Contact

www.linkedin.com/in/nagabhushanreddy (LinkedIn)

Top Skills

Test Planning
Silicon Validation
Communication

Languages

English (Native or Bilingual)
Hindi (Native or Bilingual)
Telugu (Native or Bilingual)
Kannada (Limited Working)

Honors-Awards

MVE Achievement Award
Jim Bruce Memorial Award
Various Departmental and Organizational Awards
Test strategy document - Recognized as Best Practice
Department Recognition Awards

Publications

Presented Tutorial - Silicon Validation
Framework for Testing Inter Processor Communication (IPC) in a Multicore Device
Validation Challenges in Recent Trends of Power Management in Microprocessors
Portable Testbench Architecture for Device Driver Validation
Presented Tutorial - Validation Coverage (Pre Silicon to Post Silicon)

Patents

APPARATUS AND METHOD FOR ACHIEVING DETERMINISTIC POWER SAVING STATE

Dr. Nagabhushan Reddy

| Principal Firmware Manager | Firmware & Platform Security | Microsoft |

Bengaluru, Karnataka, India

Summary

• Systems Engineer with over 24+ years of experience in Embedded Product and Systems Development
• Proven track record of leading teams and driving technical excellence across diverse roles
• Comprehensive understanding of hardware, firmware, and software, guiding effective product development from start to finish
• Experience in different facets of Product development - Design, Development, Validation, Maintenance, Customer Support, System Integration, Automation, Telemetry and Debug.
• Broader experience and varied skilled set - Worked in various industries and products (Server, PC, Mobile devices, Semiconductors, Automotive, Consumer Electronics, Radars and Energy Metering)
• Deep expertise with various generations of SoCs and Micro-controllers
• Extensive C, low level language programming skills and various RTOS
• Experience in working in different layers of the software stack (Drivers, Middleware, Applications etc)
• Excellent Communication and Interpersonal skills

Skill set:
• RTOS: Linux, Windows, Android, SYS BIOS, VxWorks, CMX Tiny Plus
• Languages: C, C++, Assembly
• SoCs: Intel Big Core, Intel Atom, TI816x, OMAP, DRx40x, ARM, DSP, PNX1300
• Microcontrollers: MSP430, Holtek, 8051, Winbond, Atmel (4bit, 8bit and 16bit Microcontrollers)
• Protocols & Standards: I2C, SPI, UART, HDMI, PCIe, I2S, SoundWire, HDA, VME Bus, HTTP, DAB, UPnP, DLNA, DVD-Video, DVD-Audio

• Debug Tools: Oscilloscopes, Logic Analyzers, Serial bus analyzers (Aardwork etc), USB, HDMI HDCP Analyzer, emulation tools (JTAG, ITP, Lauterbach etc), SW Debug tools (WinDbg, etc), IXIA, Ethereal etc
• Power tools: Power data acquisition and debug using DAQ devices, thermal measurement
• Utility tools: UML (Rational Rose), Perforce, Clear case, GIT, Perl, Python

Experience

Microsoft

2 years 10 months

Principal Firmware Manager (Firmware Security Strategy & Architecture)

March 2026 - Present (1 month)

Bengaluru, Karnataka, India

• Own firmware security strategy and end-to-end posture across large-scale datacenter platforms
• Lead cross-organizational alignment and decision-making across silicon, platform, validation, and operations
• Set long-term firmware security architecture and strategic standards adopted across multiple product generations
• Build and lead a high-impact firmware security team, delivering measurable security outcomes on critical platforms

Principal Firmware Manager (Firmware Security, Azure)

June 2023 - March 2026 (2 years 10 months)

Bengaluru, Karnataka, India

• Lead Firmware Security design and development, for the Next Gen Microsoft Azure Cloud Products
• Cerberus Telemetry, Operationalization

Technologies: Server, Security, Firmware, RoT, Cerberus, Attestation, Threat Modelling, MCTP, SPDM protocol, Device drivers, FreeRTOS, Cryptography, DICE, PPK, SPK, RMA, PKI, CA, FIPS 140, Caliptra, TPM, FTPM ..

Intel Corporation

11 years 11 months

Principal Engineer

April 2020 - May 2023 (3 years 2 months)
Bengaluru, Karnataka

Power Management & Energy Efficiency:

- Drive new Power Management Strategies across Mobile PC and Desktop Segments
- Enablement and debug of Key Platform Power Management flows on new Intel platforms
- Power optimization across key scenarios
- Debug and resolve critical customer issues
- Telemetry based validation and debug
- Mentor and guide senior technical folks

Software Architect

January 2015 - April 2020 (5 years 4 months)
Bangalore

- Deliver State-of-the-Art Power Management Features on multiple generation of Intel Client Platforms
- Lead the Pre-Silicon, Power On/Bring-up and Post-Silicon Power Management activities
- Drive various task forces to resolve critical issues spread across various domains and layers
- Collaborate with Architects and Senior Technical Leads across Intel to drive the Power Management improvements over the next generation Intel Platforms

