_t *pin, int cycle)

2.56.1 Macro Definition Documentation

2.56.1.1 BUFFER_MAX_SIZE

```
#define BUFFER_MAX_SIZE 1024
```

Definition at line 31 of file simulate_blif.h.

2.56.1.2 DUAL_PORT_MEMORY_NAME

```
#define DUAL_PORT_MEMORY_NAME "dual_port_ram"
```

Definition at line 57 of file simulate_blif.h.

2.56.1.3 INPUT_VECTOR_FILE_NAME

```
#define INPUT_VECTOR_FILE_NAME "input_vectors"
```

Definition at line 52 of file simulate_blif.h.

2.56.1.4 OUTPUT_ACTIVITY_FILE_NAME

```
#define OUTPUT_ACTIVITY_FILE_NAME "output_activity"
```

Definition at line 54 of file simulate_blif.h.

2.56.1.5 OUTPUT_VECTOR_FILE_NAME

```
#define OUTPUT_VECTOR_FILE_NAME "output_vectors"
```

Definition at line 53 of file simulate_blif.h.

2.56.1.6 SIM_WAVE_LENGTH

```
#define SIM_WAVE_LENGTH 16
```

Definition at line 30 of file simulate_blif.h.

2.56.1.7 SINGLE_PORT_MEMORY_NAME

```
#define SINGLE_PORT_MEMORY_NAME "single_port_ram"
```

Definition at line 56 of file simulate_blif.h.

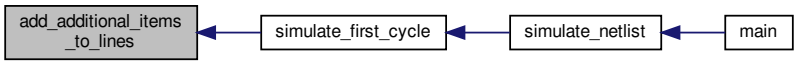
2.56.2 Function Documentation

2.56.2.1 add_additional_items_to_lines()

```
void add_additional_items_to_lines (
            nnode_t * node,
            pin_names * p,
            lines_t * l )
```

Definition at line 3138 of file simulate_blif.cpp.

Here is the caller graph for this function:

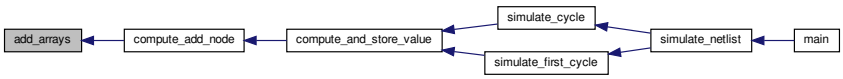


2.56.2.2 add_arrays()

```
int* add_arrays (
             int * a,
             int a_length,
             int * b,
             int b_length,
             int * c,
             int c_length,
             int flag )
```

Definition at line 1795 of file simulate_blif.cpp.

Here is the caller graph for this function:

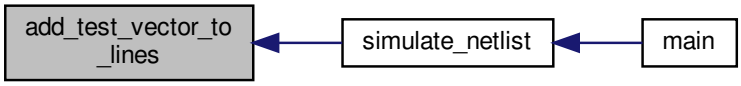


2.56.2.3 add_test_vector_to_lines()

```
void add_test_vector_to_lines (
             test_vector * v,
             lines_t * l,
             int cycle )
```

Definition at line 2638 of file simulate_blif.cpp.

Here is the caller graph for this function:

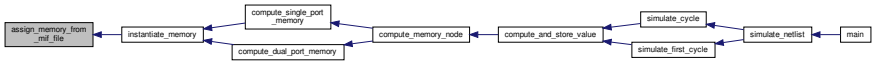


2.56.2.4 assign_memory_from_mif_file()

```
void assign_memory_from_mif_file (
             FILE * file,
             char * filename,
             int width,
             long depth,
             signed char * memory )
```

Definition at line 2204 of file simulate_blif.cpp.

Here is the caller graph for this function:

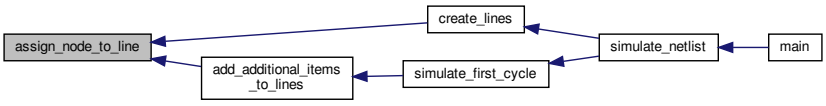


2.56.2.5 assign_node_to_line()

```
void assign_node_to_line (
             nnode_t * node,
             lines_t * l,
             int type,
             int single_pin )
```

Definition at line 2361 of file simulate_blif.cpp.

Here is the caller graph for this function:

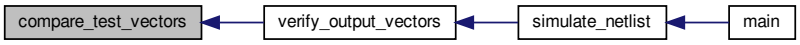


2.56.2.6 compare_test_vectors()

```
int compare_test_vectors (
            test_vector * v1,
            test_vector * v2 )
```

Definition at line 2666 of file simulate_blif.cpp.

Here is the caller graph for this function:

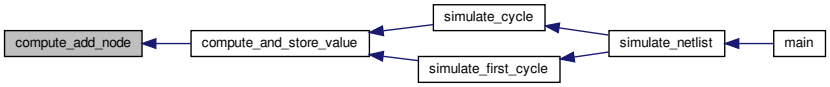


2.56.2.7 compute_add_node()

```
void compute_add_node (
            nnode_t * node,
            int cycle,
            int type )
```

Definition at line 1733 of file simulate_blif.cpp.

Here is the caller graph for this function:

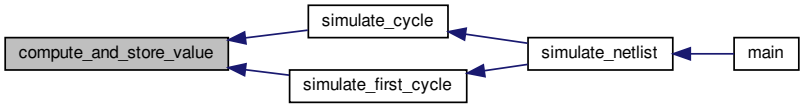


2.56.2.8 compute_and_store_value()

```
void compute_and_store_value (
            nnode_t * node,
            int cycle )
```

Definition at line 506 of file simulate_blif.cpp.

Here is the caller graph for this function:

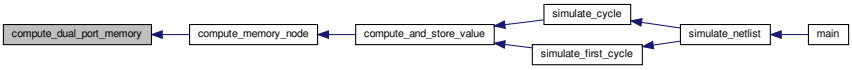


2.56.2.9 compute_dual_port_memory()

```
void compute_dual_port_memory (
            nnode_t * node,
            int cycle )
```

Definition at line 2026 of file simulate_blif.cpp.

Here is the caller graph for this function:

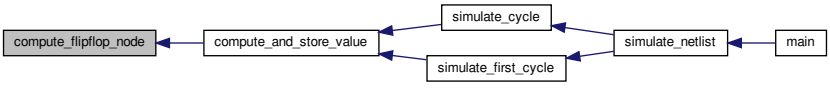


2.56.2.10 compute_flipflop_node()

```
void compute_flipflop_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1458 of file simulate_blif.cpp.

Here is the caller graph for this function:

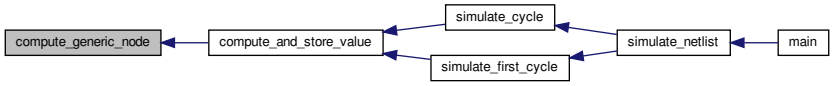


2.56.2.11 compute_generic_node()

```
void compute_generic_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1658 of file simulate_blif.cpp.

Here is the caller graph for this function:

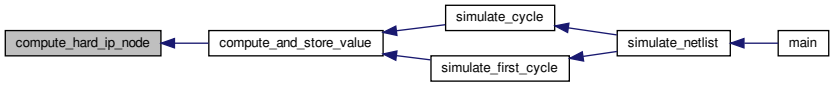


2.56.2.12 compute_hard_ip_node()

```
void compute_hard_ip_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1551 of file simulate_blif.cpp.

Here is the caller graph for this function:

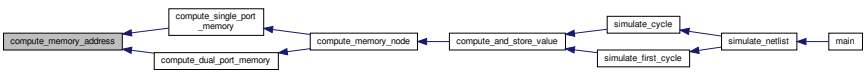


2.56.2.13 compute_memory_address()

```
long compute_memory_address (
            signal_list_t * addr,
            int cycle )
```

Definition at line 2096 of file simulate_blif.cpp.

Here is the caller graph for this function:

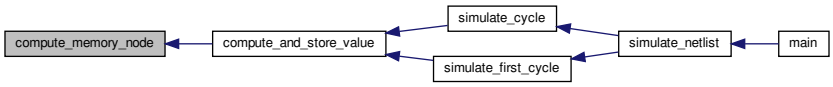


2.56.2.14 compute_memory_node()

```
void compute_memory_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1958 of file simulate_blif.cpp.

Here is the caller graph for this function:

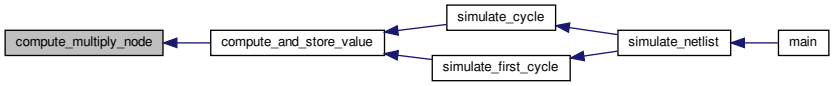


2.56.2.15 compute_multiply_node()

```
void compute_multiply_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1612 of file simulate_blif.cpp.

Here is the caller graph for this function:

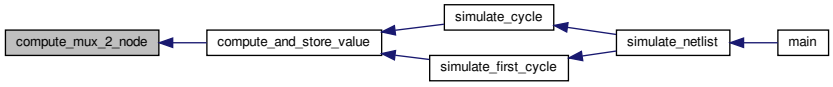


2.56.2.16 compute_mux_2_node()

```
void compute_mux_2_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1478 of file simulate_blif.cpp.

Here is the caller graph for this function:

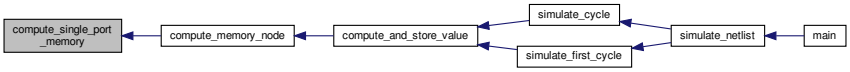


2.56.2.17 compute_single_port_memory()

```
void compute_single_port_memory (
            nnode_t * node,
            int cycle )
```

Definition at line 1972 of file simulate_blif.cpp.

Here is the caller graph for this function:

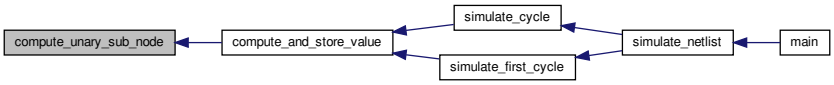


2.56.2.18 compute_unary_sub_node()

```
void compute_unary_sub_node (
            nnode_t * node,
            int cycle )
```

Definition at line 1873 of file simulate_blif.cpp.

Here is the caller graph for this function:

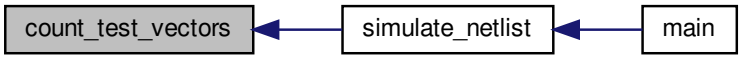


2.56.2.19 count_test_vectors()

```
int count_test_vectors (
            FILE * in )
```

Definition at line 3317 of file simulate_blif.cpp.

Here is the caller graph for this function:

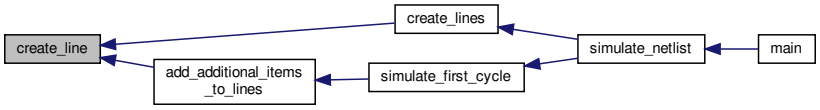


2.56.2.20 create_line()

```
line_t* create_line (
            char * name )
```

Definition at line 2591 of file simulate_blif.cpp.

Here is the caller graph for this function:

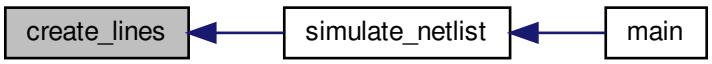


2.56.2.21 create_lines()

```
lines_t* create_lines (
            netlist_t * netlist,
            int type )
```

Definition at line 2448 of file simulate_blif.cpp.

Here is the caller graph for this function:

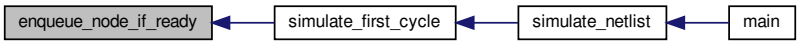


2.56.2.22 enqueue_node_if_ready()

```
int enqueue_node_if_ready (
            queue_t * queue,
            nnode_t * node,
            int cycle )
```

Definition at line 951 of file simulate_blif.cpp.

