Neeraj R.Mohture

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**WORK EXPERIENCE:**

**Industrial Electronics Engineer having experience in Linux device driver, Linux kernel/driver development and Firmware experience of 9.1 years.**

**EDUCATION:**

* **BACHELOR OF ENGINEERING (INDUSTRIAL ELECTRONICS)** *Jun 2005*
* **DIPLOMA – (ELECTRONICS AND COMMUNICATION)** *June 2001*

**TECHNICAL SKILLS:**

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| **Operating Systems** | Linux (ANDROID ,REDHAT, FEDORA, DEBIAN-5.0, UBUNTU-9.04, SUSE, CENTOS). |
| **Embedded Protocols** | SDIO, CAN, I2C, SPI, MOST, LIN,SDIO,SGPIO |
| **Programming Languages** | C,Assembly(8051,ARM,MIPS), C++(Theoretical) |
| **Linux Device Drivers** | SD/MMC card, NAND flash, Watchdog timer, Virtual Serial port, USB DMA, Matrix keypad ,GPIO’s , LCD / Touch-screen / Linux Frame-buffer, Bluetooth, GSM, GPS , CAN, I2C, SPI, LIN, RS485, WLAN |
| **Android Drivers** | Camera Drivers, Binder, Logger, Low Memory Killer, Power Management, ASHMEM, Alarm |
| **Cross Tool Chain** | Build cross tool chain for arm-Linux-gcc 4.2.1, 3.4.4 and 3.4.2 for big and little endian target. |
| **Configuration Mgt. Tool** | SVN,GIT, Perforce, Prism. |
| **Debugging Tools** | GDB,BDI-2000,H-JTAG,ADB,PALM-ICE,KGDB,DDD.Trace-32,FS2 |
| **Interfacings Skills:** | External devices like touch screen, LCD, Memories, CAN, I2C, RS232, GSM, GPS,AMBA(AHB-AXI) |
| **Processor Core:** | ARM (ARM7TDMI, ARM920T, ARM926EJS, ARM1176EJS, CORTEX-A8, CORTEX-M3,CORTEX-A9), PPC (8548), Intel ATOM, x-86 Architecture, MIPS InterAptive |
| **Other Tools** | Editors-Vi/Vim/Gvim/Emacs, Compilers GCC/Cmake, Kscope, Cscope, Kite,Devrocket, Source Insight, ARM RVDS |
| **Hardware Targets** | BeagleBoard, Pandaboard, AtomBoard, Xilinx Kit, Fuzithsu Kit, ARM11 Base Board, IMX Freescale Board, Embedded Planet PPC Board, TIOPMAP-3430 Based NEC Board, MSM8960, 8974, APQ8064, MIPS InteerAptive Vx185/585, MIPS MALTA |

**PROFESSIONAL EXPERIENCE:**

**Working as a Sr Software Engineer inSicontech (On site Ikanos communication) India Pvt.Ltd..**

* Working on Dual Core bring up for InterAptive based SOC.
* Worked on Pre-Silicon validation and porting activities for MIPS InterAptive based Ikanos SOC.
* Worked on Linux porting for Ikanos SOC.
* Worked on RTEMS Porting for MIpsInterAptive based hardware. RTEMS is rtos that supports a variety of open standard application programming interfaces (API) and interface standards such as POSIX and BSD sockets. It is used in space flight, medical, networking and many more embedded devices across a wide range of processor architectures including ARM, PowerPC, Intel, Blackfin, MIPS, Microblaze and more I used it for MIPS InterAptive CM-GIC validation.
* Worked on Cadence Pallidium verification automation, and advanced debug to perform plan- and metric-driven system-level hardware/software co-verification. Capable of handling chip designs of up to 256 million gates, it also enables software to be developed and verified on a real hardware implementation using live data.
* Worked on Linux bringup activity for new generation Ikanos SOC.
* SMVP Linux porting on MIPS InterAptive based custom hardawre.
* Ported UART,SPI,QSPI,DMA,SATA,TIMERS driver on RTEMS RTOS.

**Worked as a Sr Software Engineer inSicontech (On site Qualcomm Hyd) India Pvt. Ltd..**

* Worked on WLAN driver feature development on Qualcomm chipset.
* Worked on EAP-SIM/AKA implementation on Qualcomm chipset.

**Worked as a Consultant Engineer in GlobalLogic India Pvt.Ltd..**

* Worked on Video (Frambuffer, LCD panel) Linux driver on OMAP4.
* Worked on Froyo kernel on Pandaboard.
* Worked on Gingerbread kernel on Pandaboard.
* Implemented the Power management tracker system in kernel for different power management event
* Worked on Android 1.6 Porting on OMAP3430.
* Worked on ALSA PCM kernel driver on OMAP4.

