

MARSHALL DAWSON

2006 Glenarbor Court
Longmont, CO 80504

www.linkedin.com/in/marshalldawson/

marshall@marshalldawson.com

303.702.9272

VERSATILE SMTS SYSTEMS ENGINEER

Proven record of debugging complex issues and designing creative solutions. Goal-oriented and focused on exceptional service for customers' unique requirements. Effective verbal and written communication, and software coding. Achieve quality bottom-line results, moving customers into production rapidly and returning manufacturing lines to operation in response to problems.

- **System Troubleshooting**
- **Reverse Engineering**
- **Performance Analysis and Profiling**
- **Firmware Development**
- **Platform Architecture**
- **Technical Documentation**

Technical Proficiencies:

Languages, Libraries	C, C++, x86 assembly, OpenCL, OpenCV, cFFFT
Platforms	Windows, Linux, DOS
Tools	Visual Studio, CodeXL, Sage EDK/SmartProbe and AMD HDT JTAG debuggers, WinDbg, Excel/VBA, IDA Pro, git, oscilloscope, logic analyzer
Additional	DDR3, DDR4, PCIe, PCI, ISA, SPB, SMBus, I2C, SPI, LPC, RS-232/UART, RAID, RAS, SMI, LAPIC, IOAPIC, coreboot, Intel FSP, EDK II, AMI Aptio, virtualization (AMD-V), real-time, cryptography, security, secure boot, TPM

PROFESSIONAL EXPERIENCE

SAGE ELECTRONIC ENGINEERING, Longmont, CO

2014 – 2015

SMTS Firmware Engineer

R&D team leader for coreboot-based SageBIOS products, specializing in Intel Firmware Support Package customizations and fast boot times.

- Minimized customers' time to system availability, delivering sub-second boot times including cleaning 8GB of ECC DRAM, on Intel Core and Xeon products.
- Established a competitive product advantage by extending Intel's FSP for features, configuration and telemetry.

ADVANCED MICRO DEVICES, Fort Collins, CO

2001 – 2014

SMTS Systems Design Engineer

Provided direct Applications Engineering support to customers / FAEs / Sales for all Embedded products through architecture reviews, application notes, and platform debug. Primary engineering representative in key AMD Embedded verticals and strategic partner relationships. Influenced feature set for future products and crafted methods for extending legacy products. Improved processes for information flow and measuring success. Led and coached junior team members.

- Helped \$10M project meet start of production by debugging 3rd-party driver under proprietary hypervisor, in real-time environment, convincing vendor to correct driver.
- Developed OpenCL file hashing prototype, achieving 100% better performance than competitor and targeting new customer.
- Converted disappointed prospect into design win after optimizing customer's cFFFT program that achieved 10,000x speedup.

ADVANCED MICRO DEVICES (Continued)

- Extended useful lifespan of Geode LX processor to 15 years by developing method that attached DDR2 memory to DDR DRAM controller, writing BIOS configuring both types, and publishing porting guide.
- Eliminated customers' soldered-down memory configuration errors by generating Serial Presence Detect (SPD) encoder / decoder with Microsoft Excel and Visual Basic for Applications.
- Helped strategic customer win Power over Ethernet (PoE) design by crafting methodology that reduced system power by 40% prior to negotiation.
- Mitigated regulatory need for immutable BIOS / firmware flash devices by designing method that relocated UEFI variables to an alternate device.
- Reduced system cost by adding 5-wire RS-232 compatibility to Geode CS5536 companion device using GPIOs and SMIs.
- Decreased customer complaints by recommending procedural changes for Field / Applications interaction. Eliminated possibility of the most frequent errors and removed tech support database visual distractions.
- Analyzed customer's Translation Lookaside Buffer (TLB) mismanagement on network switches, helping create Linux patch for roll out to the field.
- Relieved customer anxiety when validating thermal solutions without thermal test kits. Wrote theory of operation paper, explaining TDP, optimal use of available tools, and acceptable methods for measuring power consumption.
- Helped top customer meet production schedule by debugging multi-master, bridged, SMBus race condition, and by devising method that detected and cleared driver problems.
- Alleviated USB 3.0 driver installation restrictions in designs implementing only USB 3.0 ports. Wrote procedure for preloading Windows driver store with correct driver.
- Improved DRAM performance in low-power processors by eliminating clock divider restrictions on CAS# Latency timings.

ADDITIONAL RELATED EXPERIENCE

NATIONAL SEMICONDUCTOR, Division acquired by AMD, Longmont, CO
Applications Engineer
Software Development Manager
BIOS Engineer

IBM
BIOS Engineer, Raleigh, NC
Systems Assurance Engineer, Lexington, KY

EDUCATION

BS, Electrical Engineering, University of Kentucky, Lexington, KY

PROFESSIONAL DEVELOPMENT

InfoSec Institute: Linux+ Training
MindShare: AMD64 Software Architecture
MindShare: Opteron Processor Architecture