Here is the caller graph for this function:

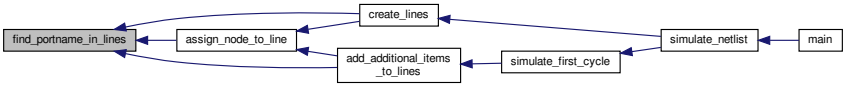


2.56.2.23 find_portname_in_lines()

```
int find_portname_in_lines (
            char * port_name,
            lines_t * l )
```

Definition at line 2578 of file simulate_blif.cpp.

Here is the caller graph for this function:

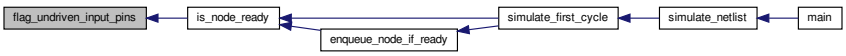


2.56.2.24 flag_undriven_input_pins()

```
void flag_undriven_input_pins (
            nnode_t * node )
```

Definition at line 885 of file simulate_blif.cpp.

Here is the caller graph for this function:

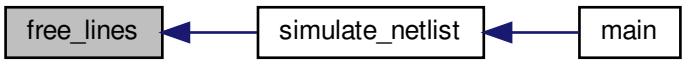


2.56.2.25 free_lines()

```
void free_lines (
             lines_t * l )
```

Definition at line 3373 of file simulate_blif.cpp.

Here is the caller graph for this function:

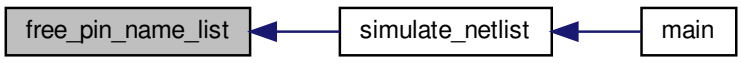


2.56.2.26 free_pin_name_list()

```
void free_pin_name_list (
             pin_names * p )
```

Definition at line 3414 of file simulate_blif.cpp.

Here is the caller graph for this function:

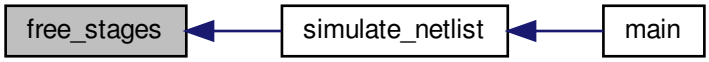


2.56.2.27 free_stages()

```
void free_stages (
            stages_t * s )
```

Definition at line 3390 of file simulate_blif.cpp.

Here is the caller graph for this function:

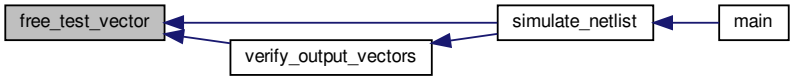


2.56.2.28 free_test_vector()

```
void free_test_vector (
            test_vector * v )
```

Definition at line 3402 of file simulate_blif.cpp.

Here is the caller graph for this function:

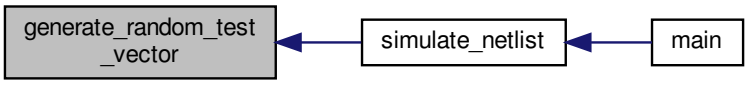


2.56.2.29 generate_random_test_vector()

```
test_vector* generate_random_test_vector (
            lines_t * l,
            int cycle,
            hashtable_t * hold_high_index,
            hashtable_t * hold_low_index )
```

Definition at line 2772 of file simulate_blif.cpp.

Here is the caller graph for this function:

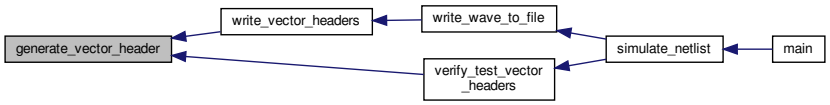


2.56.2.30 generate_vector_header()

```
char* generate_vector_header (
            lines_t * l )
```

Definition at line 2609 of file simulate_blif.cpp.

Here is the caller graph for this function:

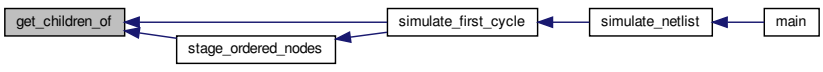


2.56.2.31 get_children_of()

```
nnode_t** get_children_of (
            nnode_t * node,
            int * count )
```

Definition at line 1058 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.32 get_children_of_nodepin()

```
nnode_t** get_children_of_nodepin (
              nnode_t * node,
              int * count,
              int output_pin )
```

Definition at line 1224 of file simulate_blif.cpp.

2.56.2.33 get_children_pinnumber_of()

```
int* get_children_pinnumber_of (
              nnode_t * node,
              int * num_children )
```

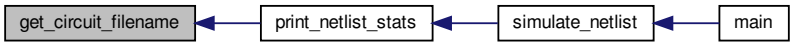
Definition at line 1141 of file simulate_blif.cpp.

2.56.2.34 get_circuit_filename()

```
char* get_circuit_filename ( )
```

Definition at line 3714 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.35 get_clock_ratio()

```
int get_clock_ratio (
              nnode_t * node )
```

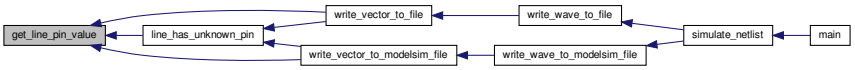
Definition at line 1036 of file simulate_blif.cpp.

2.56.2.36 get_line_pin_value()

```
signed char get_line_pin_value (
            line_t * line,
            int pin_num,
            int cycle )
```

Definition at line 3286 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.37 get_mif_filename()

```
char* get_mif_filename (
            nnode_t * node )
```

Definition at line 3219 of file simulate_blif.cpp.

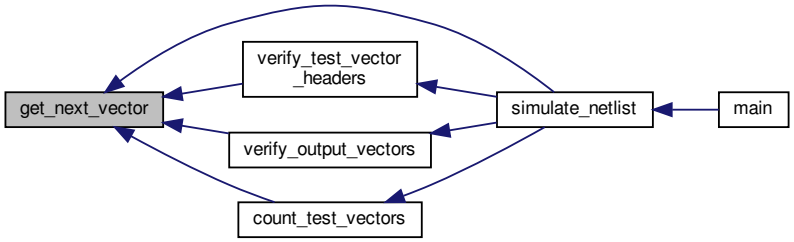
Here is the caller graph for this function:

2.56.2.38 get_next_vector()

```
int get_next_vector (
            FILE * file,
            char * buffer )
```

Definition at line 3361 of file simulate_blif.cpp.

Here is the caller graph for this function:

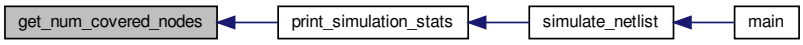


2.56.2.39 get_num_covered_nodes()

```
int get_num_covered_nodes (
            stages_t * s )
```

Definition at line 916 of file simulate_blif.cpp.

Here is the caller graph for this function:

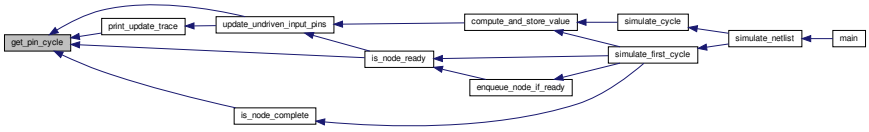


2.56.2.40 get_pin_cycle()

```
int get_pin_cycle (
            npin_t * pin )  [inline]
```

Definition at line 1349 of file simulate_blif.cpp.

Here is the caller graph for this function:

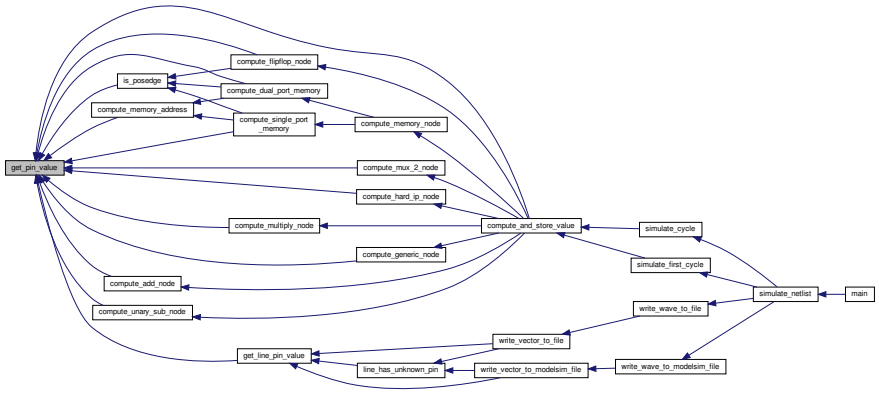


2.56.2.41 get_pin_value()

```
signed char get_pin_value (
            npin_t * pin,
            int cycle )
```

Definition at line 1324 of file simulate_blif.cpp.

Here is the caller graph for this function:

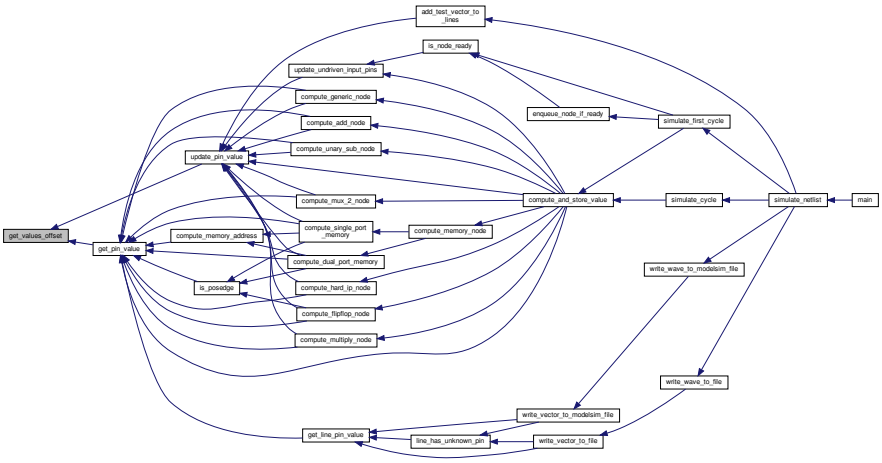


2.56.2.42 get_values_offset()

```
int get_values_offset (
            int cycle )  [inline]
```

Definition at line 1341 of file simulate_blif.cpp.

Here is the caller graph for this function:

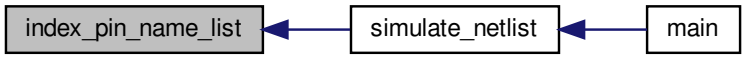


2.56.2.43 index_pin_name_list()

```
hashtable_t* index_pin_name_list (
            pin_names * list )
```

Definition at line 3094 of file simulate_blif.cpp.

Here is the caller graph for this function:

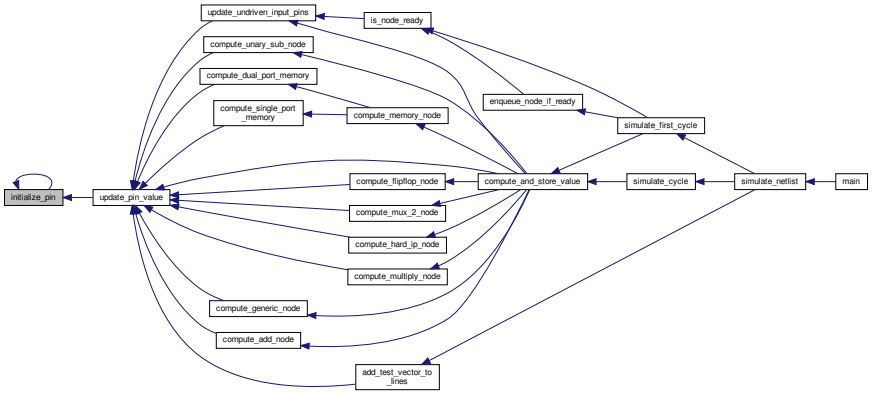


2.56.2.44 initialize_pin()

```
void initialize_pin (
            npin_t * pin )
```

Definition at line 1385 of file simulate_blif.cpp.

