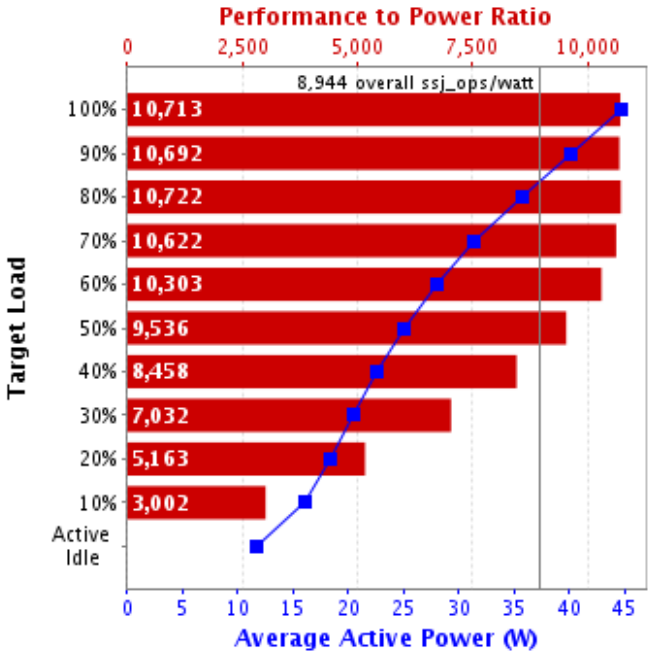
# SPECpower_ssj2008



| Fujitsu FUJITSU Server PRIMERGY TX1320 M2 | | | SPECpower_ssj2008 = 8,944 overall ssj_ops/watt | | |
|---|---|---|---|---|---|
| **Test Sponsor:** | Fujitsu | **SPEC License #:** | 19 | **Test Method:** | Single Node |
| **Tested By:** | Fujitsu | **Test Location:** | Paderborn, NRW, Germany | **Test Date:** | Nov 6, 2015 |
| **Hardware Availability:** | Feb-2016 | **Software Availability:** | Jan-2015 | **Publication:** | Nov 25, 2015 |
| **System Source:** | Single Supplier | **System Designation:** | Server | **Power Provisioning:** | Line-powered |

## Benchmark Results Summary

| Performance | | | Power | Performance to Power Ratio |
|---|---|---|---|---|
| Target Load | Actual Load | ssj_ops | Average Active Power (W) | |
| 100% | 100.2% | 478,512 | 44.7 | 10,713 |
| 90% | 90.0% | 429,767 | 40.2 | 10,692 |
| 80% | 80.4% | 383,866 | 35.8 | 10,722 |
| 70% | 69.9% | 333,825 | 31.4 | 10,622 |
| 60% | 60.6% | 289,162 | 28.1 | 10,303 |
| 50% | 50.0% | 238,762 | 25.0 | 9,536 |
| 40% | 40.0% | 191,219 | 22.6 | 8,458 |
| 30% | 30.1% | 143,580 | 20.4 | 7,032 |
| 20% | 19.9% | 94,862 | 18.4 | 5,163 |
| 10% | 10.1% | 48,106 | 16.0 | 3,002 |
| Active Idle | | 0 | 11.6 | 0 |
| | | | **∑ssj_ops / ∑power =** | **8,944** |




## System Under Test

### Set: 'TX1320 M2'

| | |
|---|---|
| **Set Identifier:** | TX1320 M2 |
| **Set Description:** | System Under Test |
| **# of Identical Nodes:** | 1 |
| **Comment:** | Single Node |

| Hardware | |
|---|---|
| **Hardware Vendor:** | Fujitsu |
| **Model:** | FUJITSU Server PRIMERGY TX1320 M2 |
| **Form Factor:** | Tower |
| **CPU Name:** | Intel Xeon E3-1260L v5 |
| **CPU Characteristics:** | 4-Core, 2.90GHz, 8MB L3 Cache |
| **CPU Frequency (MHz):** | 2900 |
| **CPU(s) Enabled:** | 4 cores, 1 chip, 4 cores/chip |
| **Hardware Threads:** | 8 (2 / core) |
| **CPU(s) Orderable:** | 1 chip |
| **Primary Cache:** | 32 KB I + 32 KB D on chip per core |
| **Secondary Cache:** | 256 KB I+D on chip per core |

