**Wilson Yang**

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**Objective: Embedded Software Engineer**

## HIGHLIGHTS OF QUALIFICATIONS

- Over 10+ years practical experience in building embedded Linux, uClinux, RTOS such as VxWorks ,FreeRTOS, Linux with RTAI on various SoC & MCU
- Extensive experience in full life cycle of embedded system development including,requirement analysis,conceptualization, design, implementation, debugging & validating, optimizing & upgrading
- Acquired profound knowledge of assembly and C, working knowledge of C++
- Hands-on with Bash and Python scripting
- Exposed to a wide range of MCU & SoC including Cortex-A15/M4, Cortex A7/M3, Freescale MPC860 & MCF5282 , Coldfire 5272 , and Atmel AT89C51
- Familiar with bus protocols including UART,I2C SPI,USB ,PCIe
- Familiar with various data communication protocols such as RS232/RS485, CAN, Ethernet ,WiFi and TCP/IP suite
- Hands-on experiences in developing u-boot with SPL/Secure boot
- Practical experiences in customizing Linux kernel subsystems and developing device driver with sound understanding of OS concepts including concurrency, IPC, and cache coherence issues
- Developed ethernet & wireless, spi, i2c, K-Line drivers for Linux
- Developed init process for requisite system services with busybox
- Evaluated and deployed various file systems including RAMFS,TMPFS,ROMFS, CRAMFS , JFFS2 , YAFFS2 and NFS, etc.
- Debugged embedded system with Multimeters, Wireshark, Logic Analyzers , BDM/JTAG tool sets
- Systematic analytical, troubleshooting and problem solving skills
- Strong communication abilities with effective oral and written skills
- Excellent Team player and work independently
- Flexible and adaptable to multi-task, customer-oriented
- Self motivated and passionate to work with new skills and technologies

## PROFESSIONAL EXPERIENCES

**Embedded Software Engineer** **Feb. 2015- present**

Trillium (at Denso International America)

- Participated in software developing for IVI Andoid device
- Designed, developed, debugged & optimized spi, i2c, K-Line driverswith Dra7xx
- Ported Broadcom WiFi driver on Dra7xx platform with SDIO bus
- Ported Broadcom WiFi driver on Intel MRB platform with PCIe bus
- Customized Android Framework to support WiFi RSDB mode
- Customized WiFi Kernel module and WPA_SUPPLICANT for WiFi CTS
- Designed and conducted WiFi Throughput tests for WiFi RSDB mode
- Designed, developed, debugged & optimized adc driver on M4 core
- Took part in developing comprehensive validation procedures and test automation by implementing Codesonar code scanning tools, customizing TestLink test cases for WiFI/BT, CPU/Memory Usage profiling
- Fixing bugs systematically by using proper tools and procedures
- Familiar with Agile development procedures
- Familiar with Andorid/Linux software stack components
- Achived targets by individual and concerted efforts

**Development Enviroment and Tools**

Ubuntu, minicom,GNU cross-toolchains, git,repo, C, Assembly, Bash, Makefile, Kconfig, Linker Scripts, JTAG, Code Composer Studio(CCS)

**Project Highlights**

**Project : Automotive IVI development**

Porting WiFi driver/ Android Framework for Broadcom WiFi chip on RSDB mode
Developing drivers for Linux/Android with SPI/ I2C/SDIO interfaces
Fixing bugs

**Embedded Software Engineer** **July 2013- Jan. 2015**

Collabera (at Qualcomm)

- Participated in wifi proprietary software developing for Andoid/Linux devices
- Designed, developed, debugged & optimized wifi software with wifi chips
- Took part in developing comprehensive validation procedures and test automation
- Ported wifi software across different platforms
- Integrate wifi software components to meet specific requirements
- Familiar with Agile development procedures
- Familiar with Andorid/Linux wifi software stack components
- achived milestones by individual and concerted efforts

**Development Enviroment and Tools**

Ubuntu, minicom, Kscope, GNU cross-toolchains, git,repo, C, Assembly, Bash, Makefile, Kconfig, Linker Scripts,JTAG,Wireshark

**Project Highlights**

**Project : WIFI conectivity development**

developing wifi driver for Linux/Android with PCIe/ USB /SDIO interfaces
fixing bugs & system validating

**Embedded Software/Firmware Engineer** **Sept. 2007–June 2013**

BBT Co., Ltd.