Here is the caller graph for this function:

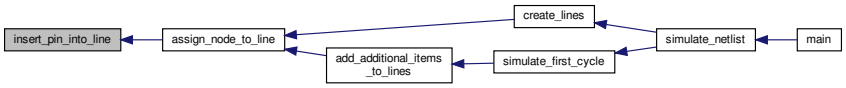


2.56.2.45 insert_pin_into_line()

```
void insert_pin_into_line (
             npin_t * pin,
             int pin_number,
             line_t * line,
             int type )
```

Definition at line 2413 of file simulate_blif.cpp.

Here is the caller graph for this function:

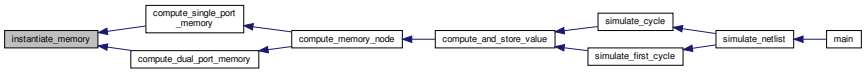


2.56.2.46 instantiate_memory()

```
void instantiate_memory (
             nnode_t * node,
             int data_width,
             int addr_width )
```

Definition at line 2116 of file simulate_blif.cpp.

Here is the caller graph for this function:

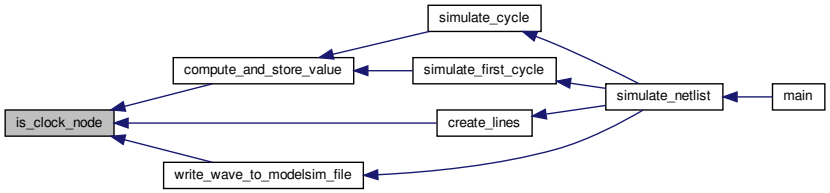


2.56.2.47 is_clock_node()

```
int is_clock_node (
             nnode_t * node )  [inline]
```

Definition at line 1434 of file simulate_blif.cpp.

Here is the caller graph for this function:

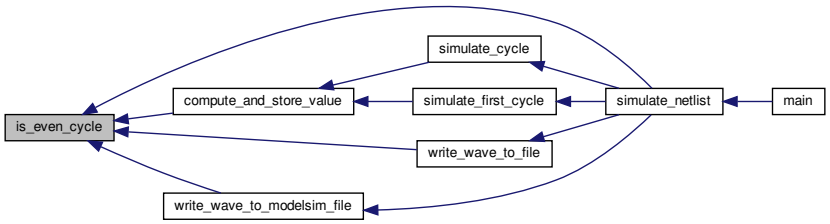


2.56.2.48 is_even_cycle()

```
int is_even_cycle (
            int cycle )
```

Definition at line 1370 of file simulate_blif.cpp.

Here is the caller graph for this function:

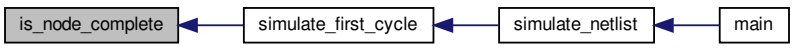


2.56.2.49 is_node_complete()

```
int is_node_complete (
            nnode_t * node,
            int cycle )
```

Definition at line 968 of file simulate_blif.cpp.

Here is the caller graph for this function:

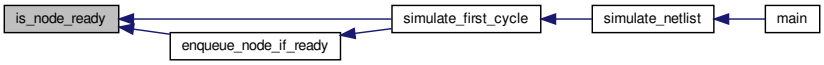


2.56.2.50 is_node_ready()

```
int is_node_ready (
            nnode_t * node,
            int cycle )
```

Definition at line 981 of file simulate_blif.cpp.

Here is the caller graph for this function:

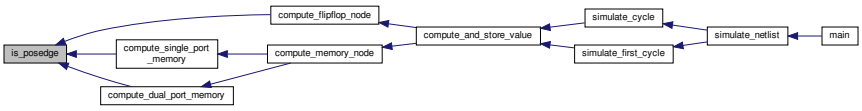


2.56.2.51 is_posedge()

```
int is_posedge (
            npin_t * pin,
            int cycle )
```

Definition at line 1447 of file simulate_blif.cpp.

Here is the caller graph for this function:

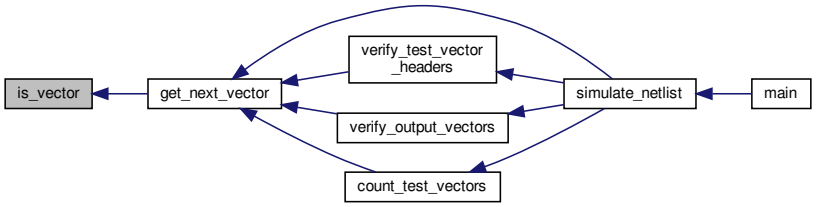


2.56.2.52 is_vector()

```
int is_vector (
            char * buffer )
```

Definition at line 3338 of file simulate_blif.cpp.

Here is the caller graph for this function:

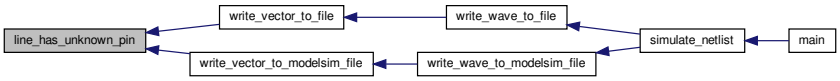


2.56.2.53 line_has_unknown_pin()

```
int line_has_unknown_pin (
            line_t * line,
            int cycle )
```

Definition at line 3267 of file simulate_blif.cpp.

Here is the caller graph for this function:

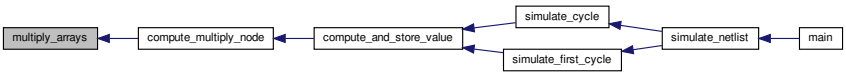


2.56.2.54 multiply_arrays()

```
int* multiply_arrays (
            int * a,
            int a_length,
            int * b,
            int b_length )
```

Definition at line 1703 of file simulate_blif.cpp.

Here is the caller graph for this function:

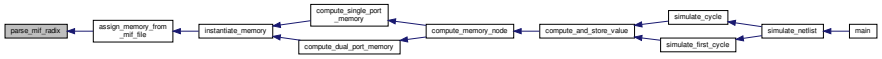


2.56.2.55 parse_mif_radix()

```
int parse_mif_radix (
            char * radix )
```

Definition at line 2183 of file simulate_blif.cpp.

Here is the caller graph for this function:

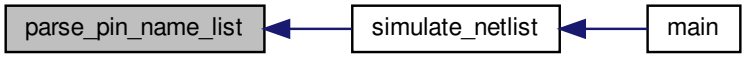


2.56.2.56 parse_pin_name_list()

```
pin_names* parse_pin_name_list (
            char * list )
```

Definition at line 3112 of file simulate_blif.cpp.

Here is the caller graph for this function:

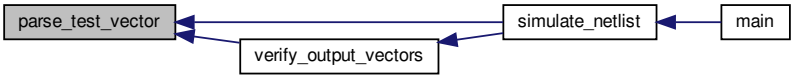


2.56.2.57 parse_test_vector()

```
test_vector* parse_test_vector (
            char * buffer )
```

Definition at line 2703 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.58 preprocess_mif_file()

```
FILE* preprocess_mif_file (
            FILE * source )
```

Definition at line 2145 of file simulate_blif.cpp.

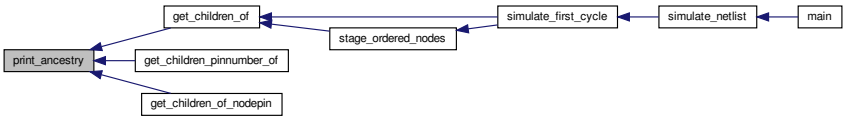
Here is the caller graph for this function:

2.56.2.59 print_ancestry()

```
void print_ancestry (
            nnode_t * node,
            int generations )
```

Definition at line 3520 of file simulate_blif.cpp.

Here is the caller graph for this function:

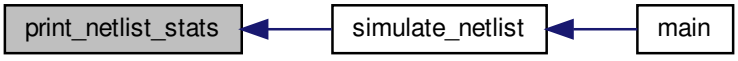


2.56.2.60 print_netlist_stats()

```
void print_netlist_stats (
            stages_t * stages,
            int num_vectors )
```

Definition at line 3473 of file simulate_blif.cpp.

Here is the caller graph for this function:

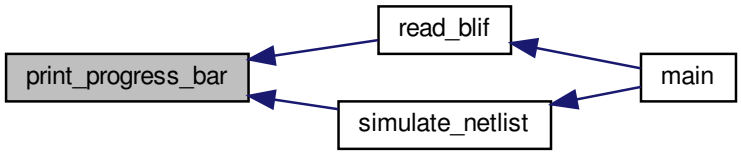


2.56.2.61 print_progress_bar()

```
int print_progress_bar (
            double completion,
            int position,
            int length,
            double time )
```

Definition at line 3431 of file simulate_blif.cpp.

Here is the caller graph for this function:

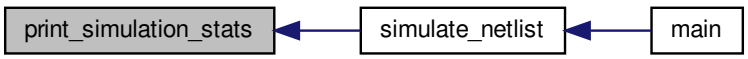


2.56.2.62 print_simulation_stats()

```
void print_simulation_stats (
            stages_t * stages,
            int num_vectors,
            double total_time,
            double simulation_time )
```

Definition at line 3491 of file simulate_blif.cpp.

Here is the caller graph for this function:

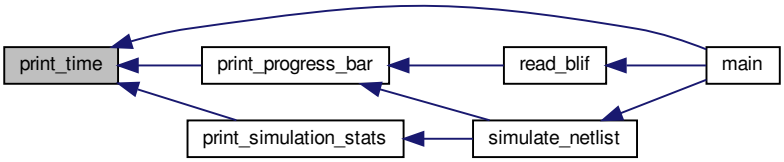


2.56.2.63 print_time()

```
void print_time (
             double time )
```

Definition at line 3507 of file simulate_blif.cpp.

Here is the caller graph for this function:

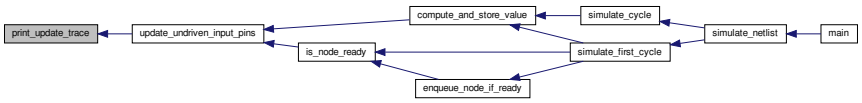


2.56.2.64 print_update_trace()

```
nnode_t* print_update_trace (
             nnode_t * bottom_node,
             int cycle )
```

Definition at line 3611 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.65 set_clock_ratio()

```
void set_clock_ratio (
             int rat,
             nnode_t * node )
```

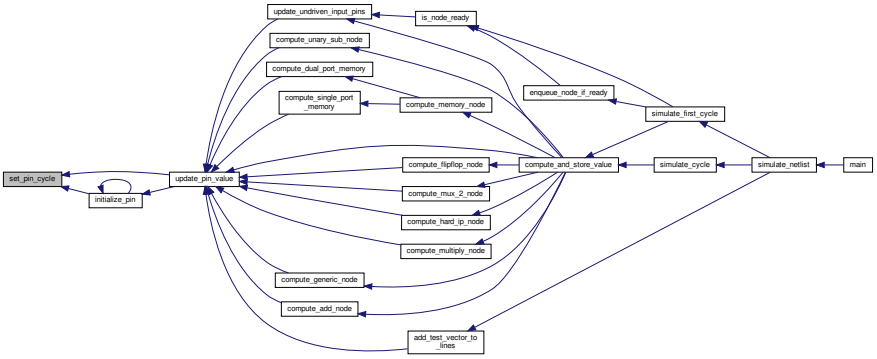
Definition at line 1044 of file simulate_blif.cpp.

