

```
icc2_shell> man set_auto_floorplan_constraints
```

2. Synopsys Commands

Command Reference

set_auto_floorplan_constraints

NAME

set_auto_floorplan_constraints

Sets constraints **for** implicit floorplan initialization. This command is used to set the auto floorplan settings, which support the same parameters as the initialize_floorplan command. During auto floorplanning, the compile_fusion command performs the following tasks:

- o Creates the die, rows, **and** tracks
- o Shapes **and** places voltage areas
- o Places macros
- o Places pins **and** I/Os

The values preset on the set_auto_floorplan_constraints parameters are passed onto the parameters of the initialize_floorplan command to perform auto floorplan. set_auto_floorplan_constraints is called during compile_fusion -logic_opto **and** compile_fusion -initial_place. If you run initialize_floorplan explicitly, auto floorplan is **not** triggered. Auto floorplan creates missing floorplan information; **if** there is DEF provided, auto floorplan preserves user inputs, **and** incrementally updates the missing information.

SYNTAX

status set_auto_floorplan_constraints

```
[-control_type core | die]
[-shape R | L | T | U]
[-side_length side_length]
[-side_ratio side_ratio]
[-core_utilization utilization]
[-boundary coordinates ]
[-orientation N | W | S | E]
[-coincident_boundary true | false]
[-core_offset core_offset_spec]
[-row_core_ratio row_core_ratio]
[-flip_first_row true | false]
[-honor_pad_limit]
[-site_def site_def_name]
[-use_site_row]
[-origin_offset origin_offset_spec]
[-row_pattern {row_pattern_name}]
[-reset]
```

Data Types

side_length	list
side_ratio	list
utilization	float
coordinates	list
core_offset_spec	float
row_core_ratio	float
site_def_name	string
origin_offset_spec	float
row_pattern_name	string

ARGUMENTS

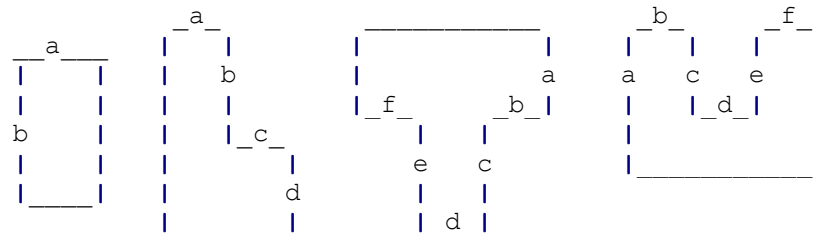
-control_type core | die

Specifies whether the side_length **and** side_ratio options apply to the core **or** the die boundary. If set to die, then the dimensions (side_length **and** side_ratio) are applied to the die boundary **and** the core_offset values are subtracted from the dimen-

sions to determine the core boundary. If set to core (default), the dimensions are applied to the core boundary and the core_offset values are added to the dimensions to determine the final die boundary. By default, the control_type is core.

-shape R | L | T | U

Specifies the shape used by the command. If the control_type is die, then the shape applies to the die boundary shape settings. 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_length

Specifies the side length used by the command. If the control_type is die, then it applies to the die boundary side settings. Each dimension in the side_length 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 Rect: width and height. This option is mutually exclusive with the -side_ratio option.

-side_ratio side_ratio

Specifies the side ratio used by the command. If the control_type is die, then it applies the side_ratio to the die 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, and the dimension of side b is 40 percent of the summation.

-core_utilization utilization

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. Later, the tool might add more cell area, with the remaining area available for routing. By default, the core utilization is 0.7.

-boundary coordinates

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. If control_type is die, then the core_offset should be subtracted from the die boundary to create the core area. The format is { {x1 y1} {x2 y2} {x3 y3} {x4 y4} }.

-orientation N | W | S | E

Specifies one of the four possible orientations for the specified rectilinear shape. The orientations are North (N), West (W), South (S), and East (E). The tool repositions the block to the specified orientation by rotating it in a clockwise direc-

tion. 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 core_offset_spec`
 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 applied to all vertical edges **and** the second value is applied to all horizontal edges. Side numbers are based on the standard rectilinear numbering **and do not** correlate to the numbering scheme used to define the size of each **edge** (`side_a`, `side_b`, etc). By **default**, the core offset is equal to the minimum I/O **cell** height. If there are no I/O cells, the core offset is 0.

`-row_core_ratio row_core_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 greater than **or** equal to 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.

`-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.

`-site_def site_def_name`
 Specifies the site def to be used in floorplanning 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`
 Specifies that the tool creates site rows.

`-origin_offset origin_offset_spec`
 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.

`-reset` Resets all the constraints to their defaults.

DESCRIPTION

This command specifies the constraints used to create 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

```
208         open_block command, or create a design with the read_verilog or
209         read_verilog_outline commands.
210
211     EXAMPLES
212         The following example sets the constraint of utilization to be 0.8.
213
214         prompt> set_auto_floorplan_constraints -core_utilization 0.8
215         1
216
217         The following example sets the preferred core shape to be a rectangle
218         (R).
219
220         prompt> set_auto_floorplan_constraints -shape R
221         1
222
223         The following example sets the preferred core length to create the
224         floorplan.
225
226         prompt> set_auto_floorplan_constraints -side_length {200 200}
227         1
228
229     SEE ALSO
230         report_auto_floorplan_constraints(2)
231         create_io_ring(2)
232         remove_io_rings(2)
233         report_io_rings(2)
234
235         Version S-2021.06-SP5
236         Copyright (c) 2022 Synopsys, Inc. All rights reserved.
237     icc2_shell>
238
```