```
icc2_shell> man initialize_floorplan
2.  Synopsys Commands                                   Command Reference
                            initialize_floorplan

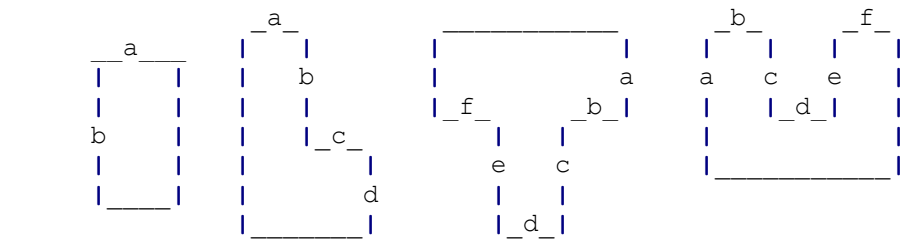
NAME
       initialize_floorplan
              Creates  an  initial  floorplan  with a die boundary, core, site
              array (or rows), and wire tracks. Support is provided for a  die
              boundary that is coincident with the core, or a rectilinear core
              with rectangular die boundary.

SYNTAX
       int initialize_floorplan
              [-control_type core | die]
              [-shape R | L | T | U]
              [-side_length {side_a side_b [side_c side_d side_e side_f]}]
              [-side_ratio {side_a side_b [side_c side_d side_e side_f]}]
              [-core_utilization ratio]
              [-keep_boundary]
              [-boundary { {x y} {x y} {x y} {x y} ... } ]
              [-orientation N | W | S | E]
              [-coincident_boundary true | false]
              [-core_offset  { value | X_Offset Y_Offset | side_1 ... side_N}]
              [-row_core_ratio ratio]
              [-flip_first_row true | false]
              [-keep_pg_route]
              [-keep_detail_route]
              [-keep_placement {io macro block std_cell physical_only all} ]
              [-keep_objects object_name_or_collection]
              [-keep_object_types {placement_blockage routing_blockage move_bound}]
              [-keep_all]
              [-honor_pad_limit]
              [-site_def site_def_name]
              [-use_site_row]
              [-origin_offset {x, y}]
              [-row_pattern {row_pattern_name}]
              [-macro_utilization ratio]

   Data Types
       ratio                       float
       x                           float
       y                           float
       value                       float
       X_Offset                    float
       Y_Offset                    float
       side_*                      float
       object_name_or_collection   string or collection
       site_def_name               string
       row_pattern_name            string

ARGUMENTS
       -control_type core | die
              Specifies whether the side_length and side_ratio  options  apply
              to  the core or the die boundary. If set to die, then the dimen-
              sions are applied to the die boundary and the core_offset values
              are  subtracted from the dimensions to determine the core bound-
              ary. If set to core (default), the dimensions are applied to the
              core boundary and the core_offset values are added to the dimen-
              sions to determine the final die boundary.  By default, the con-
              trol type is core.

       -shape R | L | T | U
              Specifies  the  shape  to  be  used  by the command. If the con-
              trol_type is die, this option applies to the die boundary shape.
              The  argument  to this option specifies a template shape used to
              determine the cell boundary and core shape  of  the  rectilinear
              block.  The  following diagram shows the definition of the edges
              and the orientation of  the  R-,  L-,  T-,  and  U-  rectilinear
              blocks. By default, the core shape is R (rectangular).
```



-side_length { side_a side_b [side_c side_d side_e side_f]}
Specifies the side lengths for the edges of the floorplan. If the control_type is die, the side lengths apply to the die boundary. Each dimension in the list represents the length of the edge. If you provide more values than required to describe the specified shape, the extra values are ignored. If you do not provide all of the values required to describe the specified shape, the tool issues an error message. There are only two dimensions for -shape R: width and height. This option is mutually exclusive with the -side_ratio option.

-side_ratio { side_a side_b [side_c side_d side_e side_f]}
Specifies the relative proportion of the floorplan edges in relation to each other. If the control_type is die, the side rations apply to the boundary side settings. Each dimension in the list represents the relative proportion of the dimension of the edge to the sum of all the dimensions listed. For example, if the list of dimensions of an L-shaped block is {1 2 1 1}, the tool calculates the dimension of side a, c, or d (where the value is 1) as 20 percent (1/1+2+1+1) of the sum of the dimensions listed. The dimension of side b is 40 percent of the summation, and so on.

-core_utilization ratio
Specifies the utilization of the core area. The utilization is the total area of the core occupied by all standard cells and macro cells divided by the total core area. You can specify a value between 0 and 1. The cell area includes all standard and macro cells. For example, a core utilization of 0.8 specifies that 80 percent of the core area is used for cell placement at this stage. The tool might later add more cell area, the remaining area is available for routing. By default, the core utilization is 0.7.

-macro_utilization ratio
Specifies the utilization of the macro cells. The default is same as core_utilization value: range 0 to 1.

-keep_boundary
Uses the existing die boundary. If this option is specified and the core-based constraints result in a core that is too large to fit in the existing die boundary, the command issues an error message. Default is not specified.

-boundary { {x y} {x y} {x y} {x y} ... }
Specifies the shape to be used by the command. If the control_type is core, then the boundary defines the core area and the core_offsets should be added to create the die boundary. If control_type is die, then the core_offset is subtracted from the die boundary to create the core boundary.