2.56.2.66 set_pin_cycle()

```
void set_pin_cycle (
            npin_t * pin,
            int cycle ) [inline]
```

Definition at line 1362 of file simulate_blif.cpp.

Here is the caller graph for this function:

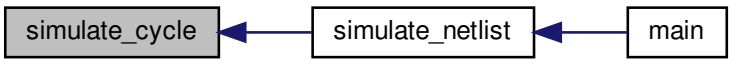


2.56.2.67 simulate_cycle()

```
void simulate_cycle (
            int cycle,
            stages_t * s )
```

Definition at line 275 of file simulate_blif.cpp.

Here is the caller graph for this function:

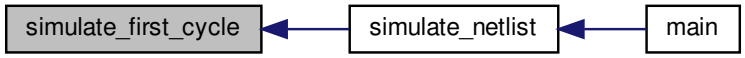


2.56.2.68 simulate_first_cycle()

```
stages_t* simulate_first_cycle (
             netlist_t * netlist,
             int cycle,
             pin_names * p,
             lines_t * output_lines )
```

Definition at line 361 of file simulate_blif.cpp.

Here is the caller graph for this function:

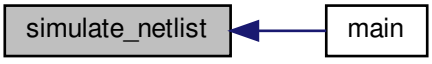


2.56.2.69 simulate_netlist()

```
void simulate_netlist (
             netlist_t * netlist )
```

Definition at line 43 of file simulate_blif.cpp.

Here is the caller graph for this function:

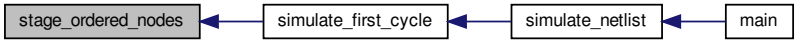


2.56.2.70 stage_ordered_nodes()

```
stages_t* stage_ordered_nodes (
            nnode_t ** ordered_nodes,
            int num_ordered_nodes )
```

Definition at line 420 of file simulate_blif.cpp.

Here is the caller graph for this function:

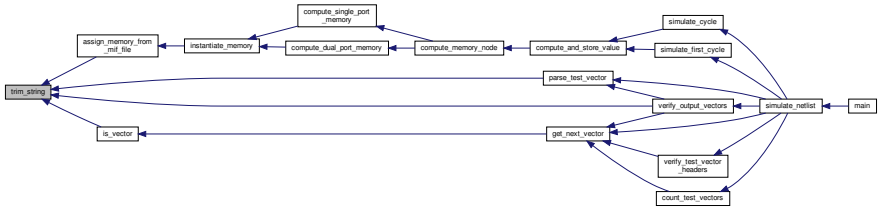


2.56.2.71 trim_string()

```
void trim_string (
            char * string,
            const char * chars )
```

Definition at line 3239 of file simulate_blif.cpp.

Here is the caller graph for this function:

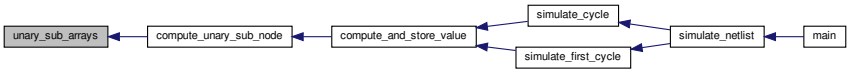


2.56.2.72 unary_sub_arrays()

```
int* unary_sub_arrays (
            int * a,
            int a_length,
            int * c,
            int c_length )
```

Definition at line 1931 of file simulate_blif.cpp.

Here is the caller graph for this function:

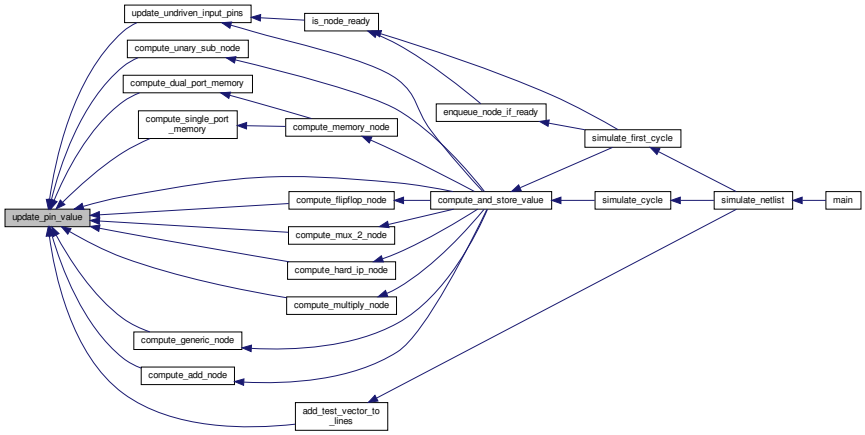


2.56.2.73 update_pin_value()

```
void update_pin_value (
            npin_t * pin,
            signed char value,
            int cycle )
```

Definition at line 1312 of file simulate_blif.cpp.

Here is the caller graph for this function:

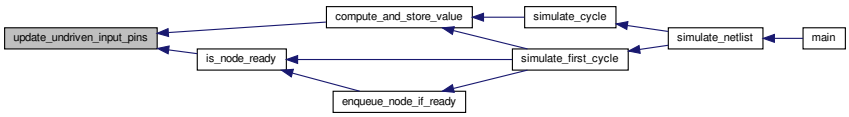


2.56.2.74 update_undriven_input_pins()

```
void update_undriven_input_pins (
             nnode_t * node,
             int cycle )
```

Definition at line 842 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.56.2.75 vector_value_to_hex()

```
char* vector_value_to_hex (
             signed char * value,
             int length )
```

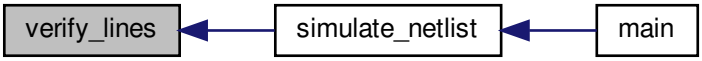
Definition at line 3295 of file simulate_blif.cpp.

2.56.2.76 verify_lines()

```
int verify_lines (
             lines_t * l )
```

Definition at line 2556 of file simulate_blif.cpp.

Here is the caller graph for this function:

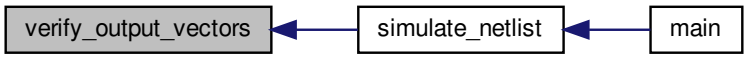


2.56.2.77 verify_output_vectors()

```
int verify_output_vectors (
            char * output_vector_file,
            int num_test_vectors )
```

Definition at line 2997 of file simulate_blif.cpp.

Here is the caller graph for this function:

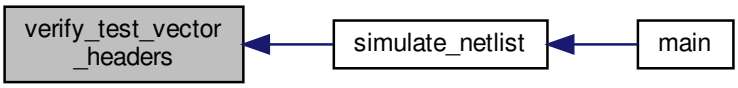


2.56.2.78 verify_test_vector_headers()

```
int verify_test_vector_headers (
            FILE * in,
            lines_t * l )
```

Definition at line 2496 of file simulate_blif.cpp.

Here is the caller graph for this function:

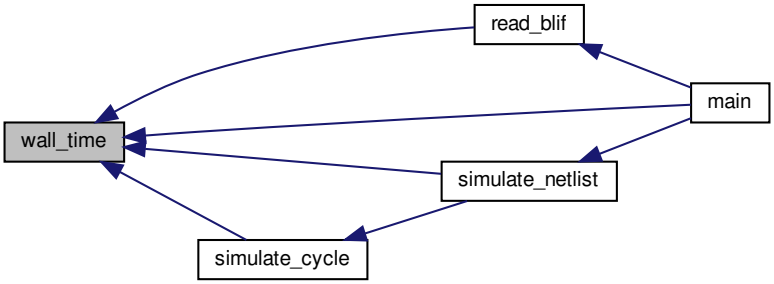


2.56.2.79 wall_time()

```
double wall_time ( )
```

Definition at line 3701 of file simulate_blif.cpp.

Here is the caller graph for this function:

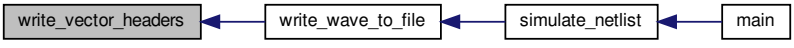


2.56.2.80 write_vector_headers()

```
void write_vector_headers (
            FILE * file,
            lines_t * l )
```

Definition at line 2482 of file simulate_blif.cpp.

Here is the caller graph for this function:

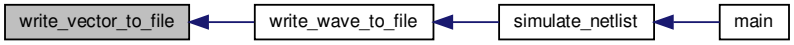


2.56.2.81 write_vector_to_file()

```
void write_vector_to_file (
             lines_t * l,
             FILE * file,
             int cycle )
```

Definition at line 2843 of file simulate_blif.cpp.

Here is the caller graph for this function:

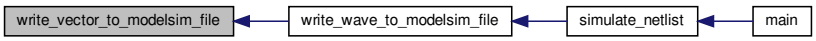


2.56.2.82 write_vector_to_modelsim_file()

```
void write_vector_to_modelsim_file (
             lines_t * l,
             FILE * modelsim_out,
             int cycle )
```

Definition at line 2945 of file simulate_blif.cpp.

Here is the caller graph for this function:

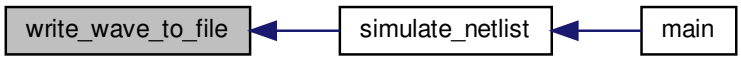


2.56.2.83 write_wave_to_file()

```
void write_wave_to_file (
             lines_t * l,
             FILE * file,
             int cycle_offset,
             int wave_length,
             int both_edges )
```

Definition at line 2826 of file simulate_blif.cpp.

Here is the caller graph for this function:

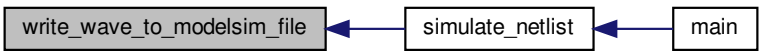


2.56.2.84 write_wave_to_modelsim_file()

```
void write_wave_to_modelsim_file (
             netlist_t * netlist,
             lines_t * l,
             FILE * modelsim_out,
             int cycle_offset,
             int wave_length )
```

Definition at line 2914 of file simulate_blif.cpp.

Here is the caller graph for this function:



2.57 vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/hashtable.cpp File Reference

```
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include "hashtable.h"
#include "types.h"
#include "vtr_memory.h"
```

Functions

- void ___hashtable_add (hashtable_t *h, const void *key, size_t key_length, void *item)
- void * ___hashtable_remove (hashtable_t *h, const void *key, size_t key_length)
- void * ___hashtable_get (hashtable_t *h, const void *key, size_t key_length)
- void ** ___hashtable_get_all (hashtable_t *h)
- int ___hashtable_is_empty (hashtable_t *h)
- void ___hashtable_destroy (hashtable_t *h)
- void ___hashtable_destroy_free_items (hashtable_t *h)
- int ___hashtable_compare_keys (const void *key, size_t key_len, const void *key1, size_t key_len1)
- unsigned int ___hashtable_hash (const void *key, size_t key_len, int max_key)
- hashtable_t * create_hashtable (int store_size)

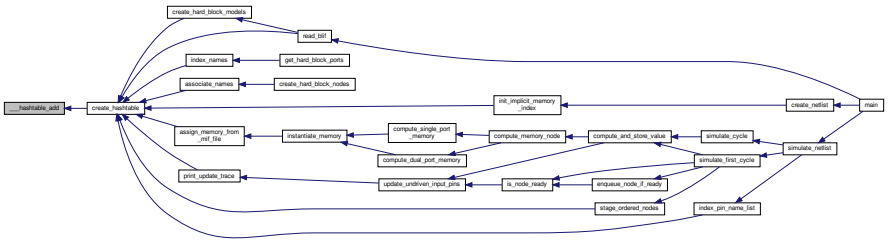
2.57.1 Function Documentation

2.57.1.1 ___hashtable_add()

```
void ___hashtable_add (
            hashtable_t * h,
            const void * key,
            size_t key_length,
            void * item )
```

Definition at line 102 of file hashtable.cpp.