| Hardware | |
|---|---|
| **Tertiary Cache:** | 8 MB I+D on chip per chip |
| **Other Cache:** | None |
| **Memory Amount (GB):** | 16 |
| **# and size of DIMM:** | 2 x 8192 MB |
| **Memory Details:** | 8 GB DDR4, unbuffered, ECC, 2133 MHz, PC4-2133U, DIMM, 2Rx8; slots 1A, 1B populated |
| **Power Supply Quantity and Rating (W):** | 1 x 250 |
| **Power Supply Details:** | Fujitsu Technology Solutions S26113-E564-V71-01 |
| **Disk Drive:** | 1 x SSD SATA 6G 64GB DOM N H-P, S26361-F5522-E64 |
| **Disk Controller:** | Integrated SATA Controller |
| **# and type of Network Interface Cards (NICs) Installed:** | 2 x Intel I210 Gigabit Network Connection (onboard) |
| **NICs Enabled in Firmware / OS / Connected:** | 1/1/1 |
| **Network Speed (Mbit):** | 1000 |
| **Keyboard:** | None |
| **Mouse:** | None |
| **Monitor:** | None |
| **Optical Drives:** | No |
| **Other Hardware:** | None |

| Software | |
|---|---|
| **Power Management:** | Enabled ("Fujitsu Enhanced Power Settings" power plan) |
| **Operating System (OS):** | Microsoft Windows Server 2012 R2 Standard |
| **OS Version:** | Version 6.3.9600 Build 9600 |
| **Filesystem:** | NTFS |
| **JVM Vendor:** | Oracle Corporation |
| **JVM Version:** | Oracle Java HotSpot(TM) 64-Bit Server VM (build 24.80-b11, mixed mode), version 1.7.0_80 |
| **JVM Command-line Options:** | -server -Xmn2300m -Xms2750m -Xmx2750m -XX:SurvivorRatio=60 -XX:TargetSurvivorRatio=90 -XX:AllocatePrefetchDistance=256 -XX:AllocatePrefetchLines=4 -XX:LoopUnrollLimit=45 -XX:InitialTenuringThreshold=12 -XX:MaxTenuringThreshold=15 -XX:ParallelGCThreads=2 -XX:InlineSmallCode=3900 -XX:MaxInlineSize=270 -XX:FreqInlineSize=2500 -XX:+AggressiveOpts -XX:+UseLargePages -XX:+UseParallelOldGC -XX:-UseAdaptiveSizePolicy |
| **JVM Affinity:** | start /AFFINITY [0x3,0xC,0x30,0xC0] |
| **JVM Instances:** | 4 |
| **JVM Initial Heap (MB):** | 2750 |
| **JVM Maximum Heap (MB):** | 2750 |
| **JVM Address Bits:** | 64 |
| **Boot Firmware Version:** | R1.3.0 |
| **Management Firmware Version:** | 8.04A |
| **Workload Version:** | SSJ 1.2.10 |
| **Director Location:** | Controller |
| **Other Software:** | None |

## Boot Firmware Settings

- Set "Hardware Prefetcher = Disabled" in BIOS.
- Set "Adjacent Cache Line Prefetch = Disabled" in BIOS.
- Set "DCU Streamer Prefetcher = Disabled" in BIOS.
- Set "ASPM Support = Auto" in BIOS.
- Set "Turbo Mode = Disabled" in BIOS.
- Set "DMI Control = Gen1" in BIOS.
- Set "Intel Virtualization Technology = Disabled" in BIOS.
- Set "LAN 2 Controller = Disabled" in BIOS.

## Management Firmware Settings

None

## System Under Test Notes

- Set "Turn off hard disk after = 1 Minute" in OS.
- Using the local security settings console, "lock pages in memory" was enabled for the user running the benchmark.
- Benchmark was started via Windows Remote Desktop Connection.
- Each JVM instance was affinitized to two logical processors.

## Controller System

| Hardware | |
|---|---|
| **Hardware Vendor:** | Fujitsu |
| **Model:** | PRIMERGY RX200 S6 |
| **CPU Description:** | Intel Xeon X5680 |
| **Memory amount (GB):** | 48 |

| Software | |
|---|---|
| **Operating System (OS):** | Microsoft Windows Server 2008 R2 Enterprise SP1 |
| **JVM Vendor:** | Oracle Corporation |
| **JVM Version:** | Oracle Java HotSpot(TM) 64-Bit Server VM (build 25.25-b02, mixed mode) |
| **CCS Version:** | 1.2.6 |