Engineering Manager/System Integration Lead/Debug Lead

December 2012 - August 2016 (3 years 9 months)
Bengaluru Area, India

- Responsible for the overall Platform Integration (Intel Atom and Core based Tablet, PC platforms)
- Guide team of Architects and Engineers
- Debug Platform level issues (involving Hardware, Software, Firmware, OS) and across various domains (Audio, FW, 3rd party etc)
- Lead the Power Management and stability enablement/debug on various Platform SKUs
- Drive Task forces to take system level critical issues to closure and unblock critical milestones

Platform Debug Lead (Android and Windows Tablet)

July 2011 - December 2012 (1 year 6 months)

Keywords: Clovertrail SoC, Win8, HW/SW Debug, Drivers, I2C, HDMI, Bring up, Android, Integration and Release

Projects:

- Platform Integration and Debug Lead for Intel Atom (Clovertrail) based Win8 Tablet
- Platform Debug Lead for Intel Atom (Oaktrail) based Android Tablet
- Debug and resolve critical system level issues spread across Silicon, Board, Firmware, OS and drivers.

Dr.N.G.P. Institute of Technology.

Member, Board of Studies (Pro-bono)

October 2021 - April 2023 (1 year 7 months)

Bridging Industry and Academia. Help steer the curriculum by introducing latest technologies and skills required by the industry.

IEEE

Senior Member

January 2015 - December 2022 (8 years)

G. Pulla Reddy Engineering College

Visiting Professor (Pro-bono)

December 2015 - March 2022 (6 years 4 months)

- Teaching Interdisciplinary courses, having students attending from ECE, CSE and EEE Engineering streams
- Mostly involved in teaching the practical aspects of the subject to the students
- Bringing-in the Industry perspective to the Academics
- Mentor the students and help them develop Career/industry-Ready skills

Texas Instruments

Lead Engineer

May 2007 - July 2011 (4 years 3 months)

Keywords: Device Drivers, Audio, DMA, I2S, Serial drivers, Linux, Multi core, DSP/BIOS, SysBIOS, IPC - Inter Processor Communication, Test product design, ARM, DSP, DaVinci Netra DM816x, testing, C language, Board bringup

Projects:

- Optimization of SysLink software (esp. Message Queue Module) for QNX OS

- Design and development of SysLink (Multicore Inter Processor Communication Driver) Test bench
- Design and development of test benches for testing BIOS and Linux device drivers
- Design and development of DRx40x BIOS and PrOS PSP Drivers test suite
- Design and development of EDMA Test suite

Philips

2 years 9 months

Senior Technical Leader

March 2007 - April 2007 (2 months)

Development of software for Philips Automotive DVD Players

The project involves development of features and bug fixes for the Automotive DVD Players.

Technical Leader

March 2006 - February 2007 (1 year)

Project: Development of middleware for ECD (Electronic Content Data) Client. (Duration: Jan 2006 – June 2006)

The ECD module is a middle ware that is easily portable across different Platforms and OS. It provides the devices the capability to access media contents in the Philips ECD Media Server through the ethernet. It is easily integrated with the products (Philips Media box, Bridge co). The client will communicate with the ECD Server for various services like registrations, navigations, online software upgrade and browsing media contents. The user can play the content on his device.

Contribution to the project: Requirements gathering, S/W Design and development, Testing and Release.

Tehnology:
Platform: Linux|Portability: threadx, uc linux, Windows| Language: C |
Protocols: Proprietary ECD Protocol for communicating with the Philips ECD Server, XML|

Project: Software Development for Philips Automotive DVD Players

The project involves development of features for the Automotive DVD Players. Our group is responsible for releases to different customers in China, US, Europe etc.

Contribution to the project: Requirements gathering, Design, development and maintenance of software
Unit Testing, Regular teleconference with customer (APM, Germany) for proper understanding of the requirements and expectations and Release activities

Keywords:
Platform : ESS Chip Set | Language : C | Protocols: I2C for communicating with host | Standards: IS0 9660, ROM, DVD-Video, DVD-Audio|

Senior Software Engineer

August 2004 - February 2006 (1 year 7 months)

Worked on Philips Streamium Product Development (SL400, SL300)

Brief about the product:
Streamium is a consumer electronics product from Philips. Its one of 1st kind of products in the world. Using this product, the user will be able to play the media available in the PC/Internet on his TV.

