LibreSilicon - Bootstrap the Silicon Manufacture Process

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Current Situation

Current Situation

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..

Current Situation

.. you're lost

Current Situation

Reasons are:

- the technology is completely different,
- the Standard Cells are mostly different,
- the mask does not leave the foundry,
- nearly nothing 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 :-)

Libre Silicon

- is a free and open, community based Silicon Manufacturing Process, without NDAs.
- mainly Standard CMOS, plus bipolar, plus flash, plus other useful analog stuff.

Libre Silicon

What happens so far?

Libre Silicon

2017:

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

Libre Silicon

2018:

- We developed the first Version of our 1 micron Libre Silicon process.
- We are working on the Standard Cell Library.
- We already hold a Tool Chain Hackathon.
- We design a first Test Wafer for technology parameter measurement.
- We present our progress (and 1st Wafer) at the 35. Chaos Communication Congress in Leipzig.

Libre Silicon

2019:

- Currently we struggle through the Wafer processing, again and again.

Libre Silicon

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?

Targeting

- Documentation about what and how we like to measure Parameters
- Doing Measurement at HKUST
- Transfer Parameters into Spice BSIM3v3 models
- Finishing Standard Cells
- Manufacture first Chips ("555" and Microcontroller) this year
- Install our process at foreign Foundries for mass production

Targeting

License:

- Free and Open Source - while for 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.

Targeting

Being Transfer-able means:

- Everybody has the possibility to transfer own designs into other foundries.
- Setting Standards / Reference for Analog Designs (which heavily depends on process parameters).
- Feasible for Education purposes also, while LibreSilicon is NDA-free.
- Foundries can compete in production cost and / or corporate.

Contact us

Jour Fix

- Every Sunday at 21.00 Hong Kong Time (13.00 UTC)
- we meet us via Mumble at
- IP 109.109.202.102, Port 64738, Channel IC

Contact us

Join our Mailing List

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

Thanks!

Merci!
Thank you very much!

- 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