Here is the caller graph for this function:

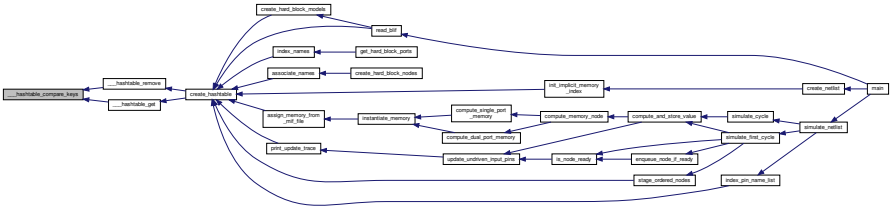


2.57.1.2 ___hashtable_compare_keys()

```
int ___hashtable_compare_keys (
            const void * key,
            size_t key_len,
            const void * key1,
            size_t key_len1 )
```

Definition at line 186 of file hashtable.cpp.

Here is the caller graph for this function:

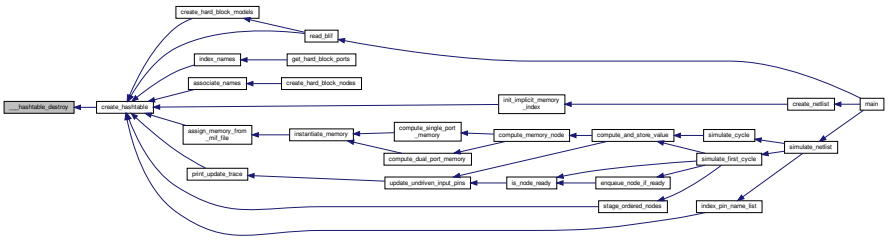


2.57.1.3 ___hashtable_destroy()

```
void ___hashtable_destroy (
            hashtable_t * h )
```

Definition at line 65 of file hashtable.cpp.

Here is the caller graph for this function:

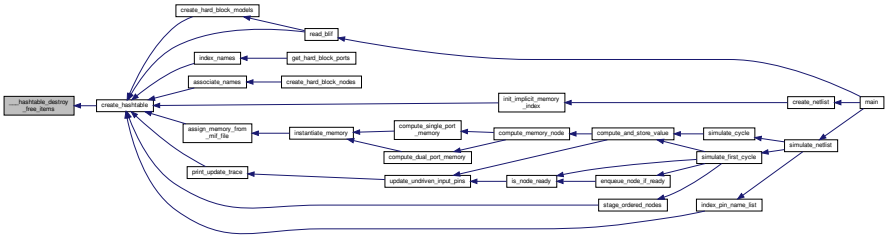


2.57.1.4 ___hashtable_destroy_free_items()

```
void ___hashtable_destroy_free_items (
            hashtable_t * h )
```

Definition at line 83 of file hashtable.cpp.

Here is the caller graph for this function:

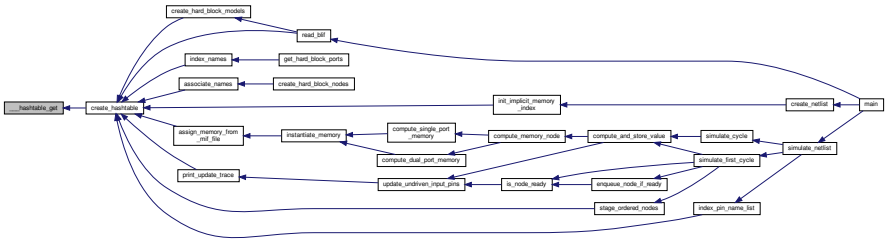


2.57.1.5 ___hashtable_get()

```
void * ___hashtable_get (
            hashtable_t * h,
            const void * key,
            size_t key_length )
```

Definition at line 149 of file hashtable.cpp.

Here is the caller graph for this function:

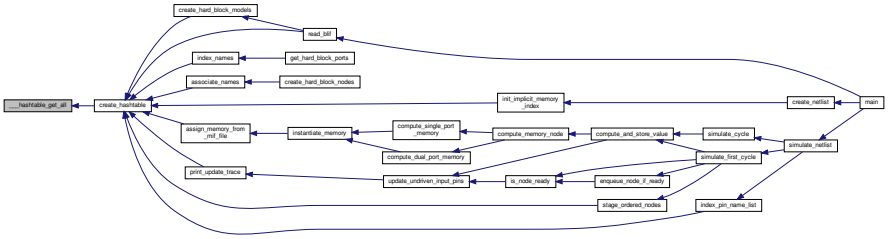


2.57.1.6 ___hashtable_get_all()

```
void ** ___hashtable_get_all (
            hashtable_t * h )
```

Definition at line 164 of file hashtable.cpp.

Here is the caller graph for this function:

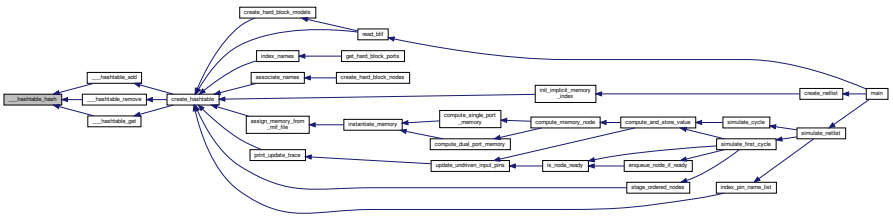


2.57.1.7 ___hashtable_hash()

```
unsigned int ___hashtable_hash (
            const void * key,
            size_t key_len,
            int max_key )
```

Definition at line 192 of file hashtable.cpp.

Here is the caller graph for this function:

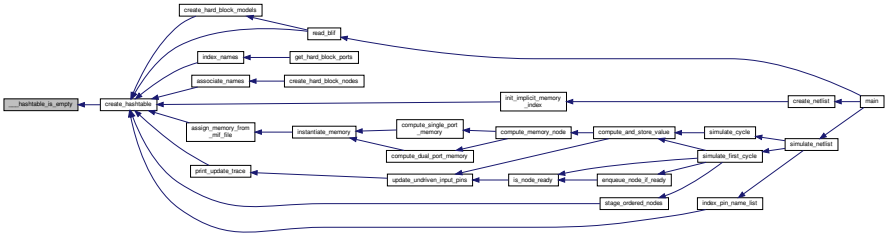


2.57.1.8 ___hashtable_is_empty()

```
int ___hashtable_is_empty (
            hashtable_t * h )
```

Definition at line 181 of file hashtable.cpp.

Here is the caller graph for this function:

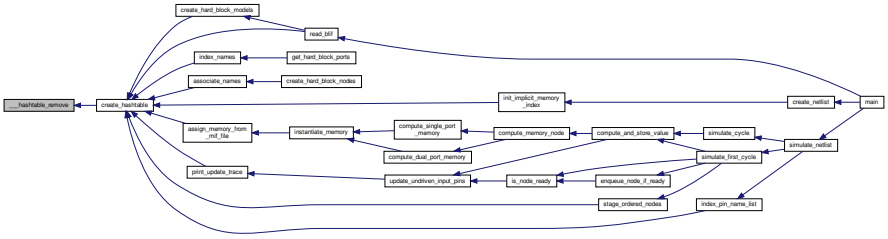


2.57.1.9 ___hashtable_remove()

```
void * ___hashtable_remove (
            hashtable_t * h,
            const void * key,
            size_t key_length )
```

Definition at line 124 of file hashtable.cpp.

Here is the caller graph for this function:

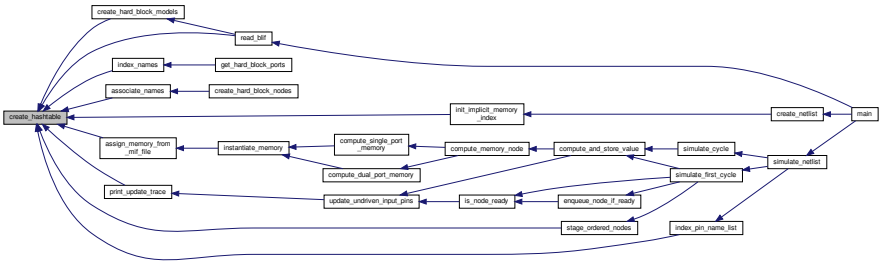


2.57.1.10 create_hashtable()

```
hashtable_t* create_hashtable (
            int store_size )
```

Definition at line 40 of file hashtable.cpp.

Here is the caller graph for this function:



2.58 vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/hashtable.h File Reference

```
#include <sys/types.h>
#include <stdint.h>
```

Data Structures

- struct hashtable_t_t
- struct hashtable_node_t_t

Macros

- #define hashtable_t struct hashtable_t_t
- #define hashtable_node_t struct hashtable_node_t_t

Functions

- hashtable_t * create_hashtable (int store_size)

2.58.1 Macro Definition Documentation

2.58.1.1 hashtable_node_t

```
#define hashtable_node_t struct hashtable_node_t_t
```

Definition at line 26 of file hashtable.h.

2.58.1.2 hashtable_t

```
#define hashtable_t struct hashtable_t_t
```

Definition at line 25 of file hashtable.h.

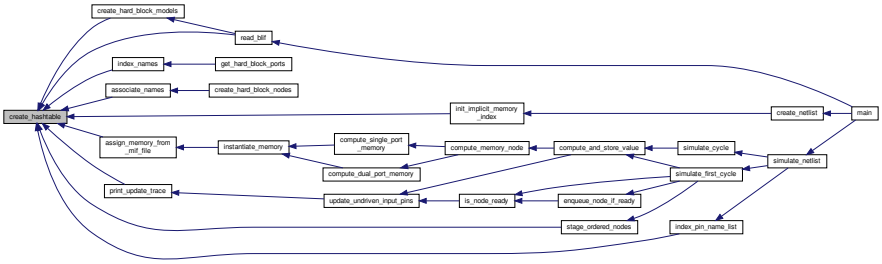
2.58.2 Function Documentation

2.58.2.1 create_hashtable()

```
hashtable_t* create_hashtable (
             int store_size )
```

Definition at line 40 of file hashtable.cpp.

