IC Layout finishing software

Layout Manipulation Toolbox

SECURITY

Checks are performed at each step of the mask data preparation flow ensuring error free database and mask order.

RELIABILITY

XYALIS layout manipulation tools have been used in production by leading edge foundries for many years.

AUTOMATION

XYALIS layout manipulation toolbox is fully integrated in XYALIS Mask Data Preparation solution and can be scripted to run smoothly without human intervention in production mode.

PORTABILITY

XYALIS layout manipulation tools support standard layout and job deck formats: GDSII, OASIS, MEBES.

- Layout database integrity checking
- Layout database merging
- Layout database viewing
- Layer conversion
- Mask manufacturability verification
- Cell extraction and replacement
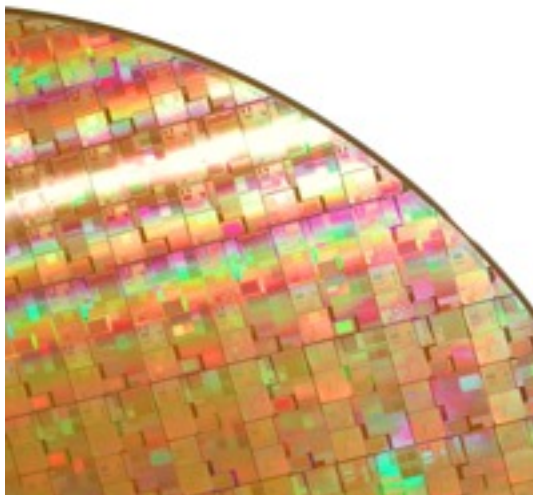- Label and barcode creation
- Watermark and checksum

As the cost of a complete mask set has dramatically increased and now represents a significant part of the overall project cost, it is critical for design teams, mask data preparation teams, and mask shops to implement a robust and repeatable Mask Data Preparation flow, which increases the productivity of the mask set creation and removes any risk of error.

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

XYALIS layout manipulation suite can process even the largest GDSII or OASIS database with the highest processing speed available and provides a safe transfer to silicon for most complex SOC designs, recommended in every tape-out sign-off flow.

XYALIS

Features and Benefits

- **Layout database integrity checking**
  XYALIS GTcheck performs critical input control during tape-out sign-off: flagging missing cells, multiple cell definitions, multiple top-cells, and corrupted databases. The tool also verifies non-standard GDSII, OASIS, and MEBES constructs and flags geometries that can create problems during mask manufacturing. XYALIS GTcheck extracts from the layout database important information such as its size and the list of cells and layers. With XYALIS GTcheck design and mask data preparation teams can identify problems early that would cause failure later in the flow.

- **Layout database merging**
  During Mask Data Preparation it is often important to merge layout databases: chip layout with dummy fill layout, array of chips with manufacturing items, multi-chip assemblies. The databases from different sources may have conflicting names and units. XYALIS GTmerge merges GDSII and OASIS layout files into a single layout file, applying geometric transformations, unifying units, and solving naming conflicts.

- **Layout database viewing**
  XYALIS GTviewer enables design and process engineers to view the largest GDSII, OASIS or MEBES files in two modes. The top view allows designers to review their design while the vertical cut view allows process engineers to verify the database. Available in client / server mode XYALIS GTviewer can be used to exchange information and interactively share data between members of the team.

- **Layer conversion**
  XYALIS GTlayer 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 extraction and replacement**
  XYALIS GTreplace 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. XYALIS GTreplace can be used to update a multi-chip assembly or to rebuild a ROM code.

- **Label and barcode creation**
  XYALIS GTlabel automates the creation of chip and photomask labels and barcodes used to build frames and mask sets.

- **Database Watermark**
  XYALIS GTwatermark is able to add a hidden encrypted signature or checksum to a GDSII or OASIS database. It's your insurance against any unknown modification.