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icc2_shell> man set_floorplan_spacing_rules
2.  Synopsys Commands                                        Command Reference
                          set_floorplan_spacing_rules

NAME
       set_floorplan_spacing_rules
              Defines a spacing floorplan rule in the design.

SYNTAX
       set_floorplan_spacing_rules
              -from_object_types from_type_list
              -to_object_types to_type_list
              -from_lib_cells lib_cells
              -to_lib_cells lib_cells
              -directions direction_list
              [-orientation_types orientation_list]
              -name rule_name
              [-shielding_object_types type_list]
              [-shielding_lib_cells lib_cells]
              [-between_lib_cells lib_cells]
              [-min_parallel_run_length distance]
              [-max_parallel_run_length distance]
              [-follow_rotations]
              [-ignore_rotate90]
              [-no_overlap]
              [-no_overlap_policy no_overlap_policy_type]
              [-identical]
              [-mirror]
              [-from_layers from_layer_list]
              [-to_layers to_layer_list]
              [-check_same_object]
              [-check_same_object_policy check_same_object_policy_type]
              [-forbidden_list distance_list]
              [-forbidden_ranges {{low high} {low1 high1} ... }]
              [-max distance]
              [-min distance]
              [-offset distance]
              [-step distance]
              [-valid_list distance_list]
              [-valid_ranges {{low high} {low1 high1} ... }]
              [-offset_ranges {{low high} {low1 high1} ... }]

   Data Types
       from_type_list                  list
       to_type_list                    list
       lib_cells                       collection
       orientation_list                list
       type_list                       list
       direction_list                  list
       no_overlap_policy_type          string
       check_same_object_policy_type   string
       rule_name                       string
       distance                        float
       from_layer_list                 list
       to_layer_list                   list
       distance_list                   list
       low                             float
       high                            float
       low1                            float
       high1                           float

ARGUMENTS
       -from_object_types from_type_list
              Specifies the list of "from" object types for the spacing floor-
              plan rule. Spacing between  these  type  of  objects  and  other
              objects  specified with -to_object_types or library cells speci-
              fied with -to_lib_cells is checked. Valid values for this option
              are  block_boundary,  hard_macro,  placement_blockage,  rout-
              ing_blockage,  shape,  soft_macro,  unplaceable_area,  bound-
              ary_cell_region,  std_cell_area,  io_pad  and  cover_bump.  This
              option is mutually exclusive with -from_lib_cells and  you  must
              specify one or the other.

       -to_object_types to_type_list
              Specifies  the  list of "to" object types for the spacing floor-
              plan rule. Spacing between  these  type  of  objects  and  other
              objects specified with -from_object_types or library cells spec-
              ified with -from_lib_cells is checked.  Valid  values  for  this
              option are block_boundary, hard_macro, placement_blockage, rout-
              ing_blockage,  shape,   soft_macro,   unplaceable_area,   bound-
              ary_cell_region,  std_cell_area,  io_pad  and  cover_bump.  This
              option is mutually exclusive with  -to_lib_cells  and  you  must
              specify one or the other.

       -from_lib_cells lib_cells
              Specifies the collection of library cells for the spacing floor-
              plan rule. Spacing between these library cells and other objects
              specified  with -to_object_types or library cells specified with
              -to_lib_cells is checked. This option is mutually exclusive with
              -from_object_types and you must specify one or the other.

       -to_lib_cells lib_cells
              Specifies the collection of library cells for the spacing floor-
              plan rule. Spacing between these library cells and other objects
              specified  with  -from_object_types  or  library cells specified
              with -from_lib_cells is checked. This option is mutually  exclu-
              sive  with  -to_object_types  and  you  must  specify one or the
              other.

       -shielding_object_types type_list
              Specifies the collection of object types for the halo  floorplan
              rule  as  shielding objects so that the rule is not applied when
              these object  types  form  a  shield  between  "from"  and  "to"
              objects.  Valid  values  for  this  option  are  hard_macro  and
              std_cell_area. This is an optional option.

