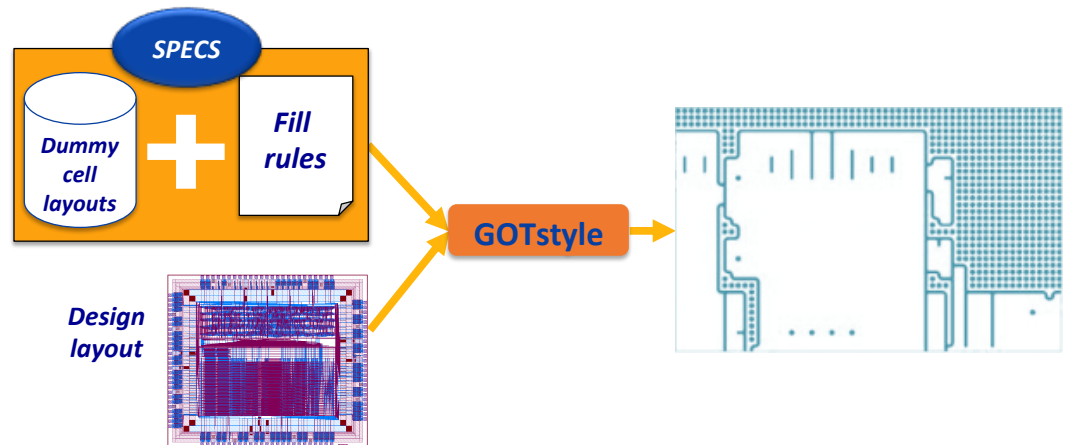


# From Specs to Masks...

## High Performance Dummy Fill GOTstyle

- Patented advanced insertion algorithm
- Optimal result file size
- Parasitic effect minimization
- Support for advanced nodes
- Complex dummy tiles instantiations
- Tile interconnection
- Multi-pass insertion for complex fill operation
- High performance parallelization



### OPTIMIZATION

Minimizes file size and run time. A parallel mode dramatically speeds up calculation while reducing memory usage.

### FLEXIBILITY

Advanced features support process and design-based constraints and optimize fill for all designs.

### VERIFICATION

Inserted dummies placement is correct by construction and follows DRC rules.

### CUSTOMIZATION

Adapts user experience to fit existing customer flows with minimum disruption and maximum efficiency.

Advanced manufacturing, packaging, and inspection technologies - 3D-IC, Stitching, MPWs, PCMs, Multi-Patterning, density management... - create disruptions, bottlenecks, and inefficiencies in existing Mask Data Preparation flows, highlighting the need for innovative solutions automating processes **from specs to masks**.

XYALIS transforms Mask Data Preparation with end-to-end automation and reduces engineering time by up to 40-70% while improving quality and cutting silicon usage by 10-15%.

*"XYALIS customizable solution addressed bottlenecks and inefficiencies in our existing MDP flow with their specialized engines and domain expertise".*

Density management has become critical for yield improvement. Dummy tiles must be inserted in low-density design areas to help flatten the surface of each layer before Chemical Mechanical Polishing (CMP) or to avoid micro-loading effects, for example.

These additional polygons, though electrically inactive, may cause parasitic effects that must be minimized and taken into account early in the design process to avoid behavioral and timing issues.

**GOTstyle** fill engine optimizes new fill methodologies required for the most advanced processes, including dual- and quad- patterning.

**GOTstyle** maximizes yield with a highly accurate patented fill insertion algorithm based on local density and roughness calculations and their variations over large areas.

**GOTstyle** minimizes parasitic effects by limiting the number of dummy structures and positioning them away from active geometries. Balancing dummy tile insertion around critical nets allows for precise control of impact on timing.

# Features and Benefits

## ESSENTIAL COMPANION TOOLBOX

Set of layout processing tools provides a safe transfer to silicon for the most complex SOC designs.

## STANDARDS SUPPORT

XYALIS Mask Data Preparation solution supports standard layout and job deck formats: GDSII, OASIS®, OASIS.MASK, MALY, MEBES.

## SYSTEM REQUIREMENTS

Runs on any Linux workstation with RedHat 7 to 9. Management of multi-core is automatic.

### PATENTED ADVANCED INSERTION ALGORITHM

GOTstyle patented insertion algorithm combines global topology requirements with local design rules to instantiate dummy tiles. A topology analyzer computes local density and roughness while a gradient analyzer minimizes local variations that negatively impact yield, taking into account scribe density at the edge of the chip.

### OPTIMAL RESULT FILE SIZE

GOTstyle inserts a minimum number of tiles and leverages GDSII and OASIS® constructs to avoid database size explosion of the generated, DRC-compliant by construction result file.

### PARASITIC EFFECT MINIMIZATION

Advanced features such as the patented Keep Away function that increases space between inserted dummy tiles and critical nets and non orthogonal insertion grid for better net balancing minimize parasitics generated by dummy fill and avoid parasitics variations along the design grid.

### SUPPORT FOR ADVANCED NODES

GOTstyle grid-based insertion combined with adjustable alignment grids and automatic cuts of dummy lines enables horizontal and vertical alignment of dummies and slots for simpler mask manufacturing in case of dual- and quad-patterning.

### COMPLEX DUMMY TILES INSTANTIATION

GOTstyle inserts any type of dummy tiles, whatever their complexity: full-layers, regular tiles, post-OPC cells, diodes for grounding to bulk. To better control density over the different areas of the design, the insertion algorithm computes the optimum tile size and merges dummy tiles into larger blocks if necessary.

### TILE INTERCONNECTION

GOTstyle offers the possibility to replace floating capacitance of disconnected dummy tiles with efficient shielding by inserting interconnection cells between contiguous dummy tiles. Interconnection cells may be defined horizontally and vertically, making it possible to stack dummy tiles through layers and to build dummy stripes within a layer.

### MULTI-PASS INSERTION FOR COMPLEX FILL OPERATION & HIGH PERFORMANCE PARALLELIZATION

By staging dependencies between different layer fill operations GOTstyle handles complex dummy fill insertion with reduced computing and memory footprints. Staged multi-pass insertion is also used to distribute multi-layer fill across many cores in order to dramatically speed up processing.

#### EUROPE

Headquarters  
+33 458 00 31 02  
[sales.france@xyalis.com](mailto:sales.france@xyalis.com)

#### AMERICAS

US Office  
+1 408 313 8433  
[sales.usa@xyalis.com](mailto:sales.usa@xyalis.com)

#### JAPAN

JEDAT Inc.  
+81-3-6262-8400  
[sales@jedat.co.jp](mailto:sales@jedat.co.jp)

#### SOUTH KOREA

TechSquare Co., Ltd  
+82-70-8229-1750  
[sales@techsquare.co.kr](mailto:sales@techsquare.co.kr)

#### ASEAN - CHINA

Advinno Technologies Pte Ltd  
+65 6777 2240  
[info@advinnno.com](mailto:info@advinnno.com)

