

```
1 icc2_shell> man set_floorplan_composite_spacing_rules
```

## 2. Synopsys Commands

Command Reference

### set\_floorplan\_composite\_spacing\_rules

#### NAME

set\_floorplan\_composite\_spacing\_rules

Defines a composite spacing floorplan rule in the **design**.

#### SYNTAX

```
status set_floorplan_composite_spacing_rules
      -from object_and_lib_cell_list
      -to object_and_lib_cell_list
      -extension_from element index direction distance value_list
      -extension_to element index direction distance value_list
      [-extension_from direction distance value_list]
      [-extension_to direction distance value_list]
      -directions direction_list
      [-min_parallel_run_length distance]
      [-max_parallel_run_length distance]
      -name rule_name
      [-forbidden_list distance_list]
      [-forbidden_ranges range]
      [-max distance]
      [-min distance]
      [-offset distance]
      [-step distance]
      [-valid_list distance_list]
      [-valid_ranges range]
```

#### Data Types

object_and_lib_cell_list	list
index_direction_distance_value_list	list
direction_distance_value_list	list
direction_list	list
distance	float
rule_name	<b>string</b>
distance_list	list
range	float

#### ARGUMENTS

```
-from object_and_lib_cell_list
    Specifies the list of "from" object types or lib_cells for the
    composite spacing floorplan rule. These object types or
    lib_cells can be merged. Spacing between these type and other
    objects or lib_cells specified with -to are checked after merg-
    ing. Valid object types values for this option are hard_macro
    and std_cell_area. You must give 'lib_cell' keyword before men-
    tioning lib_cells name.

-to object_and_lib_cell_list
    Specifies the list of "to" object types or lib_cells for the
    composite spacing floorplan rule. These object types or
    lib_cells can be merged. Spacing between these type and other
    objects / lib_cells specified with -from are checked after merg-
    ing. Valid object types values for this option are hard_macro
    and std_cell_area. You must give 'lib_cell' keyword before men-
    tioning lib_cells name.

-extension_from element index direction distance value_list
    Specifies the list of "element_extension" for example, "index
    direction distance" as one value of the list. Index refers
    object type or lib_cells specified in -from. Here direction and
    distance specify that in which direction and by what distance
    object or lib_cells can be extended for merging.

-extension_to element index direction distance value_list
    Specifies the list of "element_extension" for example, "index
    direction distance" as one value of the list. Index refers
```

```

70         object type or lib_cells specified in -to. Here direction and
71         distance specify that in which direction and by what distance
72         object or lib_cells can be extended for merging.
73
74     -extension_from direction_distance_value_list
75         Specifies the list of "direction_extension" for example, "direc-
76         tion distance" as one value of the list. Here direction and
77         distance specify that in which direction and by what distance
78         merged object (specified in -from) can be extended.
79
80     -extension_to direction_distance_value_list
81         Specifies the list of "direction_extension" for example, "direc-
82         tion distance" as one value of the list. Here direction and
83         distance specify that in which direction and by what distance
84         merged object (specified in -to) can be extended.
85
86     -directions direction_list
87         Specifies the sides or directions in which spacing between
88         "from" object or from library cells and "to" object or to
89         library cells needs to be checked. Valid values are any, hori-
90         zontal, vertical, left, right, bottom, top, nearest_corners and
91         corner. The horizontal argument includes both left and right.
92         Similarly, the vertical argument includes both bottom and top.
93         This is a mandatory option.
94
95     -min_parallel_run_length distance
96         Specifies the minimum overlap length of two "to" objects or to
97         library cells kept side-by-side. This is an optional option.
98         This option is mutually exclusive with -directions corner.
99
100     -max_parallel_run_length distance
101         Specifies the maximum overlap length of two "to" objects or to
102         library cells kept side-by-side. This is an optional option.
103         This option is mutually exclusive with -directions corner.
104
105     -name rule_name
106         Specifies the name of the spacing floorplan rule. This is a
107         mandatory option.
108
109     -forbidden_list distance_list
110         Specifies a list of distances that are not allowed between
111         "from" objects or "from" library cell and "to" object or "to"
112         library cell. This option is mutually exclusive with
113         -valid_list. Values specified cannot be negative. This is an
114         optional option.
115
116     -forbidden_ranges range
117         Specifies a list of distance ranges that are not allowed between
118         "from" objects or "from" library cell and "to" object or to
119         library cell. The format for range is {{low1 high1} {2
120         high2}...}. The distance must not lie within low and high that
121         are specified in the list of ranges. This option is mutually
122         exclusive with -valid_ranges. Values specified cannot be nega-
123         tive. This is an optional option.
124
125     -max distance
126         Specifies the maximum distance between "from" object or "from"
127         library cell and "to" object or "to" library cell. The distance
128         cannot be greater than this value. The specified value cannot be
129         negative. If -min is also specified then this value must be
130         greater than the specified minimum value. This is an optional
131         option.
132
133     -min distance
134         Specifies the minimum distance between "from" object or "from"
135         library cell and "to" object or "to" library cell. The distance
136         cannot be less than this value. The specified value cannot be
137         negative. If -max is also specified then this value must be
138         lesser than the specified maximum 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 distance specified in -step option plus distance specified in -offset option. Value specified cannot be negative. This is an optional option.

-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 **integer** multiple of distance specified in -step option plus distance specified in -offset option. 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 range  
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 format for range is {{low1 high1} {2 high2}}...}. The distance must lie within any of low and high that are specified in the list of ranges. This option is mutually exclusive with -forbidden\_ranges. Values specified cannot be negative. This is an optional option.

#### DESCRIPTION

The set\_floorplan\_composite\_spacing\_rules command defines a named composite spacing floorplan rule in the current **design**. The defined rule is persistent. If another floorplan rule by the same name exists then the command errors out.

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 measured 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 composite spacing rule named cs1 to check spacing between the merged **cell** from standard **cell** area and lib\_cells M1, M2 with merged **cell** from standard **cell** area, hard macro and lib\_cell xyz. standard **cell** area specified in -from can be extended in bottom by value 1.1 and in horizontal by 0.23 while lib\_cell abc can be extended to left by 0.43 for merging.

standard **cell** area specified in -to can be extended to top direction by 2.1, hard macro can be extended to right by 0.9 and lib\_cell xyz can be extended to top by 0.88 for merging.

```
prompt> set_floorplan_composite_spacing_rules -name cs1 \
-from {std_cell_area {lib_cell M1 M2}} \
-to {std_cell_area hard_macro {lib_cell xyz}} \
-extension_from element {{0 bottom 1.1} {0 horizontal 0.23} {1 left 0.43}} \
-extension_to element {{0 top 2.1} {1 right 0.9} {2 top 0.88}} \
-max_parallel_run_length -6 -directions vertical
```

#### SEE ALSO

set\_floorplan\_spacing\_rules(2)  
set\_floorplan\_enclosure\_rules(2)

```
208         set_floorplan_extension_rules(2)
209         set_floorplan_exception_rules(2)
210         set_floorplan_forbidden_rules(2)
211         set_floorplan_halo_rules(2)
212         set_floorplan_length_rules(2)
213         set_floorplan_width_rules(2)
214         remove_floorplan_rules(2)
215         report_floorplan_rules(2)
216
217                                     Version S-2021.06-SP5
218         Copyright (c) 2022 Synopsys, Inc. All rights reserved.
219 icc2_shell>
220
```