- Participated in requirement analysis and architecture, design and code reviews
- Designed, developed, debugged & optimized embedded software
- Took part in developing comprehensive validation procedures and test suites
- Prepared complete and accurate user and design documentation
- Participated in validating and releasing of embedded products
- Identified and desgined main features of SoC, peripheral components and kernel subsystems to support mission critical applications
- Designed proper kernel booting strategy and memory mapping policy based on requirement and hardware configuration by choosing proper image type: rom-resident, rom-based or ram loadable image for target system and writing customary linker scripts
- Configured and customized development tools including GNU cross-tool chains, vim, gedit , make, kconfig, Kscope , SVN/GIT ,ELDK, Buildroot,Busybox, Tornado,Eclipse, Cgywin, Source Insight under Linux /Windows environments
- Configured and built JTAG /BDM environments for loading and debugging
- Developed bare-metal bootloader,device drivers and board hardware for hardware function verification and BSP development
- Configured and developed drivers for Touch Screen, LCD, Nor/Nand flash memory , GPS module, WiFi module and USB gadget device
- Evaluated and deployed different file systems such as RAMFS,TMPFS,ROMFS, CRAMFS,JFFS2 , YAFFS2 and NFS
- Developed rc file of init process for required system services with busybox
- Performed software debugging through peer-review of source code & assembly instructions, GDB,kdb & kgdb tool set, static watching(printk & leds),oops message analysis with the aid of BDM/JTAG ,multimeter,Oscilloscope, etc.
- Evaluated and optimized system performance with LTT, Oprofile,and PowerTOP by reducing image size and customized system services
- Improved system performance by replacing with better compilers , modifying data structure or algorithms for key applications identified by Oprofile,LTT and PowerTOP
- Completed software release by preparing user and technical documents and providing user training
- Conducted software configuration management with SVN/GIT and maintained related documents
- Engaged in projects such as Vehicle GPS Scheduling System on S5PV210 hand held device terminal, Video Conferencing Gateway on MPC860 , Wireless VPN AP on MCF5282 , POS Terminal on Arcturus Coldfire5272 ,etc.

**Development Enviroment and Tools**

Ubuntu, minicom, Kscope, GNU cross-toolchains, SVN/GIT, C, Assembly,Bash, Makefile, Kconfig, Linker Scripts, Multimeter, Oscilloscope, Network Protocol Analyzer,LTT, LTP, and PowerTOP, BDM/JTAG, etc.

**Project Highlights**

**Project A: Vehicle GPS Scheduling System**

Web server: Red Hat Enterprise Linux 4/Apache versions 1.3.2

App Server: Red Hat Enterprise Linux 4/QtEmbedded

Data server: Oracle 10g

Hand-held terminal:

SoC: Samsung S5PV210 (Cortex A8)

Modules:serial EM-410 GPS/WAVECOM Q2403A GPRS/
1 wire Touch Screen/I2C LCD

Bootloader: SD flash loader /xloader/ u-boot 2012.04

Kernel:Linux 2.6.32

Drivers: GPS/Touch Screen/LCD

File Systems:tmpfs /cramfs(backup)/yaffs2/nfs(dev)

App Tools:GPSD/QtEmbedded

**Project B: Video Conferencing Gateway**

SoC: Freescale MPC860

BDM:MPCBDM

Bootloader:u-boot 2010.03

Modules: PCI bus

video: Philips SAA7125/ TI TMS320C6713/Philips SAA7114

audio: Philips UDA1344TS/TI TM320C6205

Kernel:PPC-Linux 2.4.4 with RTAI 24.1.8

File Systems: tmpfs/cramfs(backup)/jffs2/nfs(dev)

App Stack: SIP/SCP/RTP/RTCP/G711/G729

RT Validation Tool: Linux Trace Toolkit (LLT) 0.9.5pre6

**Project C: Wireless VPN AP**

SoC: Freescale MCF5282

Modules: Redpine Quali-Fi RS9117 80211/n/b/g

BDM:M68KBDM

Bootloader: u-boot 1.1.2

Kernel: uClinux 2.6.29

Drivers: FEC/WiFi

File Systems: ramfs/romfs/jffs2/nfs(dev)

App Stack: IPSec/802.1x

**Project D: POS Terminal**

SoC: Arcturus Coldfire 5272

BDM:M68KBDM

Bootloader: ucbootloader 1.7.7

Kernel: uClinux 2.4.26

Drivers: ethernet/usb gadget device

File Systems: ramfs/cramfs/jffs2/nfs(dev)