Here is the caller graph for this function:



2.59 vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/string_cache.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "vtr_util.h"
#include "vtr_memory.h"
#include "string_cache.h"
```

Functions

- unsigned long string_hash (STRING_CACHE ∗sc, const char ∗string)
- void generate_sc_hash (STRING_CACHE ∗sc)
- STRING_CACHE ∗ sc_new_string_cache (void)
- long sc_lookup_string (STRING_CACHE ∗sc, const char ∗string)
- long sc_add_string (STRING_CACHE ∗sc, const char ∗string)
- int sc_valid_id (STRING_CACHE ∗sc, long string_id)
- void ∗ sc_do_alloc (long a, long b)
- STRING_CACHE ∗ sc_free_string_cache (STRING_CACHE ∗sc)

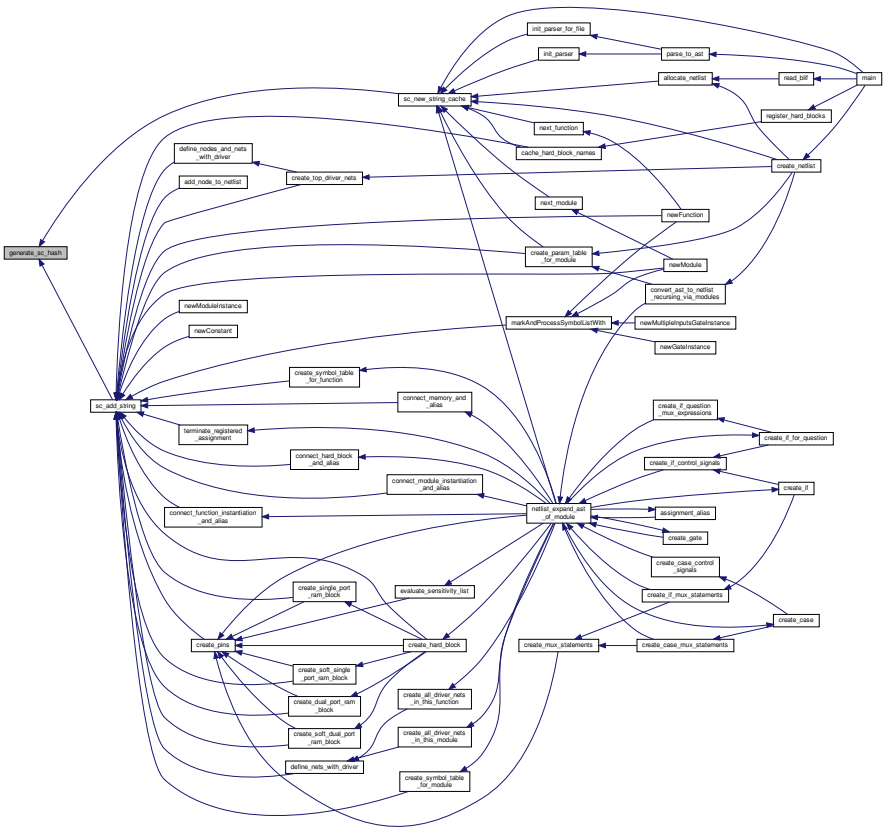
2.59.1 Function Documentation

2.59.1.1 generate_sc_hash()

```
void generate_sc_hash (
            STRING_CACHE * sc )
```

Definition at line 30 of file string_cache.cpp.

Here is the caller graph for this function:

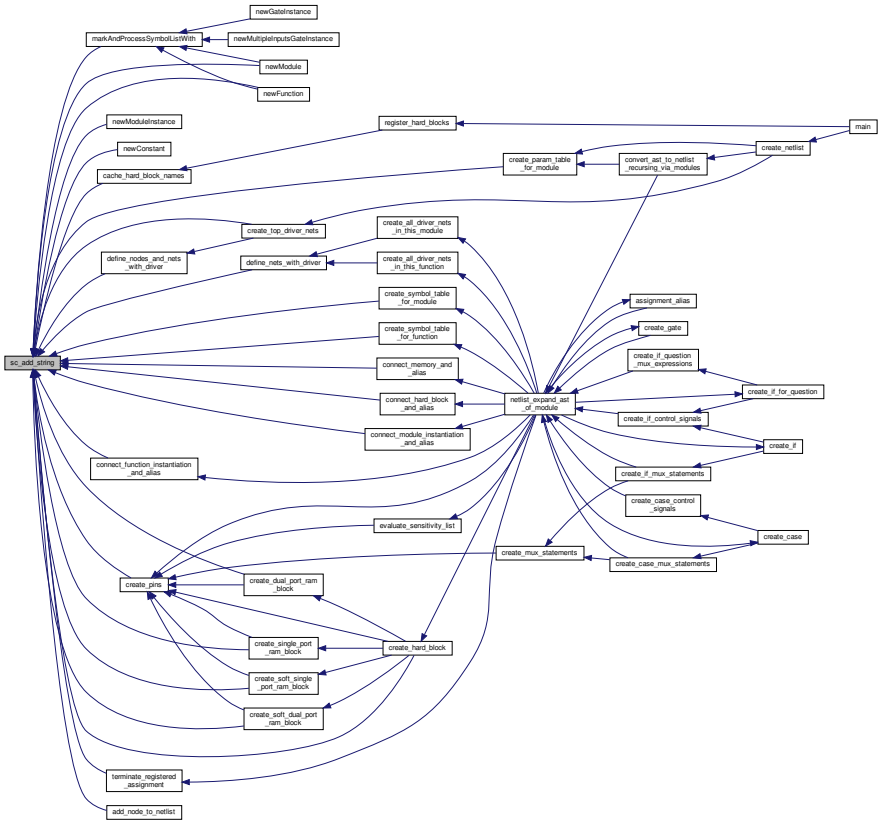


2.59.1.2 sc_add_string()

```
long sc_add_string (
            STRING_CACHE * sc,
            const char * string )
```

Definition at line 95 of file string_cache.cpp.

Here is the caller graph for this function:

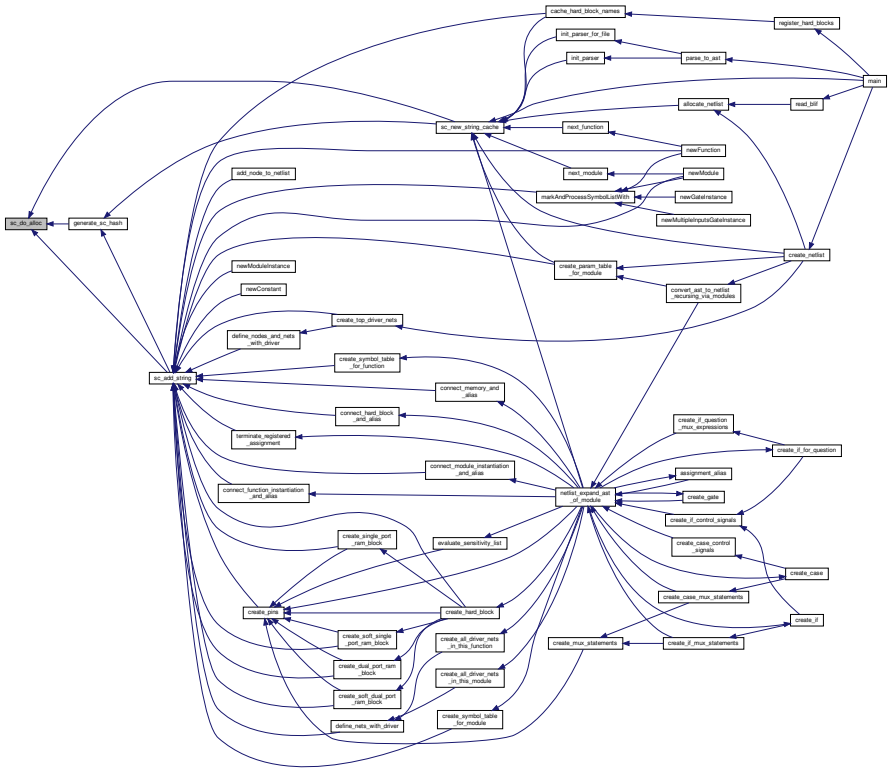


2.59.1.3 sc_do_alloc()

```
void* sc_do_alloc (
            long a,
            long b )
```

Definition at line 145 of file string_cache.cpp.

Here is the caller graph for this function:

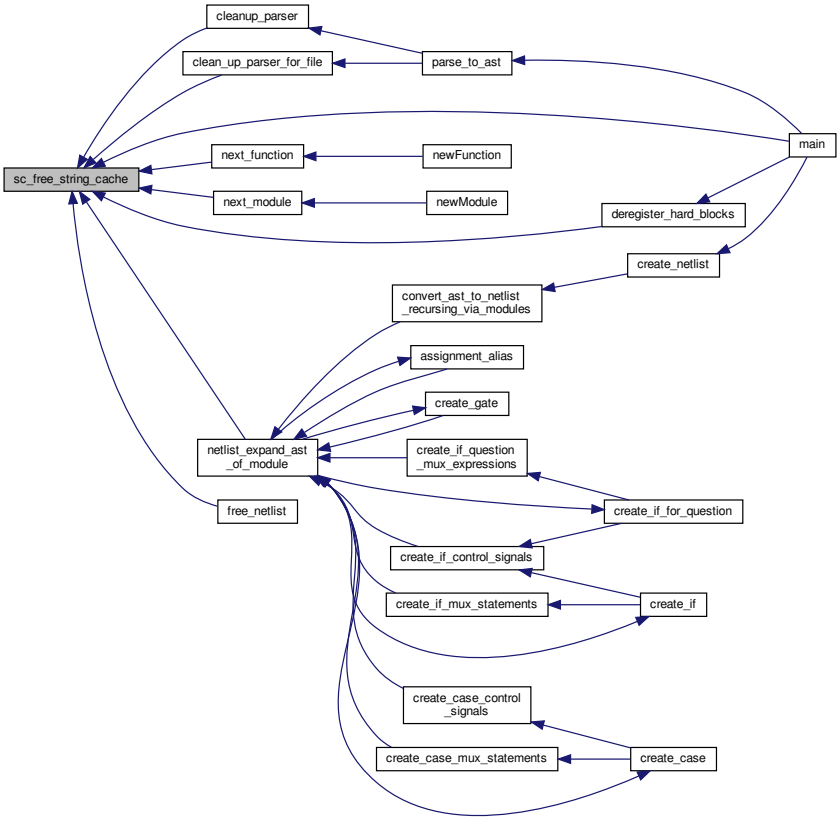


2.59.1.4 sc_free_string_cache()

```
STRING_CACHE* sc_free_string_cache (
            STRING_CACHE * sc )
```

Definition at line 165 of file string_cache.cpp.

Here is the caller graph for this function:

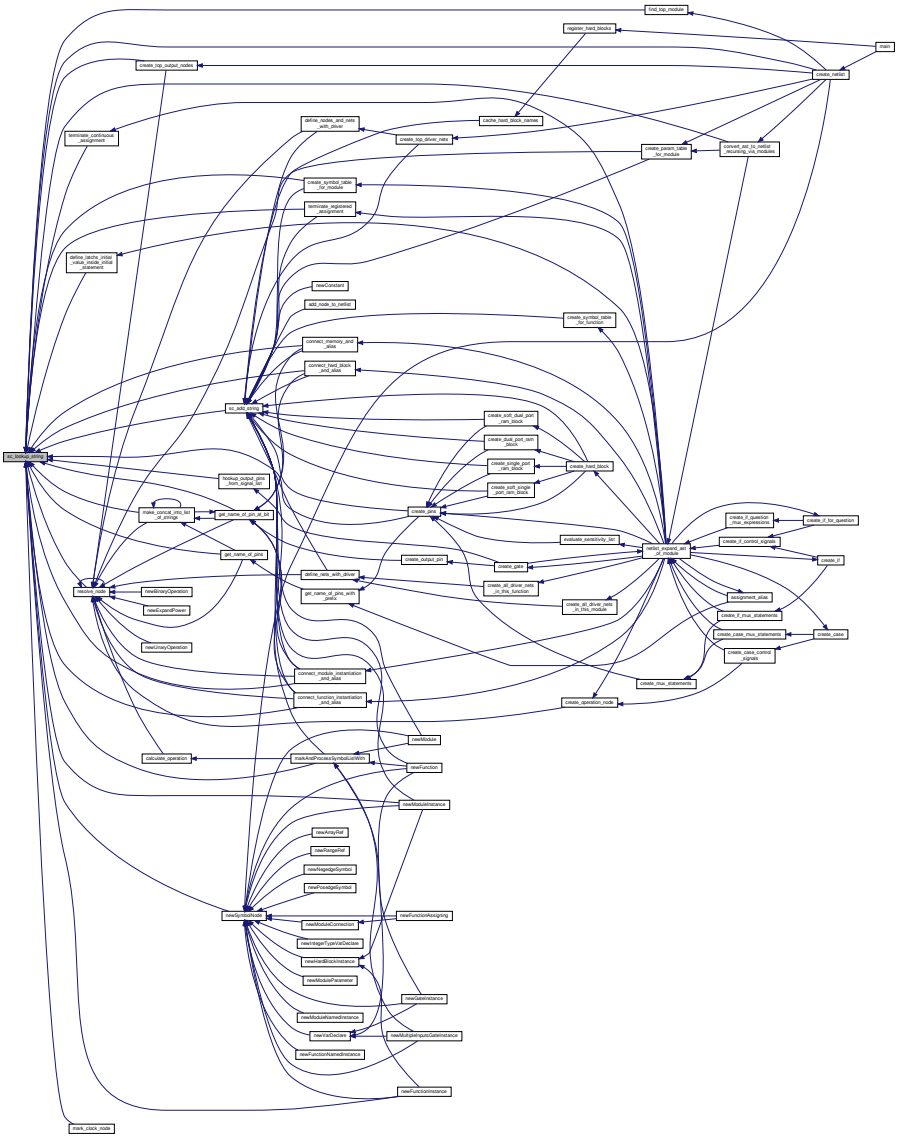


2.59.1.5 sc_lookup_string()