-orientation N | W | S | E
Specifies one of four possible orientations for the specified rectilinear shape. The tool repositions the block to the specified orientation by rotating it in a clockwise direction. For -shape R, the orientation is always N.

-coincident_boundary true | false
Specifies whether the die boundary follows the shape of the core. If true, the die boundary assumes the same shape as the

core and requires a -core_offset setting with the same number of sides as the core. If false, the die boundary is rectangular and the -core_offset option requires only four values. When the die boundary is rectangular it is created with -core_offset values such that the offset value is honored to the closest core edge on a per side basis. In this case, the bounding box of the die boundary is the minimum size that meets all four -core_offset values. By default, this option is true.

-core_offset { value | X_Offset Y_Offset | side_1 ... side_N}
Specifies the distance between the side of the core and the side of the die boundary. If only one value is specified, the value is used for all sides. If two values are specified, the first value is the distance in the horizontal direction from the die boundary vertical edges and the second value is the distance in the vertical direction from the die boundary horizontal edges. Side numbers are based on the standard rectilinear numbering and do not correlate to the side_a, side_b, and so on, numbering scheme used to define the size of each edge. By default, the core offset equals to the minimum I/O cell height. If there are no I/O cells, the core offset is 0.

-row_core_ratio ratio
Specifies the amount of channel area between cell rows in the core area to reserve for routing. The ratio is a number between 0 and 1.0. A smaller row-to-core ratio creates more space for routing channels. A value of 1.0 creates no routing channel space. By default, the ratio is 1.0. Note that this ratio should be equal to or greater than the core utilization value.

-flip_first_row true | false
Specifies whether the command flips the first row at the bottom of the core area for horizontally placed cell rows, or flips the leftmost row for vertically placed cell rows. By default, this option is true.

-keep_pg_route
Specifies that the command keeps the PG routes and does not delete them. By default, the command delete all existing routes.

-keep_detail_route
Specifies that the command keeps all the routes except PG routes and does not delete them. By default, the command delete all existing routes.

-keep_placement {io macro block std_cell physical_only all}
Specifies that the command keeps the placement of specified object types. The valid value for this options are: io, macro, block, std_cell, physical_only, all.

io means objects with design type "flip_chip_driver, flip_chip_pad, corner, pad, pad_spacer";

macro means objects with design type "macro, analog, abstract";

block means objects with design type "module, black_box";

physical_only means objects with design type "physical_only, fill";

std_cell means objects with design type "lib_cell, cover, diode, end_cap, well_tap, filler";

all means all objects with design type list above.

-keep_objects object_name_or_collection
Specifies the objects to be kept. Currently supported objects are cells and nets. Specify the objects either by using an object access command, such as get_cells or get_nets, or by

specifying object name patterns in a Tcl list.

-keep_object_types {placement_blockage routing_blockage move_bound}
Specifies the object type to be kept. Currently supported object types are placement_blockage, routing_blockage and move_bound.

-keep_all
Specifies this option to keep macro, std_cell, I/O, physical_only, block, blockage, detail_route and pg_route.

-honor_pad_limit
Adjusts the core and die size to honor pad-limited designs. If this option is not specified, the core area is created based on the default core utilization ratio 0.7.

The option can be used only for rectangular floorplans, not for L, T, or U shapes.

The assumption for the command option is that the pad-type cells ()I/O pads or flip chip drivers) are placed around the design boundary.

-site_def site_def_name
Specifies the site def to be used in floorplan when there are multiple site defs in the technology file. The default is to use default site def. If there is no default site def, the command uses the site def with the smallest site width.

-use_site_row
By default, the initialize_floorplan command creates siteArray objects. This option forces the command to create siteRow rather than siteArray.

-origin_offset {x y}
Specifies the location of the lower-left corner of the die boundary bounding box with respect to the origin of the block.

-row_pattern {row_pattern_name}
Specifies the name of row_pattern to be used for floorplan when there are row patterns specification in the physical rule section of technology file.

DESCRIPTION
Creates a floorplan with a boundary, core, site array (or rows), and wire tracks. Before executing this command, you must open a physical design by using the open_block command, or create a design with the read_verilog or read_verilog_outline commands.

EXAMPLES
The following example creates a rectangular core and die boundary with a core utilization of 80 percent and a core offset of 1000 um for each side.

```
prompt> initialize_floorplan -core_utilization 0.8 \
        -core_offset {1000 1000 1000 1000}
```

The following example creates a rectangular die boundary and a T-shaped rectilinear core with the specified side dimensions for the core and a core_offset of 100 um for each side.

```
prompt> initialize_floorplan -control_type core -shape T \
        -side_length {1000 750 1500 750 1750 750} \
        -coincident_boundary false \
        -core_offset {100}
```

The following example creates a T-shaped rectilinear core and die boundary with the specified side dimensions for the core and a core offset of 100 um for each side.

```
          prompt> initialize_floorplan -shape T \
                  -side_length {1000 750 2500 500 3000 500} \
                  -core_offset {100 100 100 100 100 100 100 100}

       The following example creates a T-shaped rectilinear core and die
       boundary with the specified side ratios for the core and a core offset
       of 10 um for each side and a core utilization of 80 percent.

          prompt> initialize_floorplan -core_utilization 0.8 \
                  -shape T \
                  -side_ratio {2 1 3 1 3 1} \
                  -core_offset {100 100 100 100 100 100 100 100}

SEE ALSO
       create_io_ring(2)
       remove_io_rings(2)
       report_io_rings(2)

                              Version S-2021.06-SP5
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