Contribution to the product:
Design and development of various features for the product
Making prototypes features and demonstrating to the customer.
Involved in the One roof activities for the product release in Vienna, Austria
Solving of PRs/CRs
Integration of various modules
Responsible for various software releases. Users can upgrade their boxes with latest software through Internet.
Was part of the release meetings at Customer site (Eindhoven, Netherlands)

Keywords:
Platform: Trimedia (PNX1300 SoC)
Language: C, C++
RTOS: PSOS
Tools: Rational Rose, Source Insight, CMSynergy
Standards: UPnP (Universal Plug & Play), DLNA, WiFi

Bharat Electronics Limited

Firmware Engineer (Radar Development and Engineering)

September 2003 - August 2004 (1 year)

Project 1: Design, Development of software for RIC for Reporter Radar

The RIC (Radar Interface Card) acts as interface between different modules of Radar. These modules include Main Processor, Tracker, and Video Extractor etc. All these peripherals communicate through VME Backplane. The RIC receives the data from these peripherals through VME Bus to control the Radar Container, Radar Video Generator, Secondary Radar & Radio Unit.
It also monitors the health of these devices connected to it. The work also involves design of IDD, IRS, SRS documents and documentation following the SDLC.

Language: C, C++
RTOS : VxWorks
Tools : Rational Rose
Processor: PowerPC MPC860
Contribution: Firmware design and development

Project 2: Design, development and Testing of Man Machine Interface for the Reporter Radar

The controller used is 8051 and the Firmware is developed using Assembly language and C. Developed the complete Firmware, involved in the hardware-firmware debugging and delivered the complete product. I developed the complete code from drivers to application.

Language : C, Assembly
Microcontroller: 8051
Tools : Oscilloscope, Logic analyzer
Contribution : End-to-End Firmware design and development; Review the hardware design

Accurate Meters Ltd

Senior Firmware Engineer

November 2002 - August 2003 (10 months)

New Delhi Area, India

Design and Development of H/W and S/W for Electronic Energy Meters using various Micro controllers (Winbond->4 bit microcontroller , Holtek-8 bit microcontroller etc)

Description: A very cost effective 4-bit microcontroller (Winbond) is used to implement this project. The energy in the form of pulses is counted and the energy is calculated. The application also required computations (MD, Billing) based on Real Time Clock. So an RTC IC is also interfaced with the controller (I2C communication). The energy and all other data calculated are stored in the external EEPROM interfaced with the microcontroller (I2C communication). The data is displayed one after another on the LCD using the built in LCD Driver. The data is stored into the EEPROM only at the time of power fail. A provision is given to set the RTC with the help of two switches. The software is tested using the flash version of the microcontroller and later it is masked in the COB (Chip On Board) version of the controller.

Language : C, Assembly
Tools : Emulators, Jtags, Oscilloscope, Logic analyzer, power generation and measurement tools etc
Microcontroller: Winbond (4 bit micro controller) COB (Chip on board), Holtek (8 bit micro controller)
Drivers developed: I2C, UART, Display, IR Communication etc

Contribution to the project:
1. Lead a team of two engineers
2. Hardware and Software Design
3. Responsible for Development and Validation

Duke Arnics Electronics Ltd (Havells)
Firmware Engineer
June 2001 - October 2002 (1 year 5 months)

-> Design and Development 3 Phase Electronic Energy Meter Product using MSP430 (16 bit Mixed Signal Processor from TI)
-> Deeply Involved in the full product life cycle from Conceptualization, Requirements gathering from Marketing, electricity boards, H/W and S/W design, In house and field testing, Calibration, product certification, and Production
-> Board bring up activities
-> Developed various device drivers, peripheral software modules (firmware) using Assembly and C language

-> Power Management of the Microcontroller and the system (running RTC even during power fail and conserving the battery power)
-> Debugging firmware and hardware using emulators, Mixed-signal oscilloscopes, logic analyzers etc
-> Developed I2C driver (using GPIO pins as I2C bus) to communicate with LCD Driver, RTC chips etc
-> Developed SPI driver to interface external EEPROM, Data Flash memories
-> Developed communication driver to interface with UART (RS232, IR LEDs) which inturn is used to communicate with the PC or MRI with variable baud rates.
-> Stack allocation and stack management for different tasks in CMX (RTOS)
-> Developed System initialization sequence, configuration of different low power modes for the controller
-> Handling of hardware interrupts and setting of internal timer interrupts
-> Flash memory management for overall system
-> Implemented the power fail detection logic and backup the important data into internal flash memory and external memory before the power completly falls.
-> Implementation of advanced digital sampling technique to process signals (Measuring voltages, currents, phase difference and calculating active, reactive power values)
Key technologies: C, Assembly, RTOS (CMX Tiny Plus), Power Management, Power Measurement
Debug Tools: Emulators, Jtags, Oscilloscope, Logic analyzer, Power equipment (from Schlumberger)
MSP430: Worked on almost all the peripherals of the microcontroller
Protocols: I2C, SPI, UART, RS232, RS484, IR Communication etc

Education

BITS Pilani

Master's degree, Computer Science

Rayalaseema University, Kurnool

Doctor of Philosophy - PhD, Computer Science

Sri Krishnadevaraya University

Bachelor of Technology - B.Tech, Electronics and Communication Engineering

CMC

Minor degree, Computer Science