

From Specs to Masks...

Automated Multi-Chip Assembly GOTmuch

AUTOMATION

Intuitive workbench and powerful placement engines cut multi-chip assembly from days to hours.

OPTIMIZATION

Increases silicon usage and chip deliveries with production aware placement.

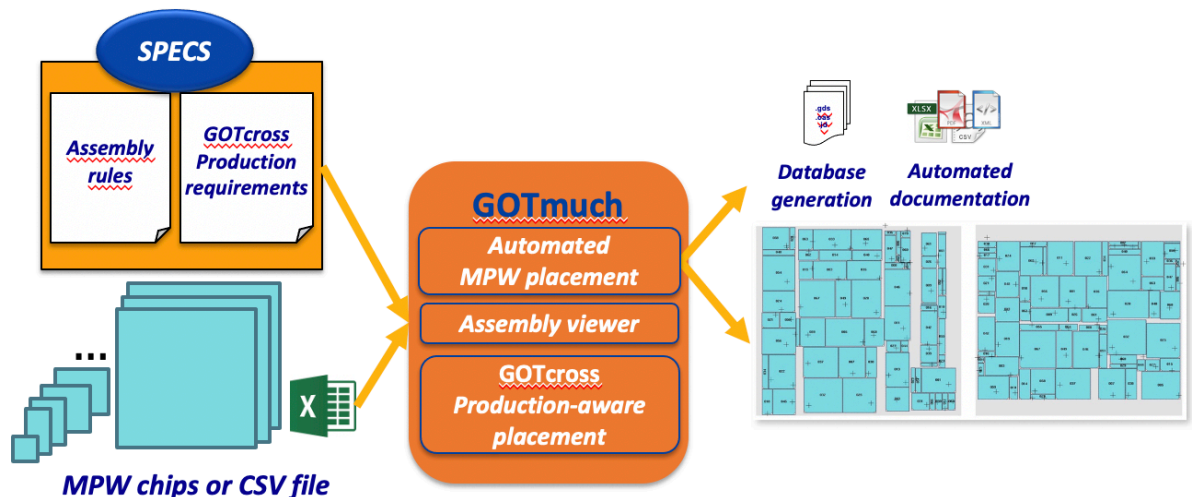
VERIFICATION

Multi-chip assembly meets design rules by construction and manual modifications are checked against assembly rules.

CUSTOMIZATION

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

- Intuitive assembly design environment
- Automated multi-chip assembly placement
- Optimized customer deliveries
- Production-aware placement engine
- Automatic dummy fill insertion
- Mask manufacturability verification
- Automatic documentation generation
- Customizable with Python API and SQL support



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".

Multi-chip assemblies, also known as Multi-Project Wafers or shuttles, are becoming more prevalent in order to share mask costs between projects, and are used for test chips, prototypes, or low production chips.

GOTmuch is a powerful workbench for creating multi-chip assemblies, increasing productivity and eliminating the risk of errors by automating all the steps of the process: input integrity checking, automated placement, assembly-wide dummy fill insertion, and assembly layout database generation.

GOTcross, an optional advanced placement engine considers production requirements (deliverability, packaging, production outcome) and optimizes the placement solution.

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.



Features and Benefits

INTUITIVE ASSEMBLY DESIGN ENVIRONMENT

The intuitive customizable graphical environment can be used to quickly build multi-chip assemblies with manual or automatic placement. It is also the cockpit of XYALIS Mask Data Preparation solution, from where users can launch the different engines necessary to build mask sets and visualize the results.

AUTOMATED MULTI-CHIP ASSEMBLY PLACEMENT

An automated placement engine builds in seconds an assembly optimized for area, optionally placing chips according to user defined properties, such as packaging type, design team, end-customer, etc...

OPTIMIZED CUSTOMER DELIVERIES

GOTmuch placement engine places chips sharing the same criteria so that they can be retrieved independently after manufacturing.

PRODUCTION-AWARE PLACEMENT ENGINE

GOTcross, an optional advanced placement engine considers packaging requirements (saw line width, guard rings...) as well as expected chip production outputs to drive placement. Users control optimization criteria by weighing area minimization, the number of cut sets, and optimized customer deliveries.

AUTOMATIC DUMMY FILL INSERTION

To increase manufacturing yield, GOTmuch inserts dummy tiles or full layer structures in empty areas of the assembly to help reduce density variations.

MASK MANUFACTURABILITY VERIFICATION

A design database integrity checker combined with an assembly rule checker warrant that the generated assembly is error-free. Special checks are carried out to ensure that the final mask set database can be handled with no problem by any mask shop, manufacturing, and inspections teams.

AUTOMATIC DOCUMENTATION GENERATION

User documentation, generated by the click of a button, is fully customizable for use by mask shops, manufacturing, and inspection teams.

CUSTOMIZABLE WITH PYTHON API AND SQL SUPPORT

XYALIS MDP solution is fully scriptable, with Tcl/Tk or Python API, and includes a built-in SQL connector to any DB, for easy inclusion in any existing customer flow.

GOT ENGINE

Handles the largest designs with maximum performance and minimum memory requirements thanks to the GDS & OASIS (GOT) data representation engine, tailored to leverage native OASIS.MASK optimizations.

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