## Measurement Devices

| Power Analyzer pwr1 | |
|---|---|
| **Hardware Vendor:** | ZES Zimmer Electronic Systems GmbH |
| **Model:** | LMG95 |
| **Serial Number:** | 11210802 |
| **Connectivity:** | RS-232 |
| **Input Connection:** | Default (20A) |
| **Metrology Institute:** | PTB (Physikalisch Technische Bundesanstalt) |
| **Accredited by:** | Atlas Copco Tools Central Europe GmbH |
| **Calibration Label:** | W14113561 |
| **Date of Calibration:** | 21-Nov-2014 |
| **PTDaemon Host System:** | same as CCS |
| **PTDaemon Host OS:** | same as CCS |
| **PTDaemon Version:** | 1.7.1-6ff11330-20150212 |
| **Setup Description:** | Connected to PSU 1 |

| Temperature Sensor temp1 | |
|---|---|
| **Hardware Vendor:** | Digi International Inc. |
| **Model:** | Watchport/H |
| **Driver Version:** | Watchport Virtual Port 5.70.105.0 |
| **Connectivity:** | USB |
| **PTDaemon Host System:** | same as CCS |
| **PTDaemon Host OS:** | same as CCS |

| Temperature Sensor temp1 | |
|---|---|
| **Setup Description:** | 5 mm in front of SUT main air intake |

## Notes

- SPECpower_ssj.props input.load_level.number_warehouses set to 8 due to a known inconsistency in processor reporting with this Java version.

## Aggregate Electrical and Environmental Data

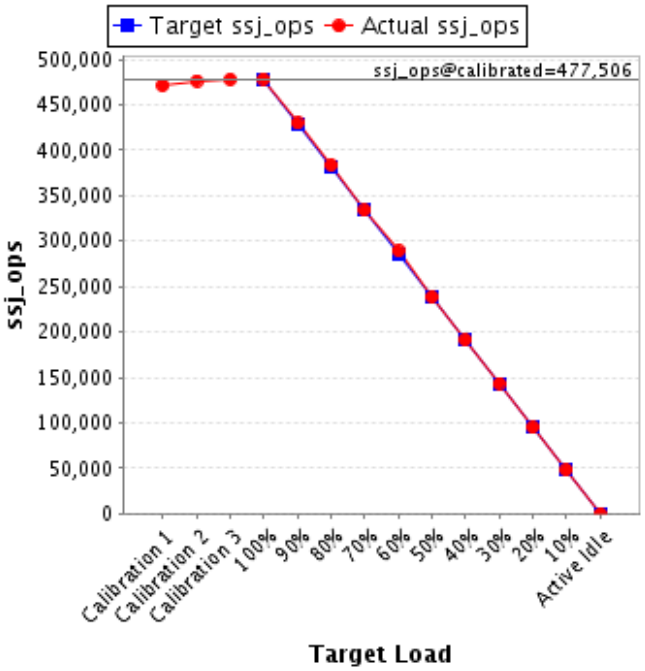
| Target Load | Average Active Power (W) | Minimum Ambient Temperature (°C) |
|---|---|---|
| 100% | 44.7 | 21.4 |
| 90% | 40.2 | 21.6 |
| 80% | 35.8 | 21.9 |
| 70% | 31.4 | 22.1 |
| 60% | 28.1 | 22.2 |
| 50% | 25.0 | 22.3 |
| 40% | 22.6 | 21.9 |
| 30% | 20.4 | 21.5 |
| 20% | 18.4 | 21.6 |
| 10% | 16.0 | 22.0 |
| Active Idle | 11.6 | 22.3 |

| Line Standard | Minimum Temperature (°C) | Elevation (m) |
|---|---|---|
| 230V / 50 Hz / 1 phase / 2 wires | 21.4 | 117 |

See the Power/Temperature Details Report for additional details.

## Aggregate Performance Data

| Target Load | Actual Load | ssj_ops | |
|---|---|---|---|
| | | Target | Actual |
| Calibration 1 | | | 471,490 |
| Calibration 2 | | | 476,717 |
| Calibration 3 | | | 478,296 |
| *ssj_ops@calibrated=477,506* | | | |
| 100% | 100.2% | 477,506 | 478,512 |
| 90% | 90.0% | 429,756 | 429,767 |
| 80% | 80.4% | 382,005 | 383,866 |
| 70% | 69.9% | 334,254 | 333,825 |
| 60% | 60.6% | 286,504 | 289,162 |
| 50% | 50.0% | 238,753 | 238,762 |
| 40% | 40.0% | 191,003 | 191,219 |
| 30% | 30.1% | 143,252 | 143,580 |
| 20% | 19.9% | 95,501 | 94,862 |
| 10% | 10.1% | 47,751 | 48,106 |
| Active Idle | | 0 | 0 |




See the Host Performance Report for additional details.