**Worked as a Senior Software Engineer in Montavista (Cavium Networks India pvt.ltd, )**

* Worked on I2C, Accelerometer device driver development.
* Worked on MLPPP driver development.
* Worked on Linux Middleware development for IVI systems.
* Worked on MVL kernel porting on OMAP3430 based hardware.
* Worked on MVL Kernel porting on MIPS and PPC based hardware.
* Worked on Network Driver development for the custom hardware based on MIPS.
* Worked on PALM-ICE to debug Linux Kernel Booting issues.
* Worked BDI-2000 for touchscreen issue for OMAP3430 based hardware.
* Worked on Android driver porting for Montavista Linux kernel.
* Worked on Bugzilla for kernel bug tracking system.
* Worked on NAND FLASH.

**Worked as Embedded System Developer in ISM Bangalore.**

* Worked on Linux Kernel Porting on Atmel based ARM-9 target.
* Worked on I2C,CAN protocol development for ARM7TDMI based target board.
* Worked on 8051 board design and firmware development.
* Worked on UBOOT development on ADS IDE.
* Worked on RF driver development on Atmel based hardware.

**PROJECTS:**

**Projects done at Ikanos Communication (July-2013 Till Date)**

**Project #**

**Title: Linux-3.10.14/26 SMVP porting for MIPS InterAptive based SOC.**

**Technology:** Cadence Palladium tool, MALTA-LTI linux.

**Responsibility:** To port SMVP Enable Linux on MIPS InterAptive custom hardware, the work also includded to supprot GIC-EIC (External Interrupts Controller) in exiting MIT-linux for custom SOC.

**Title: Pre-Silicon Validation for MIPS InterAptive based SOC**

**Technology:** Cadence Palladium tool,RTEMS.

**Responsibility:** To validate Global Interrupt Controller (GIC) feature.

**Details:** The projects is to validate the Global Interrupt Controller which is the module in MIPS InterAptive core responsiable for handling the Intrruptssubsytem of the core. Their are three different interrupt handling modes provided by GIC ie. Interrupts compatibility, Vector interrupts, Externanal Interrupts Controller. My responsibility is to validate all the interrupt mode for all the pheripherals is working properly, as the chip is not yet fbricated hence we are using cadence pallidum tools where we are uploding the validation code to validate perticularmodules.

**Projects done at Ikanos Communication (July-2013 Till Date)**

**Project #**

**Title: Linux-3.4.30 Bring up on Ikanos SOC based hardware.**

**Technology:Linux 3.4.30, FS2**

**Responsibility:**To port Linux-3.4.30 kernel on Ikanos SOC based hardware.

**Details:** The projects includes the LInux-3.4.30 bringup on Ikanos SOC based hardware.

**Projects done at Qualcomm hyderabad (May -2012 July-2013)**

**Project #**

**Title:** EAP-SIM/AKA feature development and maintenance.

**Technology**: Linux, Android, Trace-32,

**Responsibility:** To develop WEP encryption with EAP-SIM/AKA in qualcommwlan host core stack.

**Details**: To implement WEP+EAP-SIM/AKA feature on the Qualcomm wlan host driver. The security was not implemented in the host driver stack, the static and dynamic (wep +eap-sim/aka) implementation was not upto the mark for the feature implementation. The work also included to solve the customer bugs on EAP-SIM/AKA feature.

**Projects done at GlobalLogic India Pvt. Ltd. Bangalore (May -2011 Till Date)**

**Project #**

**Title:** Power Management Feature development on OMAP-4430 based target.

**Technology:** Linux, GDB, BDI2000.

**Responsibility:** To port Powerdomain and Clockdomain features into linux kernel.

Details: To Implement full-chip retention in idle and suspend, full-chip OFF in idle and suspend, idle PM via CPUidle features.

**Projects done at Cavium Networks (Montavista group) Bangalore (OCT-2010)**

**Project #**

**Title:** In-vehicle Infotainment.

**Technology:**MontaVista Linux, BDI2000, BitbakeDbus

**Responsibility:** To design middleware in Linux this will access Bluetooth low level functionality via DBUS. Written the DBUS interface which communicates with user apps for pairing, maintaining and switching the Bluetooth devices.

**Project #**

**Title:** Accelerometer Driver Development For Mobile device.

**Technology:** Linux, Palm-ICE, Android, Montavista Linux Kernel.

**Responsibility:** To develop the accelerometer driver for NEC custom hardware. The development also includes the sysfs interface for Android framework.

**Projects done at Celestial systems Bangalore (2.1 Year) (Till date) Sept-2008**

**Project #**

**Title:**DevRocket IDE Integration with ep8548 embedded PPC board

**Technology:** MontaVista Linux, C, GDB, DevRocket IDE

**Responsibility**: To interface ep 8548 board running on MVL with DevRocket IDE for

Tools like O-Profiling, Linux Trace Tools, Memory Leakage and usage analyzer and System/Application profiling.

**Project #**

**Title:** Porting MLPPP Stack on SANGOMA WANPIPE driver.

**Technology:** Linux-2.6, GDB, Cscope

**Responsibility:** Written a low level driver interface between Private MLPPP stack and Sangoma WANPIPE Driver for POPOE using tty line discipline driver and passing the data packet to upper layer.

