Ta Luc Gia Hoang

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INTRODUCTION

A dedicated and passionate Embedded Software Engineer with 9 years of experience in the industry. I have contributed to the development of diverse embedded system projects using various SoCs and platforms. I strive to deliver solutions that meet customer expectations and project requirements with the highest level of satisfaction.

TECHNICAL SKILLS

- Strong programming skills in embedded-C
- Experience in real-time OS: FreeRTOS, Zephyr OS, Green Hills INTEGRITY-RTOS
- Experience in embedded Linux: U-boot, kernel, device trees, root filesystem, Yocto Project
- Experience in porting software on a variety of MCUs or SoCs
- Experience in developing embedded applications, bare-metal drivers, ROM/Flash memory management, bootloaders, wireless communications
- Familiar to work with hardware peripherals: GPIO, ADC, UART, SPI, I2C, Timers, Interrupts
- Be able to read technical documents: schematics, user manuals, hardware specifications
- Have knowledge in network programming: Socket programming
- Have knowledge in multi-task programming
- Have knowledge in image processing using OpenCV library
- Have worked on various MCUs and SoCs: TM4C123G, MSP430, ESP32, STM32, Raspberry Pi, BeagleBone Black, nRF52810, Renesas R-Car Gen3
- Project management tools: Redmine, Jira, Confluence
- Source code management tools: GitHub
- Basic in Assembly, C#, Python, MFC, Object Oriented Programming (OOP)

EXPERIENCE

Embedded Software Engineer **June 10, 2024 – March 31, 2026**
Ban Vien Corporation
SoC Embedded Software Team

- Participate in Customer Support team of Renesas Vietnam Corporation company, working on-site
- Assist Renesas team to support their customers in using R-Car Gen 3 Automotive SoCs
- Develop, maintain, test and debug drivers, OSAL (Operating System Abstraction Layer), sample applications in SDK packages
- Validate and consolidate SDK for R-Car Gen 3 SoC families
- Develop firmware running on FreeRTOS, ARM Real-time core (Cortex-R7)
- Work with modules in R-Car Gen 3 SoCs such as Camera Serial Interface 2 (CSI2), Video Input Module (VIN), Video Signal Processor (VSP2), Image Renderer (IMR), Display Unit (DU), Display Output Checker (DOC), Audio, CAN-FD, MMC Interface (eMMC), HDMI, LVDS
- Setup environment to boot multi-OS (FreeRTOS, Linux) on development boards
- Build U-Boot, BSP, Linux kernel, Root File System by Yocto Project

- Customize Linux kernel images and device trees as customer requirements
- Update drivers in R-Car Gen 3 SDK to support multiple SoCs
- Develop a sample application which demonstrates how to separately control two channels of CAN by two cores, application core (Cortex-A57 core) and real-time core (Cortex-R7 core)
- Develop test cases for driver APIs which are used for building a CI/CD, automation test system
- Update Rear-view Camera sample, Surround View Monitor (SVM) sample to run on different boards
- Test camera demo with different type of camera devices and R-Car Gen 3 boards
- Create user manuals, setup guidelines for internal use

Embedded Software Engineer **April 3, 2023 – April 27, 2024**
HCL Vietnam Company Limited
Automotive Embedded Software Team
- Participate in automotive projects at Bosch Vietnam company, working on-site
- Develop CAN communication applications for Engine Control Unit (ECU) on Two-Wheelers and Powersports (2WP) vehicles
- Analyze customer requirements and documentation in line with change requests
- Implement software, test on Lab environment, and review code
- Perform unit tests as customer requirements
- Prepare test environments, analyze specifications and create script to run auto-test

Embedded Software Engineer **March 21, 2022 – March 21, 2023**
Samsung Electronics Ho Chi Minh City CE Complex
SW R&D Digital Appliances Department
- Develop and maintain software applications for washing machines
- Analyze and discuss with Korean members to understand the change requests and detail designs
- Handle from bare-metal drivers to application layers in embedded systems based on 32-bit ARM Cortex-M4 processors
- Write programs in C language, flash hex files, fix defects, and use GitHub to manage source code
- Be involved in the complete project lifecycle from requirements to final deliveries
- Research and design new features following on company's procedures
- Study bootloader program in washing machine and create documents for team
- Create a guideline of how to use a signal analyzing tool to debug operation of washing machine

Embedded Software Engineer **June 15, 2021 – December 31, 2021**
Hitachi Vantara Vietnam Co., Ltd
Printer Project Team
- Participate in developing Controller unit for Konica Minolta industrial printers
- Work with project members, responsible for assignments.
- Investigate customer requirements, code review and create detailed designs, diagrams
- Implement and update embedded software features
- Test and report issues
- Build, run simulator on Linux Virtual Machine,
- Working environment: Linux, C/C++, Oracle VM VirtualBox, Jira