```
long sc_lookup_string (
            STRING_CACHE * sc,
            const char * string )
```

Definition at line 73 of file string_cache.cpp.

Here is the caller graph for this function:

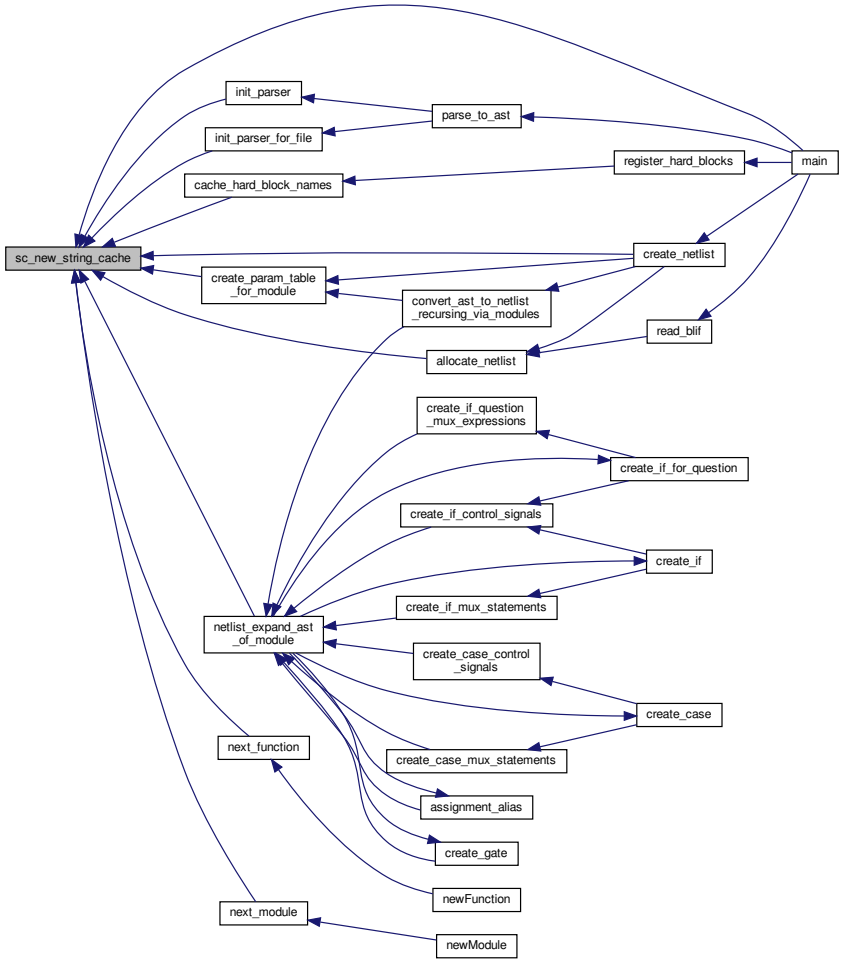


2.59.1.6 sc_new_string_cache()

```
STRING_CACHE* sc_new_string_cache (
            void  )
```

Definition at line 54 of file string_cache.cpp.

Here is the caller graph for this function:



2.59.1.7 sc_valid_id()

```
int sc_valid_id (
            STRING_CACHE * sc,
            long string_id )
```

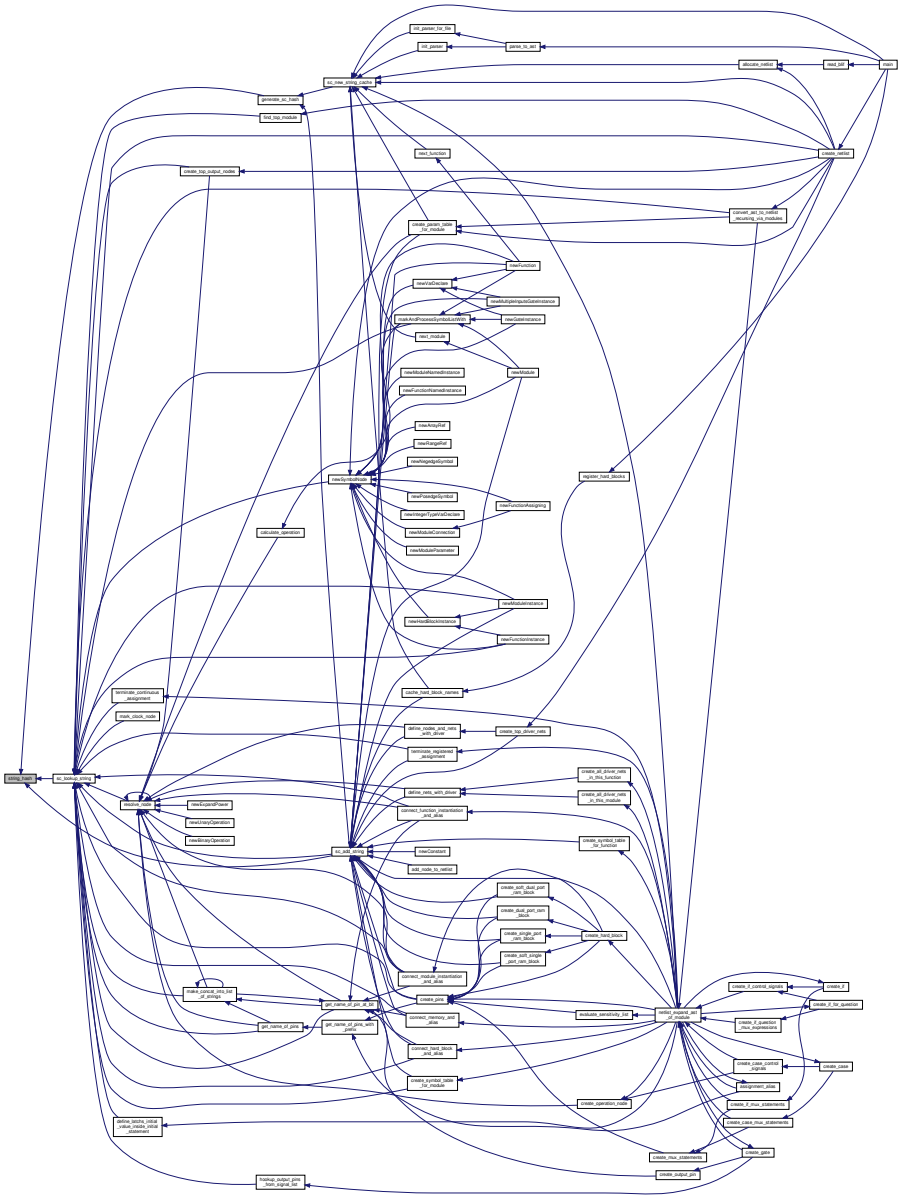
Definition at line 134 of file string_cache.cpp.

2.59.1.8 string_hash()

```
unsigned long string_hash (
            STRING_CACHE * sc,
            const char * string )
```

Definition at line 16 of file string_cache.cpp.

Here is the caller graph for this function:



2.60 vtr-verilog-to-routing/ODIN_II/SRC/STRING_HASH_TOOL/string_cache.h File Reference

Data Structures

- struct STRING_CACHE

Functions

- STRING_CACHE * sc_new_string_cache (void)
- long sc_lookup_string (STRING_CACHE *sc, const char *string)
- long sc_add_string (STRING_CACHE *sc, const char *string)
- int sc_valid_id (STRING_CACHE *sc, long string_id)
- void * sc_do_alloc (long, long)
- STRING_CACHE * sc_free_string_cache (STRING_CACHE *sc)

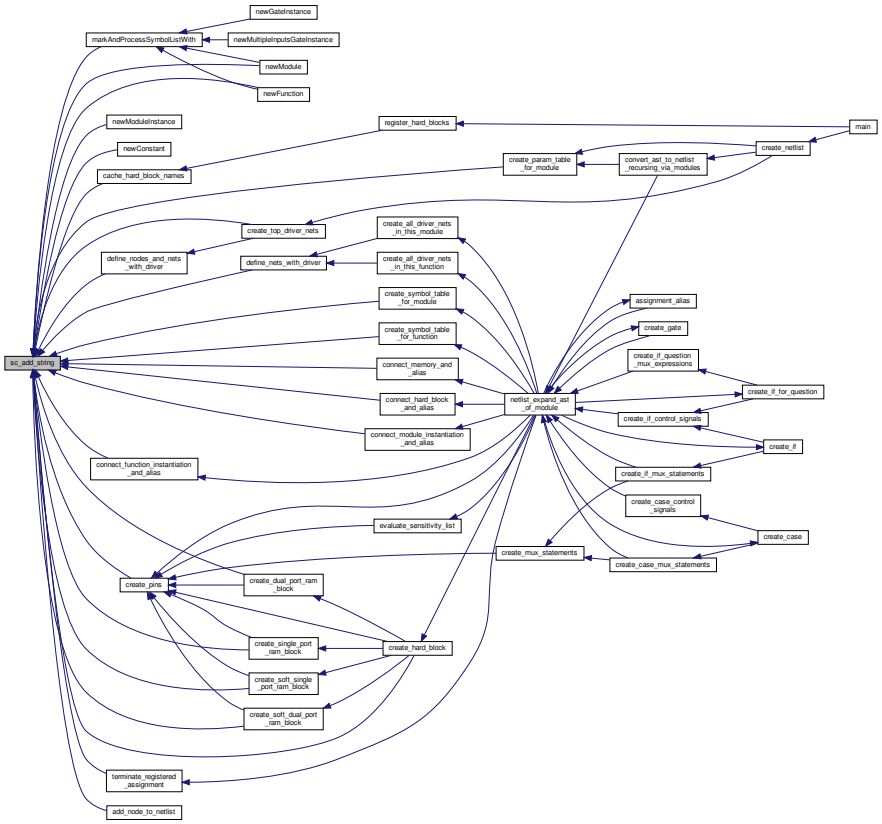
2.60.1 Function Documentation

2.60.1.1 sc_add_string()