App Tools: QtEmbedded

**Embedded Software Engineer** **Sept.2004–Sept2007**

Nexicore Co.,Ltd. (Toronto)

- Formulated booting methods and memory map configuration based on technical requirement and hardware configuration
- Build up MPCBDM/JTAG development environment for software debugging and flash loading on MPC860/SBC2410
- Customized u-boot based on board hardware configuration
- Customized serial driver for console supporting and system debugging
- Based on VxWorks BSP template and hardware configuration, developed BSP to initialize hardware devices, load image to specified position according to booting method and memory map onfiguration, passed control over to kernel and initialized system operations
- Conducted system software and hardware performance testing with BSP Validation Test Suite, updated the BSP VTS to support SDRAM stress testing
- Configured and developed drivers for pressure sensor, ADC (analog/digital converters) and PWM (pulse width modulator) for Pressure Detection System
- Provided consultation to other team members for application development
- Conducted software configuration management with SVN and maintained technical documents
- Engaged in projects such as Firewall Router on MPC860 and Road-surface Pressure Detection on SBC2410 ,etc.

**Development Enviroment and Tools**

VxWorks BSP Validation Test Suite, BDM/JTAG debug tools,minicom/PuTTY,Vim, Ubuntu5.04/Redhat9.0/Windows2000/Windows NT, Cscope/Source Insight, GNU cross-tool chains, Assembler Languages, C Language,Shell Scripts, Makefile, Linker Scripts,SVN, Multimeter, Oscilloscope,Network Analyzer,etc.

**Project Highlights**

**Project E: Firewall Route**

SoC: Freescale MPC860
Modules: Housed Packet Filter ASIC
BDM: MPCBDM
Bootloader: bootrom
RTOS: VxWorks 5.5
Drivers: FEC/Serial
AppTools : Tornado 2.0

**Project F: Road-surface Pressure Detection**

SoC: Samsung SBC2410
Modules: Sendo PS110 Ceramic Pressure Sensor
JTAG: H-JTAG
Bootloader: bare-metal/u-boot 1.1.2
Kernel: Linux2.6.12
Drivers: Pressure sensor/ADC/PWM/LCD
File Systems : ramfs/romfs/yaffs2/nfs(dev)
App Tools:ADS1.2/QtEmbedded

**Embedded Software Developer** **April 2002 - April 2004**

Panva Gas Holdings Ltd. (China)

- Designed embedded measuring systems with MCU, LCD, ultrasonic component, step-motor hardware and controlling software
- Evaluated and configured various analog/digital converters (ADC) with different sampling speeds and precisions for different requirements in data acquisition process
- Modified controlling drivers of hardware components with assembly language and C language for different working requirements
- Ensured all the devices went through and passed Environmental stress procedures, such as Temperature Testing, Humidity Testing, Vibration testing
- Developed shell command interpreter for specific applications
- Selected developing software and debugging equipment for the project
- Developed embedded software for gas metering and leakage detection systems projects with Keil ADS1.0

**Enviroment and Tools**

DOS, Windows NT, Windows 2000, ADS1.0, C Language, Assembley Language , Oscilloscope,etc.

**Project Highlights**

**Project G: LPG Metering and Leakage Detection System**

MCU: Atmel AT89c51
Modules : M110 ultrasonic sensor/MQ-5 gas sensor/ADC/PWM
Bootloader: bare-metal
Kernel: bare-metal
Driver: sensors/adc/pwm
App Tools: ADS1.0

**System & Network Engineer** **Aug. 1990-Mar.2002**

ShumYip (Holdings) Company Ltd (China)

- Conducted requirement analysis & project feasibility study
- Designed and implemented solutions of system customization and integration
- Developed application with Informix/Foxbase DBMS in C language within LAN/PC environment on Unix/Novell/MS DOS and Windows platforms
- Designed LAN/WAN infrastructure
- Configured and supported Cisco Router 3600/4000, Cisco/3Com/Bay Switch
- Maintained Routers/Switches/NICs/Cables/Modems/Printers/UPS/SCSI/RAID

## EDUCATION & PROFESSIONAL TRAINING

CISSP
Certified Information Systems & Security Professional **2010**

CCNP
Cisco Certified Network Professional **2000**

CCNA
Cisco Certified Network Associate **1999**

Master of Economics **1987– 1990**
University of International Business and Economics (China)

Bachelor of Electrical Engineering **1982–1987**
Tsinghua University (China)

**REFERENCES AVAILABLE UPON REQUEST**