Daniel DeGrasse

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Work Experience

NXP Semiconductors

Embedded Software Engineer 2 **Spring 2023-present**

Embedded Software Engineer 1 **Summer 2021-Spring 2023**

- Architected and maintain Zephyr SD stack and SD host controller framework, enabling support for SD, MMC, and SDIO devices. Personally contributed 3 drivers; community has contributed multiple implementations.
- Optimized NXP LCD and MIPI display drivers and Zephyr LVGL port, improving frame rate by over 100%.
- Instrumented NXP Ethernet driver using tools including Segger SystemView to double TCP throughput.
- Implemented additional test tooling and test suites to enable coverage of bootloader and multi-core applications, permitting new regression testing within CI.
- Defined process and implemented tooling for management of downstream Zephyr fork, allowing delivery of support for pre-release SOCs to enable key customer design wins.
- Spearheaded NXP transition to new pin configuration within Zephyr, worked with internal teams to extend customer facing tooling to support new pin configuration standard.

Dell Technologies

Embedded Software Intern **Summer 2020**

- Implemented debug shell support within FreeRTOS based embedded controller, enabling web-based management of peripherals within product assurance lab.

Education and Awards

Rice University, BS Electrical Engineering- 3.81 GPA, Cum Laude **Spring 2021**

Programming: C, ARM Assembly, Python

Frameworks/Tools: Zephyr, JTAG, MCUBoot, Linux, CMake, Git, Bash

Technologies

- Proficient in RTOS development, Flash devices, SD protocol, UART, SPI, I2C and I2S
- Familiar with 2D Graphics, MIPI-DSI, TCP/IP, USB HID, Power management, UEFI/EDK2

Awards/Presentations

- Graphics Acceleration in Zephyr RTOS- Embedded Open Source Summit (Prague) **2023**
- New Implementation Proposal for Zephyr SD Protocol Stack- Zephyr Developer Summit (San Jose) **2022**
- Eagle Scout **2016**

Projects

Flexboard (C, PCB Design): https://github.com/danieldegrasse/flexboard-firmware

- Developed custom PCB for mechanical keyboard based on NXP Kinetis K22 MCU.
- Ported MCU to Zephyr RTOS, added custom USB HID endpoint for reprogrammable key map, and wrote I2C driver for LED controller.

Bare Metal RTOS (C): https://github.com/danieldegrasse/BMOS/

- Implemented bare metal RTOS for Cortex-M with task priority, preemption, semaphores, and task delays.
- Included logging system and bare metal drivers for STM32 Nucleo-64 evaluation kit.

References

Louis Davis - Louis.Davis@dell.com

- Mentor on summer 2020 project at Dell

Marcin Nowak – Marcin_N@dell.com

- Software architect on summer 2020 project at Dell