# Rusty Colbert

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**Software Developer**

Software developer with 20+ years server industry experience in design, firmware, component diagnostics, and debugging factory and customer critical issues. Architected solutions to systemic factory issues, test escapes, and coverage gaps. This was accomplished by analyzing the data, developing a design to address the issue, writing the prototype/proof of concept software to prove viability, and then acting as product owner for an agile team to create a factory release for the software. The agile team location varied according to available resources. As a result I have much experience guiding teams located around the globe.

## Professional Experience

**Hewlett Packard Enterprise (HPE),** Houston, TX  **2008-Present**

**Master Technologist**

Invented and developed many factory testing tools to find issues before unit shipment. These include Myriagon (a custom Linux kernel, multi-threaded test executive and test algorithms), FOS (Factory On a Stick) which allows factory level testing at vendors, memory qualification labs, field return facilities, etc. FACET (Factory Adjustable Correctable Error Thresholder), a custom machine check analyzer to allow all correctable errors to be seen by the diagnostics, and allows only certain patterns of failures create failures.

Key member on DFT (Design for Test) teams, with focus on FPY (First Pass Yield) Analysis and field performance, for all new server generations. FPY improvements included reduction of unexpected reboots (1% FPY impact each month) by 65%. This was accomplished by working with the hw and fw design teams to add augment the design with inexpensive signal processing and logging.

Designed the fault injection mechanism for QA and worked with Intel and the fw teams so that QA scripts can inject correctable and uncorrectable errors at the DRAM address level while running the Linux operating system.

Founding core member of the Vortex Memory Team. This team accomplished a 65% test time reduction on Gen6 and Gen7 servers, while increasing test coverage by 23% (to address customer outages). For Gen8 we reduced test time another 46% and reduced field failures by 66%.

Met regularly for over 7 years with supplier teams from Micron, Hynix, Samsung, and Intel to resolve factory and customer issues and drive DPPMs (Defective Parts Per Million) to historic lows for the company.

Debugged hundreds of factory and customer issues involving servers. This included assembling and leading teams of SMEs (Subject Matter Experts) to provide immediate work arounds and root causals for long term solutions. Also used these exercises to write debug procedures for factory technicians.

**Tandem Computers,** Austin, TX **1987 – 2008**

**Firmware Developer/Software Engineer/Test Engineer**

* Firmware development for processor initialization and diagnostics on fault tolerant main frames
* Lead developer on an Agile team for Tandem’s fault injection tool. A complex set of tools with a singular interface for injecting 98% of possible system level faults automatically in regression testing.

## Awards

Received 2013 President’s Quality Award for Innovation in Memory Quality and Performance. The Memory Quality Performance Optimization Team, a multi-disciplinary factory and field data-driven team, created incredible results in quality improvement that resulted in a number of key achievements for HP since the Q1 2011 project launch date. This included savings of over 41 million in warranty and product costs, avoidance of over 118,000 customer outage events, and reduced HP factory DPPM for DIMMs by 50%. The team created outstanding supplier collaboration and transparency with Micron, Samsung, and Hynix to obtain enhanced factory diagnostic quality data, contributing to quality improvements throughout project lifecycle. The team also created outstanding internal collaboration across all HP functional areas as the team worked with multiple business units, regions, factories and services units to accomplish the goals of the project.

E-Award earned for design of the STICK (SysTem Intregration ChecK). Using this USB key third parties could verify system integrity on boot at non-HPE locations (used in Russia).

## Patents

[**US20170329598A1**](https://patents.google.com/patent/US20170329598A1/en?inventor=Mark+R.+Colbert)Title: Adjustment of a Cooling Fan in Accordance with a Firmware Update

#### [**US20140237208A1**](https://patents.google.com/patent/US20140237208A1/en?inventor=Mark+R.+Colbert)Title: Protecting memory diagnostics from interference

## Education

**ITT Technical Institute,** Houston, Texas

**Associate, Computer Technology**

## Technical and Lean Skills

### HPE AHS Analysis Schematics, Data Sheets

Agile Programming Field Failure Analysis, HW Debug

## Software

### VMWARE Microsoft Windows and Office Suite

Perl, Python, C, C++, C# MS Project

Linux kernel MS Visio

MIPS Assembly Linux kernel configuration and building

## Publications

Co-authored TechCon 2009 Linux-based Memory Diagnostic for Manufacturing Test abstract submission

Co-authored TechCon 2013 Threshold Mechanism to Reduce Troubleshooting Costs on Memory Soft Manufacturing Failures abstract submission

Co-authored TechCon 2013 Collect memory training data for predicting the future reliability of memory by assessing the extent of deviation or degradation of memory abstract submission