

Tom Fones
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OBJECTIVE:

System development in a Windows and/or Linux environment

SUMMARY OF QUALIFICATIONS

I have built a hardware device simulation framework for memory-mapped devices both on Ubuntu-Linux and Windows 10. These devices include char-mode and block-mode devices. I wrote an essay describing PCI bus and device simulation for technical journal publication. Please visit the URL <http://www.htfconsulting.com> for a demonstration of the Windows implementation and the latest source code for both Linux and Windows.

I am experienced with Virtual Machine Managers VBox, Qemu-Kvm and Hyper-V.

I have built Windows bus driver and peripheral drivers for a legacy bus VMEBus in the plug-n-play world. I have converted a video driver to 64-bit Windows-XP. I have built device drivers and integrated test harnesses for many classes of devices on Windows XP, Seven, Eight and Server platforms.

I have also developed a template procedure for converting NT 4.0 non-plug-n-play drivers to Win 2K/XP plug-n-play compliant drivers.

I am knowledgeable of Machine Learning concepts Tensorflow, neural networks and back propagation.

I am experienced with Windows diagnostic tools: WinDbg, ProcMon, KernRate, and with Lecroy PCIe and USB protocol analyzers.

LANGUAGES

C/C++, Python, Intel 80x86 Assembler

HARDWARE/SOFTWARE I have experience with the following:

1. Dell R730 w/ Xilinx embedded ARM processor, iDRAC, Zynq SOC
2. Intel Pentium, AMD64, ARM SOC, RISC
3. Microsoft Windows 8/10, WDM, WDF; PowerShell, V/S 2015, GIT, Perforce
4. Ubuntu, CentOS-Linux DeviceTree, Eclipse, Link+, BASH, Xilinx SDK, *Yocto/Bitbake*

PROFESSIONAL EXPERIENCE

January 2021 – Present McAfee

Enhancements to McAfee's retail Anti-virus product.

(Windows 10, 11, C++, VS-2019, Fs-minifilter, KMDF, Windbg, Google-Test)

September 2020 – December 2020 HTF Consulting

1. Developed a PCI memory-mapped bus & device simulator for char-mode & block-mode (storage) devices on Linux/Ubuntu. This includes sample device drivers, test apps and bash scripts.
 2. Developed and documented a PCI memory-mapped bus and device simulator for generic & storage devices on Windows. These simulators assist clients with exercising and verifying device control, scatter-gather DMA, error-handling and plug-n-play of target device drivers under development. Please visit the URL https://github.com/TomFones/device_simulation to browse all the source code.
- (Ubuntu, Linux, Eclipse, Link+, Crash; Windows 10, C++, VS-2019, WDK, KMDF, Windbg, MFC)

June 2019 – Sept 2020 Google Inc, Mountain View, CA

Ported Google's TensorFlow-based Machine Learning product on their Apex TPU chip from Linux to Windows 10. (C, C++, Python, TensorFlow, Bazel, Gasket, MS-VisualStudio, Git)

Mar 2018 – May 2019 Dell Computers, Round Rock TX.

Embedded Linux kernel driver development in the NVMe storage subsystem on Dell's NVMe/PCI RAID acceleration product with the Xilinx FPGA fabric on the Dell R730 and Xilinx-ARM SOC. Implemented and applied patches to the Linux kernel in the PCIe and NVMe storage drivers. Implemented an NVMe emulation driver on the ARM SoC through shared memory with the host and host PCIe driver. Some enhancement to the Windows NVM/e miniport driver. (C, C++, Ubuntu, CentOS, Xilinx SDK, DeviceTree, Yocto, FIO, iDRAC, WinServer 2012)

Mar. 2016 – Mar 2017 Microsoft Corporation, Redmond, WA

Development and maintenance of low-level drivers and diagnostic tools on the Surface product. (Windows 10, C++, WDK, Win32, KMDF, PowerShell, VS-2015)

February 2015 – December 2015 Samsung Corporation, Milpitas, CA

1. Modifications to the Windows 8.1 storage & file-system stack to utilize the proprietary hardware feature Multi-Stream on the Samsung NVMe SSD. Improved write amplification, SSD lifetime and throughput by 50%.
2. Conversion of a Linux object-oriented In-Storage Computing package to Windows (Windows 8, C++, VS-2013, FS Mini-Filter, WDM, KMDF, Linux, NVMe, PCIe Analyzer)

April 2011 – October 2014 Intel Corporation, Chandler, AZ, Santa Clara CA

1. Device driver and testware development, debugging on Rapid Storage Technology. (Windows 8, WDM, Storport, VS-2012, SCSI, SATA, Sata Analyzer, NVMe,)
2. Development for a Windows 8.1 SOC Smart-phone implementing mobile broadband

October 2009 – September 2010 Numonyx Inc, Folsom, CA

Built storage device drivers and testware on Windows and Linux for a PCM SSD disk. (WinServer 2008, Windows 7, VS-2008, WDF, SCSI, NVMe, PCIe Analyzer, Linux,)

April 2008 – May 2009 *Sun Microsystems Menlo Park, CA*

Built bus-level drivers to implement USB-over-IP, supporting device-level USB drivers.

(Windows XP, Vista, WinServer 2008 x64, WDF, USB 2.0, CATC analyzer)

January 2006 – April 2008 *Themis Computer, Fremont, CA (Three contracts)*

Built a bus-level driver for the VME bus and the Universe II controller. Built device-level drivers for the VME bus in an embedded system. Built a bus-level driver for the PLX-P2 board.

Converted serial drivers to work with the 2P2 controller. Converted all to x64. *(Windows-XP x64, Windows Driver Model, Visual-Studio 2005/8, Linux).*