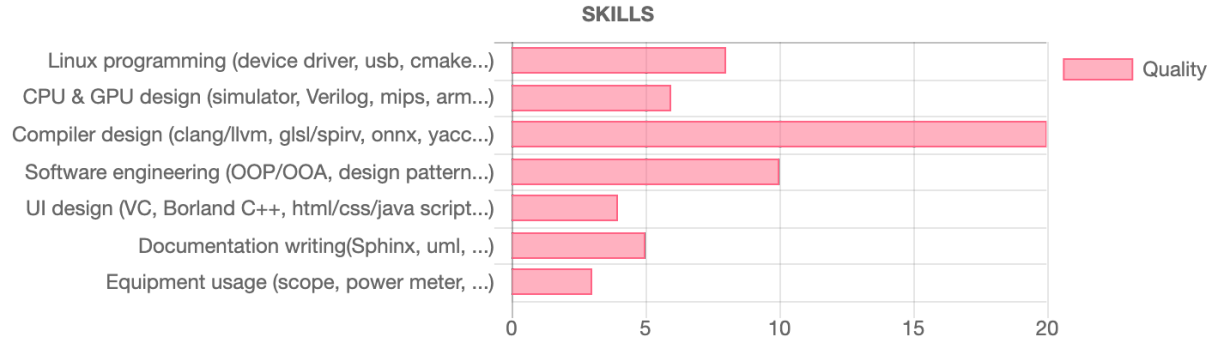
I am a compiler developer with good experience in llvm cpu and gpu backend, lld linker, npu/onnx, c++, OpenGl/glsl and simulator, ..., and enjoy with compiler.

RESUME

QUALIFICATION

Over 20 years experience in c/c++ programming, 9 years compiler toolchain related experience and research in parallel processing for master degree.



MY OPEN SOURCE PROJECT

I am proud of my work is accepted by LLVM documentation, appears at http://llvm.org/docs/tutorial/#external-tutorials

Tutorial: Create an LLVM Backend compiler http://jonathan2251.github.io/lbd/index.html

Tutorial: Create an LLVM Backend Toolchain http://jonathan2251.github.io/lbt/index.html

The concept of GPU compiler http://jonathan2251.github.io/lbd/gpu.html

EDUCATION

1997-1999 Master, June 1999, National Taiwan Normal University (國立台灣師範大學), Taipei, Major: Information Science.

1991-1994 B.S., June 1994, National Taiwan Technology University of Science and Technology (國立台灣科技大學), Taipei, Major: Industry Engineer.

LICENSE

Taiwan National Computer Engineer license, 1995 高考資訊技師及格.

EXPERIENCE

THESIS OF MASTER DEGREE

The Researches of Column Sort and Related Problems

Conference： Search "行排列法簡化步驟之研究" on above link

PROPOSAL OF PHD STUDY

The Researches of Sorting Network and Related Algorithm

OTHER WORK

Take course "Image processing" and program: Jpeg decoder

Web and javascript: As my resume and my personal web site

Graphivz: as some graph diagrams used in this CV. Source code: mywork_1.gv and study_and_apply.gv

ACHIEVEMENT

Biren

Gpu CodGen for tensor instructions and usharpid handling.

Gpu optimatization and bug fix.

Propose solution for paralel processiong of our Cude-like language async{...}.

Kneron

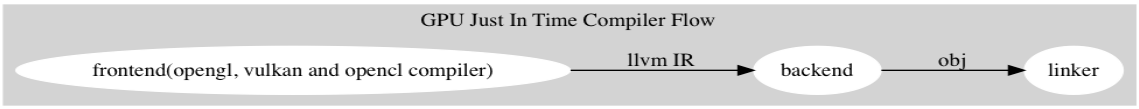
Re-implement top 2 layers of our npu compiler for our common graph data structure to handle onnx.

Implement compiler input interface to support encription-onnx and config file format.

Confirm solution for MLIR supporting.

Hisilcon

GPU compiler scope:



To support an our new designed GPU for cell phone, ported from ARM. 20% of frontend is changed, 50% of backend is changed in aspect of number of code lines.

My work:

Implement compiler (fontend + llvm backend) for 80% of texture related API, 80 APIs totally here , by myself alone and document writing.

Instruct and help other engineers for the other 20% of texture related API, review their implementation and co-work with the leader of texture part of architect.

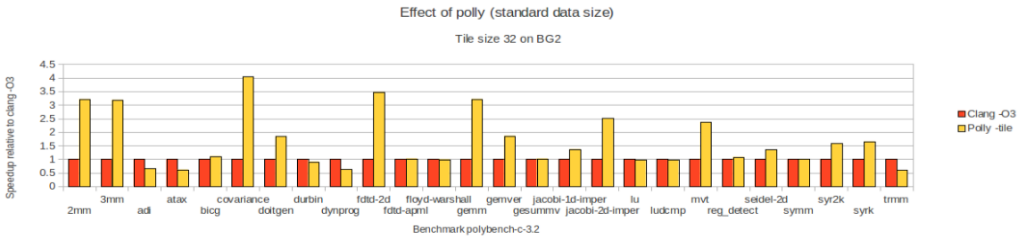
Implement Prefetch-Sample optimization for running 2D-sampling instructions by driver before load/run glsl shader.

Implement compiler supporting our GPU's load/store for RGBA fixed floating point format of vulkan (32, 16, 11, 10 and 2 bits; NaN Infinity) alone and document writing.

