OpenPCells

Technical Documentation and Implementation Notes

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1 Technology Mapping

Mapping from generic cell descriptions to technology-specific data has to perform several steps:

- resolve relative metal numbering
- split up via stacks
- translate via rectangles to via arrays
- map all remaining layers [1]

Figure 1 shows the technology translation from generic to specific cells. This example technology has 7 metal layers, therefor ”M-2” points to ”M6”.

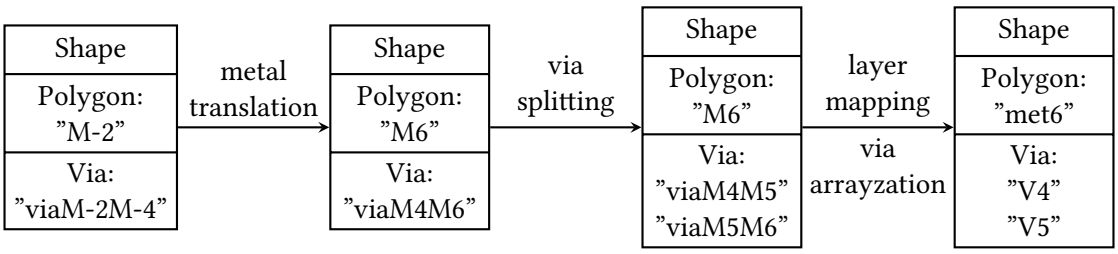

Figure 1: Technology translation

[1] The via translation already generates technology-specific layers.

1.1 Metal Numbering

For some cells like inductors it is customary to specify things like *last metal* or a metal relative to another. This has to be resolved for further processing, which is done in this step. Currently, only negative numbers (such as ”M-1”) are being processed into something like ”M8” (depending on the total number of metals in the technology).

1.2 Via Splitting

It is allowed the create via stacks, that is vias with non-adjacent metals. These have to split up into several shapes before via arrayzation.

1.3 Via Arrayzation

Via geometries can’t be inside generic PCells, since these vary from technology to technology. For this reason, only rectangular areas where vias are to be placed in a cell are specified. The technology translation then must create the actual via shapes, as shown in figure 2.

1.4 Layer Mapping

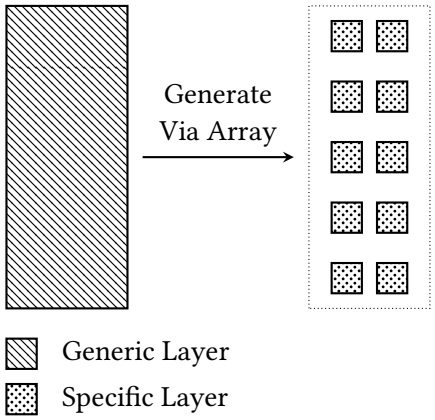

Figure 2: Example of via arrayzation