**Project #**

**Title: I2C Driver Development for EEPROM device.**

**Technology:** Linux Kernel 2.6, BDI Debugger

**Responsibility:** To develop the interface between Linux I2C Core and the I2C EEPROM device for storing the runtime data. The project also includes the implementation of user level interface to I2C EEPROM device**.**

**Project #**

**Title:** Android Porting on Samsung 2440 based Hardware

**Technology:** Android, Linux(2.6.18)

**Responsibility:** To port Android Binder, Logger and Android Power Management driver on Samsung 2440 target running on Linux 2.6.18 kernel. Android DONUT, ECLAIR has been ported and tested.

**Project #**

**Title: GPIO Driver Development and sysfs interface Implementation for TI OMAP 3430**

**Technology:** Linux kernel 2.6.29, kernel sysfs, BDI2000, DDD

**Responsibility:** To design the GPIO sysfs interface for ANDROID user keys. The customize board having GPIO based keypads for smartdevice.

**Project #**

**Title:** Porting R6 (Freescale) Android Power Management on custom IMX-51 Hardware.

**Technology:** Linux, GDB, Android.

**Responsibility:** To port DFVS Power management driver on IMX-51 custom hardware. To port GPIO and Power management module which has been redesigned by freescale , the work involved to support R6 release for the custom hardware.

**Projects done at ISM Bangalore (3.2 years) Since May-2005 to Sept-2008**

**Project #**

**Title:** DATA Acquisition using 8051and Control

**Technology**: Keil –C, 8051.

**Responsibility*:*** To design Hardware Building block and firmware coding.

In this project 8 sensors are connected to ADC0809, which is interfaced to 8051. The firmware code is reading sensor value and displaying it on LCD. All sensor are getting monitor after one second, if any sensor value crossed the threshold level particular control unit will get activated.

**Project #**

**Title:** WIRELESS Data Acquisition using Philips LPC2129 ARM 7TDMI based microcontroller

**Technology*:*** Keil-c(firmware), H-JTAG***,***

**Responsibility*:*** To design WIRELESS data transfer Protocol and firmware coding*.*

In this project Transmitter (TLP433) is connected to the DAS (Data Acquisition System) hardware. The aim of this project is to get data form the sensors where user cant able to monitor, example Engine of a car… so this transmitter is fixed where user can’t go, the transmitter is sending the data wirelessly using serial 9600 baud rate. The receiver is receiving the data and sending it to the host. A small C RS232 program is running on the host which will take the data from receiver (RLP 433) and display it on console as well as on LCD.

**Project #**

**Title:** Application Specific character device driver for DAS using S3C4510B (ARM7TDMI) microcontroller.

**Technology:**Linux, C, GDB.

**Responsibility:** ARM Firmware coding and writing serial driver for S3C4510B UART on UClinux platform.

In this project we interfaced ADC0808 to S3C4510B ARM7TDMI controller which is equipped with 2 timers, 2 UART, I2C, Ethernet etc... ADC is interfaced to Io ports of S3C4510B externally. Firmware will read ADC and send the data with sensor number serially on S3C4510B controller. Host is connected to the board with serial RS232 cable, the serial (ttyADC) driver is written on Linux, which will read S3C4510B uart and give data to application code. The application program then sends this data over Ethernet for further processing using sockets programming.

**Project #**

**Title:** Embedded Interfacing and Porting Linux on ARM920T based hardware

**Technology:** Linux, C, GDB, Hardware Debugger, arm-linuxtoolchain

**Responsibility:**Building arm-Linux toolchain, Configuring Network File system (NFS), Boot loader and Linux 2.6.18 kernel.

This project is related to Porting Linux (2.6) on AT91RM9200 ARM920T based board from KWIKBYTE.

**Project #**

**Title:** Device Driver for RF strength monitoring and controlling the Position of RF transmitter Using AT91RM9200 ARM920T based microcontroller

**Technology:** Linux, C, GDB, Hardware Debugger, arm-linuxtoolchain

**Responsibility:** Designing Hardware building Block to interface RF receiver with ADC to AT91RM9200 board and writing IOmem driver for reading ADC 0804.

In this project we designed the hardware, which will measure RF strength of the transmitter. Receiver o/p is given to MAXIM RF strength meter chip which will calculate the RF strength of the frequency between (100M-1000 MHz). The output of the Maxim RF strength meter is in analogue in nature, this analogue signal is converted to the digital form using ADC0804, which is interface to AT91RM9200 controller. In driver code using MMAP function we are requesting kernel to access peripheral memory area of AT91RM9200 controller where ADC is connected, if the output is more than threshold value the signal is generated for the transmitter.

**Project #**

**Title:** Implementation of CAN protocol to transfer the data between to sensor node in wireless sensor N/W using LPC 2129(ARM7TDMI) based microcontroller.

**Technology:** CAN, Keil-c, ADS, H-JTAG

**Responsibility:** Writing Firmware for LPC2129 controller and designing hardware building block for the project.

In this Project using CAN protocol 2 nodes are sharing the data of the sensor connected to the inbuilt 4 channel 10 bit ADC of LPC2129. Such n numbers of node can share the data in the N/W by providing arbitration.

Date:

(Neeraj.R.Mohture)