Embedded Software Engineer **September 17, 2018 – January 29, 2021**
SH Consulting Vietnam Co., Ltd
Firmware Team
- Provide embedded software solutions for customers including developing, testing and debugging

- Develop firmware for specific boards
- Port software programs (drivers, libraries, etc.)
- Create documents such as user manuals, setup guidelines, etc.
- Develop a testing tool by C# which is used to analyze serial log
- Develop flash memory management APIs supporting for customer's Finger Vein Scanning Device
- Port a Renesas debugging program (VC++, MFC) from Windows to Linux and test with Renesas E2 emulator device
- Develop bootloader and over-the-air (OTA) firmware update features for STM32 board (32-bit ARM Cortex-M7) which is connected to a LAN
- Add new features and test LoRa firmware as customer requirements
- Develop and test Bluetooth advertising packet features of a BLE Sensor Earlobe device (nRF52810 SoC 32-bit ARM Cortex-M4 Processer) as customer requirements
- Apply Zephyr OS for SiFive HiFive1 Rev B board RISC-V SoC
- Evaluate performance of RISC-V CPU of SiFive HiFive Unleashed board, the industry's first commercially available Linux-capable RISC-V SoC, build and flash 64-bit RISC-V Linux image on board and run with a hand-written digit recognition example
- Create an IoT demo for RISC-V Day Tokyo 2019 event, which used Andes Corvette-F1 board, ESP32, FreeRTOS and Amazon IoT Core to communicate with a specific Android application
- Create an IoT demo for RISC-V Day Vietnam 2020 event, which used SiFive HiFive1 Rev B board, ESP32, FreeRTOS and Amazon-S3 to communicate with a specific Android application
- Create an IoT Security demo for RISC-V Day Tokyo 2020 event, which used Andes Corvette-F1 board, ESP32, Amazon-FreeRTOS, Amazon-IoT Core and a secure element ATECC608A Root of Trust (RoT) chip to implement secure boot feature

Embedded Software Engineer **March 1, 2017 – September 07, 2018**
Renesas Design Vietnam Co., Ltd
OS Solution Team
- Provide maintenance for R-Car Gen 3 boards, an embedded system used on cars
- Work on both INTEGRITY RTOS and Linux OS
- Test and maintain Board Support Packages (BSPs) for Renesas Platform
- Use Yocto Project to build customized Linux kernel images and device trees
- Port OS (Linux, Integrity), kernel device drivers
- Create unit test, automation test by CANTATA software
- Test performance of an image processing feature in R-Car Gen 3 SoC
- Develop a People Detection application for testing image processing API (similar to OpenCV API)
- Support to update features of libraries such as graphic, audio, video, image processing
- Develop a HUD (Head Up Display) application using an image rendering feature in R-Car Gen 3 SoC
- Setup an auto-test environment, configure internal network and write python scripts
- Report issue, create notes and guidelines clearly for teammate

Internship **June 13, 2016 – August 19, 2016**
Vigilant Video
R&D Department
- Investigate and set up working environment for embedded system with Raspberry Pi
- Read documents to understand how to use Basler cameras
- Self-study some basic video streaming concepts including color space, image compressions, Socket programming, TCP/UDP, V4L2

– Develop an IP Camera application using a Raspberry Pi and a Basler camera that can stream video to a PC connected to LAN

EDUCATION

8/2012 – 1/2017 **BACH KHOA UNIVERSITY (BKU)**
VIETNAM NATIONAL UNIVERSITY – HO CHI MINH CITY
Faculty of Electrical & Electronics Engineering
Major Electronics – Telecommunication
GPA: 7.21

4/2016 **IIG VIETNAM**
TOEIC Certificate – Total score: 695

ACADEMIC PROJECTS

IP Camera: program an application running on BeagleBone Black board that can get input from a webcam and send stream video through a local area network (LAN).
People Counting Camera: develop a software application using OpenCV for processing and counting people
Wireless sensor networks in agriculture (Graduation Thesis): design and implement an IoT system collecting data from sensors (humidity, temperature, light intensity) and sending to center node via RF signals; design and develop both hardware and software using Raspberry Pi, MSP430, RF modules and sensors

PERSONAL PROFILE

Personality and Soft skills:
– An honest, sociable and reliable colleague
– Ability to communicate in English
– Strong analysis skill and ability to work independently
– Ability to self-investigate and solve issues
– Capacity for managing time and working under high pressure and taking responsibility
– Logical thinking, patient and careful worker
– Presentation
– Teamwork

Hobbies:
– Reading, biking, travelling