NIEL ANTHONY E ACUÑA

(+63) 915-549-7841 ⋄ amerei@gmail.com

SUMMARY

Firmware and linux kernel driver developer with team management experience

High degree of proficiency in C programming language and assembler. Familiarity with Bash scripting language. Agile-Scrum practioner with usage of Confluence and Jira as tools. Areas of expertise include board support package and boot code creation, embedded optimization, debugging, system integration, linux kernel driver development, in-house RTOS development.

PROGRAMMING WORK EXPERIENCE

April 28, 2020 - Present: Senior Engineer for Technology Enablers Philippines
Project: Synrad 48

- Design of firmware for their new generation 48 series Laser using MPLABX
- Microchip PIC PIC16-F19324 MCU
- Lead developer and team lead

Project: Sleep Number Fuzion Bluetooth Remote Control

- Design of firmware for new bluetooth remote control using MPLABX Harmony
- Port of LVGL embedded graphics to firmware and support ST7789V TFT LCD Panel
- Microchip ATSAMD51N20 CPU

2018 - March 2020: Principal Engineer for BiTMICRO Networks Intl. Inc.
Projects: Project NextOak-Acumen (NAS drive with focus on data security and encryption)

- Bringup of QorIQ Freescale LS1088A board
- Bringup of embedded linux as replacement for in-house firmare in SOCFPGA board.
- Development and enhancement of linux driver for nvme raid with security enhancements implementation.
- General debugging of linux modules (custom block driver and encryption controller driver) and scripts in board

2015-2018: Principal Engineer for BiTMICRO Networks Intl. Inc.
Projects: Project Robotron (PCIe 3.0 NVMe M.2 drive)

- Bringup of Reflexces Arria 10 socFPGA board.
- Creation of fully emulated software NVMe controller with NVMe protocol stack implementation as proof of concept product to test capability of SOCFPGA demo board as a viable NVMe product.
- Design and development of firmware on dual core ARM Cortex-A9 MPCore processor.
- Design and development of firmware driver for Mobiveil Inc. UNEX NVMe IO controller
- Design and development of NVME 1.2 procotol stack in firmware.
- Addition of PCIe and NVMe protocol compliance updates to firmware implementation.
- General debugging and maintenance of firmware.
- Experience in using ARM DS-5 toolchain to create firmware.

2014-2015: Software Engineer/Project Technical Lead for Gemalto Technologies Inc.

- Development of Javacard applets for smart cards.

- Project Monitoring and technical guidance for junior developers.
- Smartcard operating system enhancements for client customization requests.

2011-2014: Principal Engineer for BiTMICRO Networks Intl. Inc.
Projects: Project MaxIO (PCIe drive with in-house ASIC)

- Design and development of new task scheduler for firmware.
- Code review/approval of code enhancements and changes to BIOS layer firmwware.
- Technical consultant for new modules being added to firmware.
- Debugging of board, processor and related peripheral problems.

2010-2011: Senior Engineer and BIOS Team Lead for BiTMICRO Networks Intl. Inc.
Projects: Project Altima and Project MaxIO

- BIOS team project management for both Altima Firmware and MaxIO RTOS firmware development teams.
- Architectural team member - design RTOS firmware for in-house quad core ARC processor.
- Design and development of BIOS system entirely by myself.
- Design and development of firmware diagnostics code for backbone components for the MaxIO FPGA.
- Debugging of board, processor and related peripheral problems.

2008-2010: Engineer for BiTMICRO Networks Intl. Inc.
Project: Project Bigfoot (Altima SATA/PATA, SCSI - Fibre Channel BIOS Firmware)

- Helped develop and maintained "Boot from Flash" boot code loader for PowerPC 405GP,405EX,440GX.
- Reverse engineer Greenhills probe TCP communication to update diagnostic software being used by staff.

Project: Project MAXIO Prototype Firmware (PCIe drive)

- Developed Linux PCIe driver for protoype PCIe drive using AMCC PowerPC Kilauea demo board.
- Reverse Engineering of LSI PCI Option ROM HBA firmware to understand PCI-ROM programming and how to make a bootable PCIe drive by hooking int13h. Used freeware version of IDA PRO to reverse engineer.
- Was able to make a standalone bootable PCIe drive on an intel x86 desktop.

2007-2008: Cadet Engineer for BiTMICRO Networks Intl. Inc.
Project: Project Bigfoot (Altima SCSI - Fibre Channel BIOS Firmware)

- Developed diagnostic firmware for Altima drives to check for SDRAM memory problems. This includes checking for data bus and address bus errors, ecc error injection, coupling/stuck-at/transition memory faults.
- Maintenance of other modules in diagnostic firmware used by other staff to quickly diagnose board and peripheral related issues.
- Developed in-house UART protocol to provide limited backdoor debugging functionality and downloading of firmware update.
- Collaborated with hardware/ASIC teams to solve board problems like failing SDRAM modues, incorrect clocking and bootstrap values.

TECHNICAL STRENGTHS

Languages	C, assembler, basic Python, basic BASH scripting
Technologies	u-boot, Embedded Linux Device Driver, PCIe, NVMe, I2C, SPI, RTOS
Tools	GNU toolchain (GCC, make, as, ld), Greenhills MULTI, vim, Eclipse, ARM-DS5, MPLABX IDE, Code
Version Control	CVS, Subversion, Git

FORMAL EDUCATION

2004-2007 - Bachelor of Science Major in Computer Science at Ateneo de Zamboanga University