Marvell

Implement semi-auto software system of running benchmark and generating report for gcc toolchain.

Demonstrate polly and the concept of polyhedral optimization model for Marvell llvm and gcc toolchain optimization. Polly is a software for loop optimization.



Implement co-simulator for a few Marvell's ARM based 64-bit cpu.

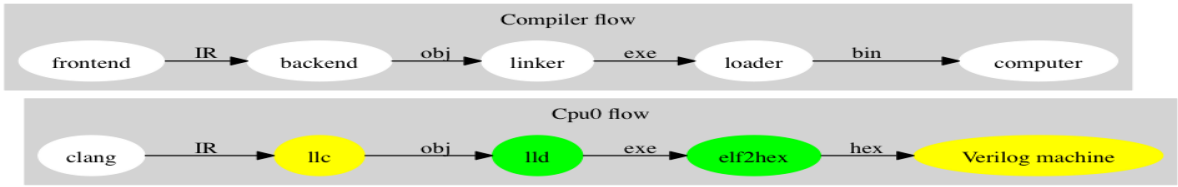
Propose and implement DSL on simulator to save tens of system verification in c++ coding.

Complete cmake to replace make for Csim.

Advantage: simpler and cross-os-platform than make.

LLVM open source project

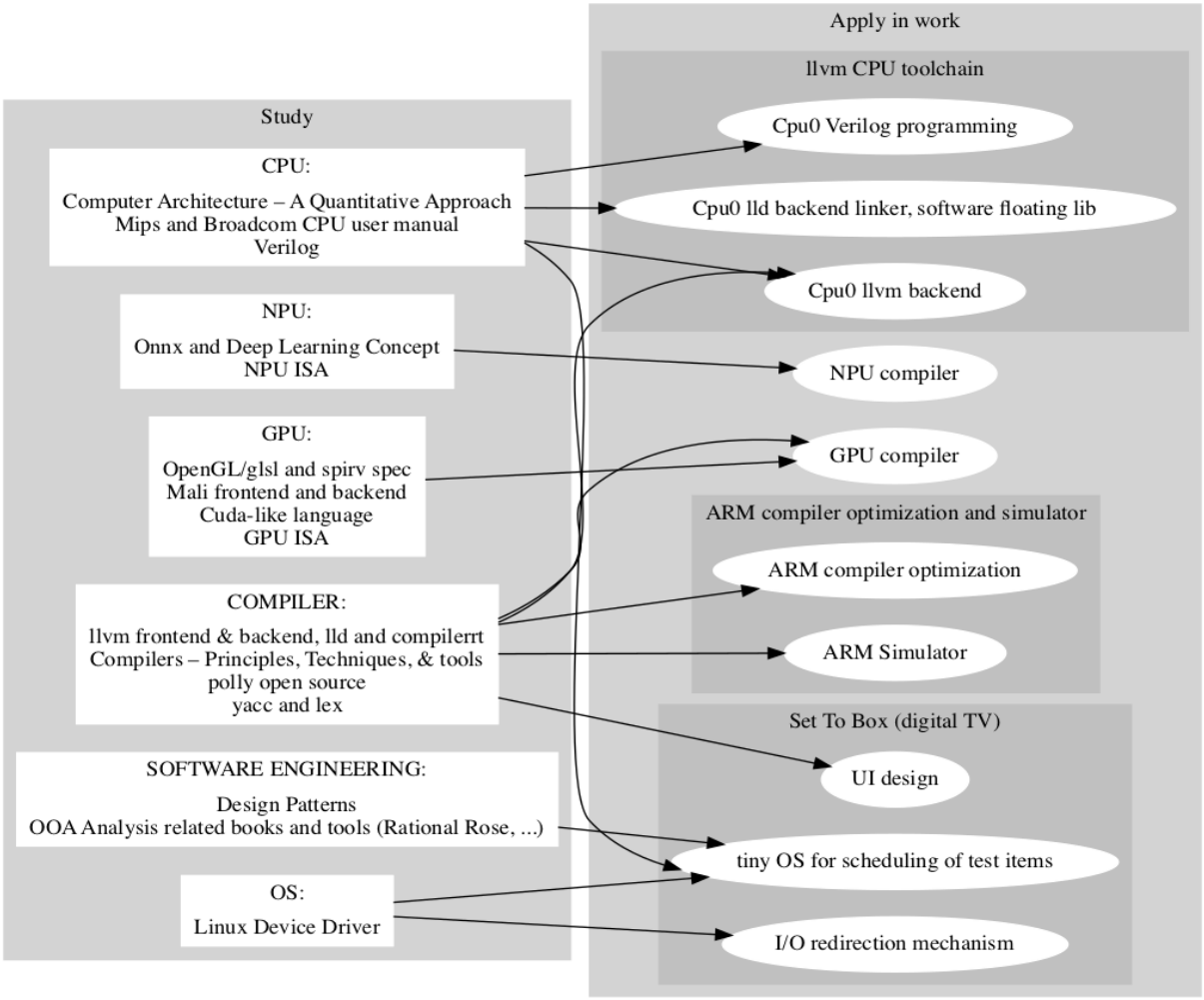
The lower half is the my llvm backend's work flow. Yellow and green parts are my implementation in my books.



Mortorola

Develop Set Top Box's software framework.

Learning after school & applying in work



References

My former manager's recommendation letter: https://jonathan2251.github.io/ws/en/RL_Marvell.pdf