

## SUMMARY

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A system software engineer respecting performance and efficiency are brought by seamless integration between software and hardware. 1+ years of experience in IC verification, platform performance enhancement and memory utilization reduction.

## PROFESSIONAL SKILLS

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- TODO

## PROFESSIONAL EXPERIENCE

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- **Airoha**

Hsinchu, Taiwan

Feb 2022 – Present

System Software Engineer @ Ethernet SoC team

- **FreeRTOS SDK Implementation:** Refine the GPIO and I2C driver, eliminating the database to reduce memory usage approximate 10%.
- **Linux SDK Implementation:** Integrated the I2C and GPIO driver with a standard Linux subsystem, enabling it to utilize Linux-provided APIs. Additionally, I implemented a kernel module ioctl interface to reduce the frequency of user space to kernel space transitions, enhancing the boot-up speed of the program within the SDK 40%.
- **SDK Integration:** Redesigned and consolidated multiple SDK architectures into a single repository for enhanced maintainability and reduced development complexity. Furthermore, I refine the Makefile and redesign the compilation procedure, improving the compilation speed about 7 times.
- **IC Verification:** Verify CPU peripherals, including I2C, GPIO, pinmux, CPU Bus.
- **Auto Test Development:** Verify CPU peripherals, including I2C, GPIO, pinmux, CPU Bus.
- **System Level Testing Software Development:** Verify CPU peripherals, including I2C, GPIO, pinmux, CPU Bus.

- **Side Projects**

Taipei, Taiwan

- **Vector ISA:** Research on conventional and modern vector architectures, including Cray vector supercomputers, RISC-V Vector Extension and ARM Scalable Vector Extension.
- **Vector Microarchitecture:** Design a Cray-like vector core and construct a performance model on it. Evaluate the impact of vector chaining on several processor configurations.
- **Code Optimization for Vector:** Research on effective code optimization techniques, such as loop transforms and instruction scheduling, on different vector core configurations.
- **Application Profiling and Performance Projection:** Extract vectorizable parts of program by using LLVM, including SPEC2017fp and Darknet, and give an estimated evaluation on our vector core.

- **Andes Technology Corporation**

Hsinchu, Taiwan

Jul 2018 – Aug 2018

Summer Intern @ RD/Architecture team

- **Branch Prediction Performance Modeling:** Collaborating with VLSI team, evaluate the impact of different branch prediction policies on the high-end Andes RISC-V processor.
- **Benchmark automatic flow development:** Develop an automatic benchmarking suite, including SPEC2006 and EEMBC, for performance analysis of Andes processors.

## EDUCATION

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- **National Cheng Kung University**

Master of Mechanical Engineering

Tainan, Taiwan

Sep. 2020 – Aug. 2022

- **National Central University**

Bachelor of Mechanical Engineering

Taoyuan, Taiwan

Sep. 2016 – Jun. 2020