Libre Silicon

Hagen SANKOWSKI

Chipforge

hsank@nospam.chipforge.org

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Current Situation

What is bad..

Image you like to manufacture your own Chip.

- You're going to a Foundry,
- signing at least 3 NDAs (Non-disclosure Agreements), one for the Process Kit, one for the Standard Cell Libary and one for Purchase details,
- invest a lot of money for the Layout development and the Mask Set,
- and have some reasons to change the Foundry Service..

You're f*cked

Reasons are

- the technology is completely different,
- the Standard Cells are mostly different,
- the mask the does not leave the foundry,
- and even do not match another technology in another foundry.
- Well, you've burned the costs for layout and mask set.

What to do??

Make your self independend

- design a open and free process.
- You can help if you like :-)

What happens so far?

2017

- David Lanzendörfer opens a possibility to rent a Clean Room at Hong Kong University of Science and Technology,
- got some foundations,
- gave a Lightning Talk in Leipzig at the 34. Chaos Communication Congress.

2018

- We developed the first Version of our 1um Libre Silicon process.
- We are working on the Standard Cell Library.
- We already hold a Tool Chain Hackathon.
- We are layout a first Test Wafer for technology parameter measurement.
- Currently re-viewed the Test Wafer and compress them now for more Chips per Wafer.

Links:

- Process https://github.com/libresilicon/libresiliconprocess
- Test Wafer https://github.com/chipforge/PearlRiver
- Standard Cell Library https://github.com/chipforge/StdCellLib
- Tool Chain https://github.com/leviathanch/qtflow

What still left

To Do:

- Shrink PearlRiver Test Wafer
- Next Review before ordering the Masks
- Documentation about what and how we like to measure Parameters
- Transfer Parameters into Spice BSIM3v3 models
- Manufacture a couple of Wafers and doing Measurement at HKUST
- Process refinement
- Finish Standard Cells
- Install process Foundry for mass production
- Manufacture first Microcontroller Chip in 2019

Targets

License:

- Free and Open Source - while real Hardware GPL or BSD does not work.
- Others like CERN we already evaluated.
- We like that everybody can use the Process (even in your Basement),
- including Universities and real foundries.

Transfer-able

- Everybody should have the possibility to transfer own designs into other foundries.
- Foundries can compete in production cost and / or corporate.
- Usable for Education also, while even analog designs heavy depends on process parameters.

Contacts

Mumble:

- Every Sunday 21 p.m Hong Kong Time
- Server 109.109.202.102, Port 64738

Mailing List:

- https://list.o2s.ch/mailman/listinfo/libre-silicon-devel

Thanks!

Dziekuje!
Thank you very much!

once again:

- Mailing List https://list.o2s.ch/mailman/listinfo/libre-silicon-devel
- Process https://github.com/libresilicon/libresiliconprocess
- Test Wafer https://github.com/chipforge/PearlRiver
- Standard Cell Library https://github.com/chipforge/StdCellLib
- Layout Software https://github.com/leviathanch/qtflow

You can help :-)

The End