```
long sc_add_string (
            STRING_CACHE * sc,
            const char * string )
```

Definition at line 95 of file string_cache.cpp.

Here is the caller graph for this function:

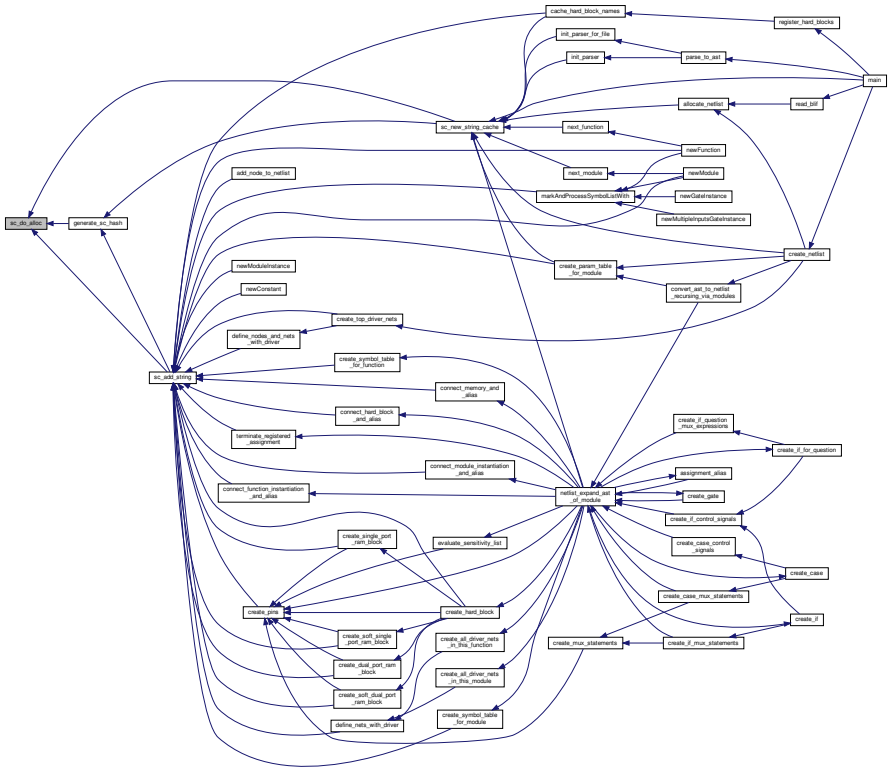


2.60.1.2 sc_do_alloc()

```
void* sc_do_alloc (
            long ,
            long  )
```

Definition at line 145 of file string_cache.cpp.

Here is the caller graph for this function:

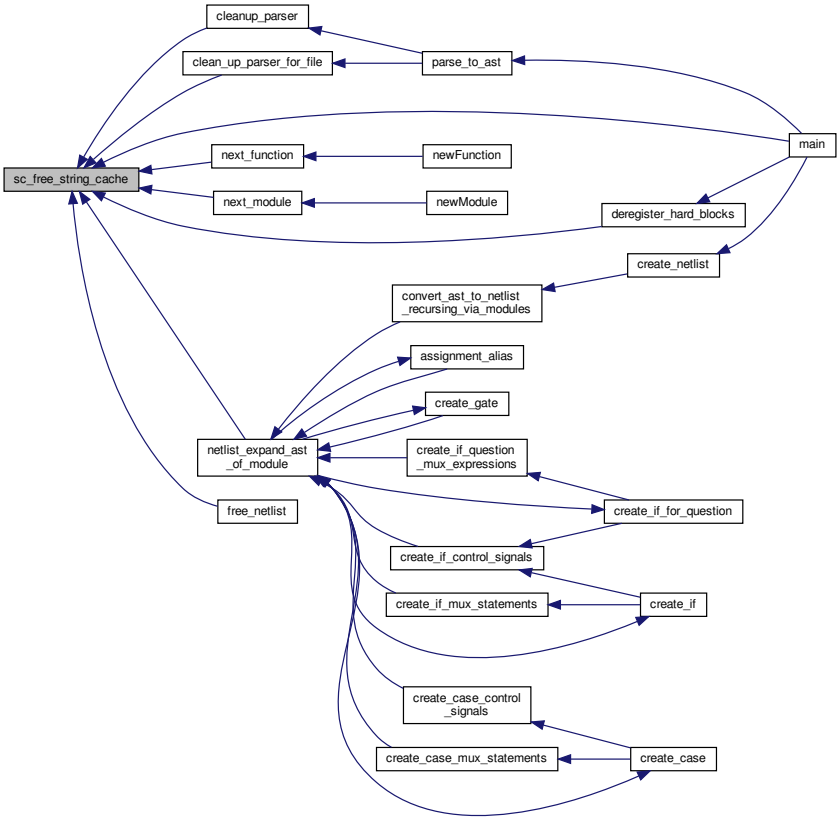


2.60.1.3 sc_free_string_cache()

```
STRING_CACHE* sc_free_string_cache (
            STRING_CACHE * sc )
```

Definition at line 165 of file string_cache.cpp.

Here is the caller graph for this function:

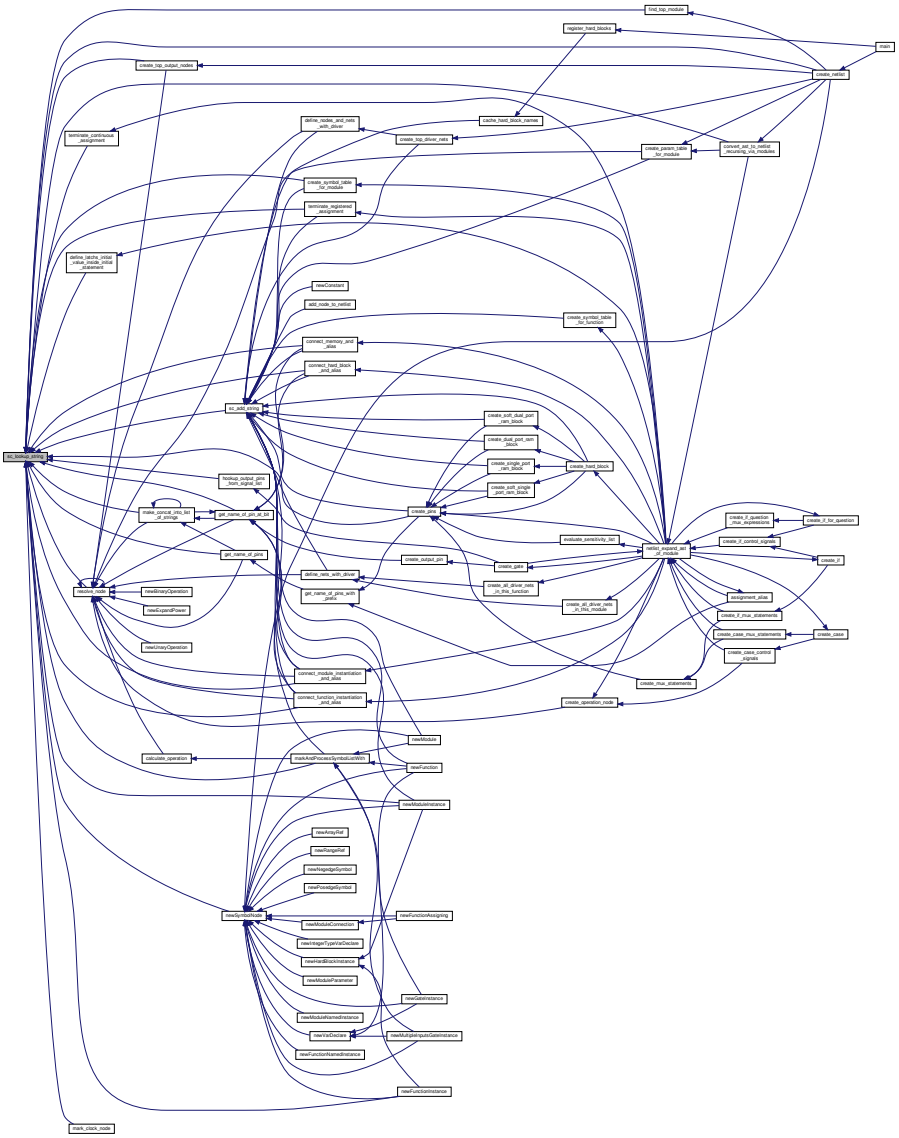


2.60.1.4 sc_lookup_string()

```
long sc_lookup_string (
            STRING_CACHE * sc,
            const char * string )
```

Definition at line 73 of file string_cache.cpp.

Here is the caller graph for this function:

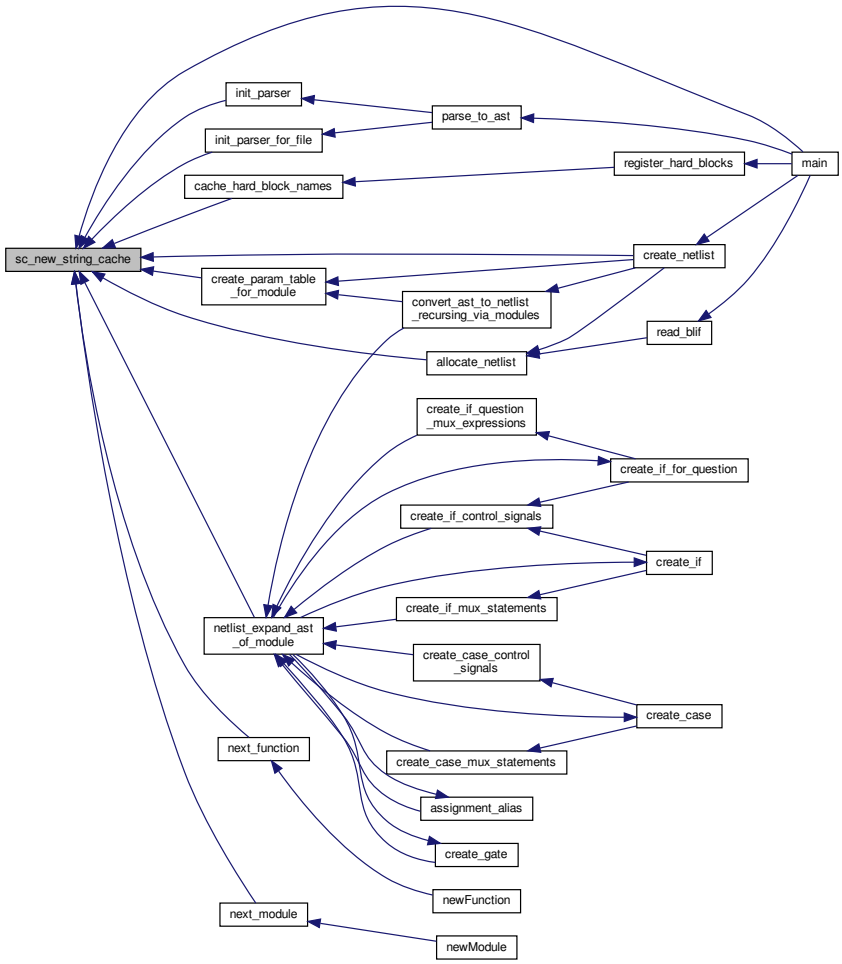


2.60.1.5 sc_new_string_cache()

```
STRING_CACHE* sc_new_string_cache (
            void  )
```

Definition at line 54 of file string_cache.cpp.

Here is the caller graph for this function:



2.60.1.6 sc_valid_id()

```
int sc_valid_id (
            STRING_CACHE * sc,
            long string_id )
```

Definition at line 134 of file string_cache.cpp.

2.61 vtr-verilog-to-routing/ODIN_II/SRC/types.h File Reference

```
#include "string_cache.h"
#include "odin_util.h"
```

```
#include "read_xml_arch_file.h"
#include "simulate_blif.h"
#include "argparse_value.hpp"
#include <stdlib.h>
```

Index