



Inductive Automation[®] Ignition[®] 8.1 on Stratus ztC Edge[™] 250i and Stratus ftServer[®]

CHARACTERIZATION REPORT

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1. Introduction

This document outlines the performance of Inductive Automation's Ignition® 8.1 running as virtual machines on Stratus ztC Edge™ 250i and ftServer® 2910. The purpose of the testing is to provide a guideline to the performance limits based on real time tag count and tag history.

The Stratus ztC Edge 250i platform is a compact Industrial edge server that features built-in virtualization through Stratus' proprietary Stratus Redundant Linux (SRL) operating system supporting up to four (4) virtual machines and fault tolerance when two units are paired together. The product is designed for operation in rugged edge environments with fanless operation, UL Class I, Div 2 certification, IP 40 rating, and zero-touch operation.

The Stratus ftServer 2910 is a fully redundant fault tolerant rack mounted server with configurable specifications that can host both bare metal and virtualized environments. The product is designed for use in control room environments.

2. Test Scenarios

Ignition benchmark testing is performed by incrementally adding tags to the device gateway. These tags are configured to update their value every second to simulate data being processed on the device gateway. During the benchmarking process the device performance is monitored until at least one of the knockout conditions are met. Once one of the knockout conditions are met tags are incrementally removed from the device until the device performance is at or just below the knockout condition threshold. The device gateway is now in a steady state and the benchmark is complete.

Knockout Conditions

- CPU usage → > 50%
- Memory Utilization → > 50%
- Clock Drift → ±10%

2.1. Stratus ztC Edge 250i Test and Results

A dual node fault tolerant ztC Edge 250i server configuration was set up and Virtual Machines were hosted via the Stratus Redundant Linux Operating System. Three (3) virtual machines were configured and shared the resources of the entire dual node system, however only two (2) Virtual Machines hosted an independent Ignition 8.1 installation. Results were as follows:

	Stratus ztC Edge 250i Test Configuration and Results				
ztC Edge 250i	vCPU	Memory GB	Disk GB	Real Time Tags	History Tags
VM1	4	4 GB	80 GB	88,500	88,500
VM2	4	4 GB	80 GB	79,000	67,000
VM3	4	4 GB	100 GB	--	--
Total				167,500	142,000

2.2. Stratus ztC Edge 250i Summary

A dual node ztC Edge 250 can run up to 3 Virtual Machines in fault tolerant mode all configured with 4vCPU, 4GB Memory, and 80GB of disk for a total of ~237,000 Real Time tags and ~201,000 History Tags. These calculations are extrapolated from the test results of "VM2". The actual performance will vary depending on how many Virtual Machines are configured, and how many resources are assigned to each Virtual Machine.

2.3. ftServer 2910 Test and Results

The 2910 ftServer used had 20vCPU, 128GB Memory, 1 pair of 600GB HDD (boot), and 1 pair of 800GB SSD (used by all VM's). A Virtual environment was configured using VMWare ESXi 7.0 update 3. Five (5) Virtual Machines were configured and shared the resources of the entire system, however only four (4) Virtual Machines hosted and independent Ignition 8.1 installation. Results were as follows:

	Stratus ftServer 2910 Test Configuration and Results				
ftServer 2910	vCPU	Memory GB	Disk GB	Real Time Tags	History Tags
VM1	2	4 GB	90 GB	70,500	60,000
VM2	2	4 GB	90 GB	72,500	62,000
VM3	2	4 GB	90 GB	102,500	87,000
VM4	15	4 GB	90 GB	177,500	151,000
VM5	2	4 GB	48 GB	Idle	Idle
Total				423,000	360,000

2.4. ftServer 2910 Summary

An ftServer 2910 with 20vCPU, 128GB Memory, and 800GB SSD can host 10 Virtual Machines each configured with 2vCPU, 4GB of Memory, and 90GB of disk to host a total of ~705,000 Real Time Tags and ~600,000 History Tags. These calculations are extrapolated from the test results of “VM1”. The actual performance will vary depending on how many Virtual Machines are configured, and how many resources are assigned to each Virtual Machine.