From Specs to Masks…

Layout Processing Tools

- Layout integrity check
- Mask manufacturability verification
- Layout database merging
- Boolean operations

- Layout database viewer
- Layer conversion
- Cell location, extraction, and replacement
- Label and barcode creation

OPTIMIZATION

Layout processing tools increase the productivity of last minute ECOs before hand-off to the mask shop.

INTEGRATION

Working off on industry standards, XYALIS layout manipulation tools are easy to integrate in existing flows.

VERIFICATION

Checks performed at each step of the Mask Data Preparation flow ensure error free database and mask order form.

CUSTOMIZATION

Adapts user experience to fit existing customer flows with minimum disruption and maximum efficiency.
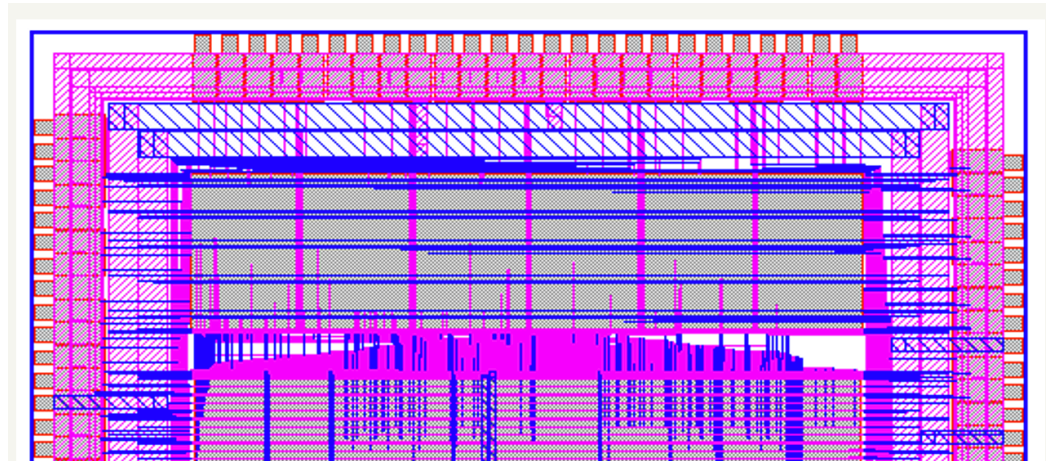
Advanced manufacturing, packaging, and inspection technologies - 3D-IC, Stitching, MPWs, PCMs, Multi-Patterning, density management… - create disruptions, bottlenecks, and inefficiencies in existing Mask Data Preparation flows, highlighting the need for innovative solutions automating processes **from 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".

XYALIS offers a software suite dedicated to the processing and update of large layout databases, such as consistency and integrity checking, database merging, boolean operations, format translation, layout viewing, cell replacement, and layer conversion.

XYALIS layout processing suite processes even the largest GDSII or OASIS® files with the highest computing speed and the lowest memory requirements, and provides a safe transfer to silicon for the most complex SOC designs. It is recommended in every tape-out sign-off flow.

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Features and Benefits

LAYOUT INTEGRITY CHECKING

GOTcheck performs critical input control during tape-out sign-off. It flags missing cells, multiple cell definitions, multiple top-cells, corrupted databases, and non-standard GDSII, OASIS®, and MEBES constructs, so design and mask data preparation engineers can identify problems early in the flow, before they become catastrophic failures.
GOTcheck also extracts information from layout files: layers, cells, bounding boxes for automatic post-processing.

MASK MANUFACTURABILITY VERIFICATION

GOTcheck identifies problematic geometries, such as non-manufacturable angles, reentrant polygons, folded paths, etc… before hand-off to the mask shop. It is fast enough to be incorporated in any design and mask data preparation flow.

LAYOUT DATABASE MERGING

During design and mask data preparation it is necessary to merge layout databases: chip layout with dummy fill layout, array of chips with manufacturing items, multi-chip assemblies… GOTmerge combines GDSII and OASIS® layout files into a single database, applying geometric transformations, consolidating units, and resolving name conflicts.

BOOLEAN OPERATIONS

GOTpop clips, resizes, and performs boolean operations on any two layout database, independent of format.

LAYOUT DATABASE VIEWING

Interactive GOTviewer enables design and process engineers to view, share, and annotate the largest GDSII, OASIS® or MEBES files.
GOTfig captures instant snapshots of any portion of an optimized OASIS.MASK or MEBES / JobDeck database.
GOTmap is a web-based viewing tool that instantly renders huge OASIS.MASK or MEBES databases in any modern web browser, enabling navigation, layer selection and measures.

LAYER CONVERSION

GOTlayer enables the conversion of layers and polygons in a GDSII or OASIS® file. It translates the elements of a GDSII or OASIS® file from a layer to another, removes all geometries in a layer or set of layers, and flattens a database.

CELL LOCATION, EXTRACTION, AND REPLACEMENT

GOTlocate extracts the location of cells, labels, and polygons in layouts while GOTreplace extracts any cell and its full hierarchy from a GDSII or OASIS® file and optionally replaces it with another cell. All calls to the old cell are deleted or replaced with calls to the new cell. GOTreplace can be used to update a multi-chip assembly or to rebuild ROM code.

LABEL AND BARCODE CREATION

GOTlabel automates the creation of chip and photomask labels and barcodes used to build frames and mask sets. They are fully SEMI compliant, and work directly with any writing or inspection equipment.

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