MYUNG GUK LEE

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Portfolio : https://myung.onrender.com

WORK EXPERIENCE

Innophase • Irvine, CA **03/2023 - Present**

Staff Firmware Engineer

- Designed and implemented a UART-based daisy-chain communication system on Azure RTOS, enabling coordinated serial communication across up to N devices.
- Implemented a JSON decoder library with static memory allocation for memory-constrained embedded systems, ensuring predictable memory usage and validating reliability through unit testing.
- Developed an SPI/QSPI NOR flash device driver integrated with FileX/LevelX on Azure RTOS.
- Translated MATLAB-based Digital Pre-Distortion(DPD) algorithm into production C firmware on ARM Cortex-A microcontrollers under strict memory and timing constraints.
- Optimized DPD algorithm performance by 3x through ARM NEON SIMD vectorization.
- Developed a bare-metal PCIe device driver on TI AM64x EVM boards, covering controller init, configuration-space enumeration, and DMA-based data transfer. Documented and presented the end-to-end flow as the internal reference for RTL engineers designing the PCIe block on our SoC.

Western Digital Inc. • Irvine, CA **09/2018 - 03/2023**

Principal Firmware Engineer

- Integrated TCG, ATA Security, and Sanitize features - including on-media data encryption (SED), into enterprise HDD firmware (SATA/SAS) across multiple customer products that shipped to production; resolved security-firmware defects through qualification and release.

Staff Firmware Engineer **06/2014 - 09/2018**

- Developed a PCIe AHCI device driver for hybrid HDDs, enabling SSD-tier caching and improving performance.

SKILLS

- **Language**
  - C/C++ , Python
- **Networking**
  - TCP, UDP, ARP, DHCP, VLAN, L2/L3 Ethernet switches
- **Embedded OS**
  - Azure RTOS(ThreadX), Embedded Linux, FreeRTOS, Bare-Metal Firmware
- **HW Interfaces**
  - SPI/QSPI, UART, GPIO, PCIe, SATA/SAS
- **Tools & Debug**
  - JTAG , Oscilloscope, Logic analyzer
- **Security**
  - TCG/ATA Security, On-Media Encryption
  - (SED)

- ARM NEON SIMD
- Git

EDUCATION

MS in Computer Science
University of California, Irvine, CA

BS in Computer Science
Hanshin University

- Developed DUAL-SIO, a half- and full-duplex serial protocol, improving test equipment flexibility and reducing manufacturing costs.

AnyData •Irvine, CA **06/2012 - 06/2014**

Senior Firmware Engineer

- Implemented Firmware Over-the-Air (FOTA) upgrade support, enabling remote firmware updates and improving product maintainability.

DASAN Networks • South Korea **12/2005 - 06/2010**

Software Engineer

- Led embedded software development for L2 Ethernet switches, implementing complex networking protocols and managing real-time packet processing using C/C++ on Linux systems with Broadcom and Marvell ASICs.
- Implemented a high-performance packet monitoring system using the TCP/IP stack, Unix domain sockets, and shared memory IPC to support real-time troubleshooting for enterprise L2 switches.
- Developed network security features, including DHCP snooping and ARP inspection, to improve switch-level protection and traffic integrity.
- Developed a subscriber access monitoring system for Korean Telecom (KT), improving network management efficiency and service reliability.

AWARDS

- **Spot Award Winner. • Innophase• 2024**
- **High-Five employee recognition • WesternDigital• 2018**
- **Best Thesis •Korean Information Processing Society• 2012**
- **Summer Code Competition •ICS of UC,Irvine• 2012**