ISIPP50G Changelog

Version 2.3.0

Layout

- Add CAD layer (MH_DRW) and DRC rules for the Metal Heater module, newly available in ISIPP50G.
- Remove outdated bias table.
- Fix OPT_DUM.spacing rule.

Library

- Add more statistical data about phase shifter diodes and MZM.
- Add PSDOTE_SKNLA_500 phase shifter diode.
- Fix the 50Ohms resistor cell (changing dimensions).
- Add new ring modulator cells RMCTE_SKPNLA_5000_500_160 and RMOTE_SKPNLA_5000_450_140 as grey cells. The resonance peak positions can be adjusted thanks to the integrated metal heater.
- Remove ring modulator cells RMCTE_SKPNLA_5000_500_150 and RMOTE_SKPNLA_7500_450_140.
- Remove DOC layer from template cells.

Technology

- Add description for the Metal Heater module, newly available in ISIPP50G.
- Update statistical values related to patterning for FEOL and N/P implants.

Version 2.2.2

Layout

- Add instructions regarding PDK cells usage.

Version 2.2.1

Library

- Fix minor typos in Library Handbook.

Layout

Technology

- Fix minor typos in Technology Handbook.

Version 2.2.0

Library

Update the handbook with the latest information on devices.

Layout

- The driver file for the DRC deck can now be used without modification by setting environment variables.
- Remove the FC_HOL.I.FC_COR rule.
- Add the WG_CLD.E.TRENCH rule.
- Add advice in the handbook about contacts layout.

Technology

Update the handbook with the latest information on process parameters.

Version 2.1.2

Library

Update of the footprint of the GSL photodetectors (Ge and SiGe flavours) and of the EAM.

Version 2.1.1

Library

Layout

- DRC deck: force Calibre to emit errors instead of warning for malformed GDSII.
- Add PASS1.O.M2 rule.

Technology

Version 2.1.0

Version number jump to align it with imec internal scheme.

Library

- The Ge L-band EAM device is not available anymore. It has been replaced by a SiGe based C-band EAM. A photodetector optimized for the C-band is also available with the SiGe process.
- Anode and cathode of ring modulators have been inverted (vs version 1.0.1)

Layout

- Minor DRC corrections

Technology

- A new SiGe EAM process option replace the Ge EAM process option.

Version 1.0.1

Library

With this new PDK release, Imec's silicon photonics technology is making a significant step forward to support component's performance for 50Gb/s operation.

At the same time there has been a change in the overall process integration to support faster turn-around time in the future with maintained quality. While performance matching with the older process has been demonstrated, there is less historical data based on the upgraded flow. Therefore less statistical information is available compared to the previous version of the PDK although process control is expected as good or better.

The content of the library has been entirely reviewed and deprecated devices removed. New devices have also been added, most notably 50Gb/s Electro-Absorption Modulator (EAM), Mach-Zender modulators (MZM) and ring modulators plus silica based edge couplers.

For details see the Library handbook.

Technology

The different options available in ISIPP25G have been consolidated in one process flow and now only one choice needs to be made by a user: process optimized for best performance Ge photodetectors or Ge EAM.

Moving to 50Gb/s modulators has meant moving away from the implant conditions from ISIPP25G. There are now implants conditions optimized for 50Gb/s MZM (N1/P1) and higher implants conditions optimized for 50Gb/s ring modulators (N2/P2). Both are available at the same time to a designer.

Another new module (EXPO) has been introduced for the silica based edge couplers from the library.

For details see the Technology Handbook.

Layout

The CAD layers have been expanded for more flexibility and the DRC deck reviewed.

Designers have now the possibility to provide placement hints for dummies applied to all the optical waveguide layers (WG, FC, SKT and FCW).

For details see the Layout Handbook.