       -shielding_lib_cells lib_cells
              Specifies the collection of library cells for the spacing floor-
              plan  rule  as shielding objects so that the rule is not applied
              when these lib cells form  a  shield  between  "from"  and  "to"
              objects.

       -between_lib_cells lib_cells
              Specifies the collection of library cells for the spacing floor-
              plan rule to check when this collection of cells is between  the
              specified  "from" and "to" objects.

       -directions direction_list
              Specifies  the  sides  or  directions  in  which spacing between
              "from" object or from  library  cells  and  "to"  object  or  to
              library  cells  needs to be checked. Valid values are any, hori-
              zontal, vertical, left, right, bottom, top and  nearest_corners.
              The horizontal argument includes both left and right. Similarly,
              the vertical argument includes both bottom and top.  This  is  a
              mandatory option.

       -orientation_types orientation_list
              Specifies the orientation of the two objects for the check to be
              enabled. Valid values are align, mirror and partial. align means
              both  the  objects should be of same orientation like R0, MX, MY
              or R180. partial means the orientation pair should be R0-R180 or
              MX-MY.  mirror  means the objects are mirrored in checked direc-
              tion.

       -name rule_name
              Specifies the name of the spacing  floorplan  rule.  This  is  a
              mandatory option.

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-min_parallel_run_length distance

Specifies the minimum overlap length of two "to" objects or to library cells kept side-by-side. This is an optional option.

-max_parallel_run_length distance

Specifies the maximum overlap length of two "to" objects or to library cells kept side-by-side. This is an optional option.

-follow_rotations

Specifies whether mentioned sides should follow the rotations of library cells, that is, if meaning of horizontal or vertical should change when library cell has a 90-degree rotations. This option must be used together with -to_lib_cells or -from_lib_cells or -to_object_types hard_macro or -to_object_types soft_macro or -from_object_types hard_macro or -from_object_types soft_macro. This is an optional option.

-ignore_rotate90

Specifies whether this rule can be ignored for library cells with a 90-degree rotation. This option must be used together with -to_lib_cells or -from_lib_cells or -to_object_types hard_macro or -to_object_types soft_macro or -from_object_types hard_macro or -from_object_types soft_macro. This is an optional option.

-no_overlap

Specifies whether the shapes can overlap. By default the shapes can overlap. This is an optional option and mutually exclusive with -no_overlap_policy.

-no_overlap_policy no_overlap_policy_type

Specifies whether the shapes can overlap or not or internal shapes need to be excluded. By default, the shapes can overlap. This is an optional option and mutually exclusive with -no_over-lap.

-identical

Specifies whether this rule applies to hard macros of same ref-erence. This is an optional option.

-mirror

Specifies whether this rule applies when hard macros face each other mirrored. This is an optional option.

-from_layers from_layer_list

Specifies the routing layers to be considered for -from_object_types routing_blockage or -from_object_types shape. This option must be used along with -from_object_types rout-ing_blockage or -from_object_types shape. This is an optional option.

-to_layers to_layer_list

Specifies the routing layers to be considered for -to_object_types routing_blockage or -to_object_types shape object types. This option must be used along with -to_object_types routing_blockage or -to_object_types shape. This is an optional option.

-check_same_object

Specifies whether this rule checks the spacing between edges of same objects. This option must be used along with -from_object_types std_cell_area or boundary_cell_region and -to_object_types std_cell_area or boundary_cell_region. This is an optional option and mutually exclusive with -check_same_object_policy.

-check_same_object_policy check_same_object_policy_type

Specifies whether this rule will check the inside or outside spacing between edges of same objects. This option must be used along with -from_object_types std_cell_area or boundary_cell_region and -to_object_types std_cell_area or boundary_cell_region. This is an optional option and mutually exclusive with -check_same_object.

-forbidden_list distance_list

Specifies a list of distances that are not allowed between "from" objects or "from" library cell and "to" object or "to" library cell. This option is mutually exclusive with -valid_list. Values specified cannot be negative. This is an optional option.

-forbidden_ranges {{low high} {low1 high1} ... }

Specifies a list of distance ranges that are not allowed between "from" objects or "from" library cell and "to" object or to library cell. The distance must not lie within any of low and high in the specified list of ranges. This option is mutually exclusive with -valid_ranges. Values specified cannot be negative. This is an optional option.

-max distance

Specifies the maximum distance between "from" object or "from" library cell and "to" object or "to" library cell. The distance cannot be greater than this value. The specified value cannot be negative. If -min is also specified then this value must be greater than the min value. This is an optional option.

-min distance

Specifies the minimum distance between "from" object or "from" library cell and "to" object or "to" library cell. The distance cannot be less than this value. The specified value cannot be negative. If -max is also specified then this value must be lesser than the max value. This is an optional option.

-offset distance

Specifies a parameter in distance calculation between "from" and "to" objects. This option must be used together with -step. This implies that the distance has to be an integer multiple of step value plus offset value. This option is mutually exclusive with -offset_ranges. Value specified cannot be negative.

-step distance

Specifies a parameter in distance calculation between "from" and "to" objects. This option must be used together with -offset. This implies that the distance has to be an integral multiple of step value plus offset value or distance has to be in range of an integral multiple of step value plus offset_ranges value. Value specified must be greater than zero. This is an optional option.

-valid_list distance_list

Specifies a list of legal separation distances between the "from" object or "from" library cell and "to" object or "to" library cell. This option is mutually exclusive with -forbidden_list. Values specified cannot be negative. This is an optional option.

-valid_ranges {{low high} {low1 high1} ... }

Specifies a list of distance ranges between with the "from" object or "from" library cell and "to" object or "to" library cell must be separated. The distance must lie within any of low and high in the specified list of ranges. This option is mutually exclusive with -forbidden_ranges. Values specified cannot be negative. This is an optional option.

-offset_ranges {{low high} {low1 high1} ... }

Specifies a list of distance ranges. This implies that the distance has to be in range of an integral multiple of step value plus offset_ranges value. Values specified can't be negative.

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               This option must be used along with -step.  This is an  optional
               option.

DESCRIPTION
       The  set_floorplan_spacing_rules command defines a named spacing floor-
       plan rule in the current design. The defined  rule  is  persistent.  If
       another  floorplan rule by the same name exists then the command errors
       out.

       There  is  a  difference  between  the  object   type   core_area   and
       std_cell_area.  The  core_area  object  type means core boundary region
       without cutting out any blockages and is typically applicable  for  top
       level  whereas  std_cell_area  object  type  means core boundary region
       after cutting out all blockages and is typically applicable  for  block
       level.

       If  a  spacing  rule  is defined for a library cell and another spacing
       rule is defined for a hard macro then the spacing rule defined for  the
       library  cell  takes  precedence over the spacing rule defined for hard
       macro when checks are done for that library cell.

       If the measured value falls inside valid range or is a  member  of  the
       valid  list  then  there is no violation given by check_floorplan_rules
       regardless of other constraints like min, max, and so on. If this  mea-
       sured value is outside valid range or list then a violation is reported
       if other constraints are specified and they are not met or if no  other
       constraints are specified.

EXAMPLES
       The  following example creates a spacing rule named s1 to check spacing
       between the standard cell area and the block boundary in  the  vertical
       direction, both top and bottom. The spacing must be at least 5.

         prompt> set_floorplan_spacing_rules -name s1 \
            -from_object_types std_cell_area -to_object_types block_boundary \
            -directions vertical -min 5

SEE ALSO
       set_floorplan_area_rules(2)
       set_floorplan_enclosure_rules(2)
       set_floorplan_extension_rules(2)
       set_floorplan_exception_rules(2)
       set_floorplan_forbidden_rules(2)
       set_floorplan_halo_rules(2)
       set_floorplan_length_rules(2)
       set_floorplan_width_rules(2)
       remove_floorplan_rules(2)
       report_floorplan_rules(2)

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