## Fujitsu

**PRIMERGY CX2560 M5, Intel Xeon Silver 4215, 2.50 GHz**

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>May-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2019</td>
</tr>
</tbody>
</table>

**SPECrater**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>94.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Silver 4215</td>
</tr>
<tr>
<td>Max MHz</td>
<td>3500</td>
</tr>
<tr>
<td>Nominal</td>
<td>2500</td>
</tr>
<tr>
<td>Enabled</td>
<td>16 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable</td>
<td>1.2 cores</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>11 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R, running at 2400)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x SATA M.2 SSD, 256 GB</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>SUSE Linux Enterprise Server 15</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux</td>
</tr>
<tr>
<td>Parallel</td>
<td>No</td>
</tr>
<tr>
<td>Firmware</td>
<td>Fujitsu BIOS Version V1.0.0.0 R1.6.0 for D3854-B1x, released Jun-2019. Tested as V1.0.0.0 R1.3.3 for D3854-B1x Mar-2019</td>
</tr>
<tr>
<td>File System</td>
<td>btrfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Power Management</td>
<td>--</td>
</tr>
</tbody>
</table>
Fujitsu

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>32</td>
<td>698</td>
<td>73.0</td>
<td>700</td>
<td>72.8</td>
<td>704</td>
<td>72.4</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>32</td>
<td>611</td>
<td>74.1</td>
<td>609</td>
<td>74.4</td>
<td>612</td>
<td>74.0</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>32</td>
<td>415</td>
<td>125</td>
<td>415</td>
<td>124</td>
<td>415</td>
<td>125</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>32</td>
<td>652</td>
<td>64.4</td>
<td>653</td>
<td>64.3</td>
<td>654</td>
<td>64.2</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>32</td>
<td>314</td>
<td>108</td>
<td>313</td>
<td>108</td>
<td>312</td>
<td>108</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>32</td>
<td>299</td>
<td>187</td>
<td>301</td>
<td>186</td>
<td>301</td>
<td>186</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>32</td>
<td>454</td>
<td>80.7</td>
<td>454</td>
<td>80.8</td>
<td>454</td>
<td>80.7</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>32</td>
<td>714</td>
<td>74.2</td>
<td>720</td>
<td>73.6</td>
<td>709</td>
<td>74.7</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>32</td>
<td>491</td>
<td>171</td>
<td>488</td>
<td>172</td>
<td>490</td>
<td>171</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>549</td>
<td>62.9</td>
<td>550</td>
<td>62.9</td>
<td>550</td>
<td>62.9</td>
</tr>
</tbody>
</table>

**Results Table**

**Submit Notes**

The `numactl` mechanism was used to bind copies to processors. The config file option 'submit' was used to generate `numactl` commands to bind each copy to a specific processor. For details, please see the config file.

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"
Kernel Boot Parameter set with : nohz_full=1-31

**General Notes**

Environment variables set by runcpu before the start of the run:
`LD_LIBRARY_PATH = "/home/Benchmark/spec/speccpu2017-1.0.5_rate_int/lib/intel64"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3 > /proc/sys/vm/drop_caches
runcpu command invoked through `numactl` i.e.:
`numactl --interleave=all runcpu <etc>`

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
General Notes (Continued)

is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:
Adjacent Cache Line Prefetch = Disabled
DCU Ip Prefetcher = Disabled
DCU Streamer Prefetcher = Disabled
Power Technology = Custom
Energy Performance = Balanced Performance
Uncore Frequency Scaling = Disabled
Sub NUMA Clustering = Disabled
Stale AtoS = Enable
LLC Prefetch = Enabled
Sysinfo program /home/Benchmark/speccpu2017-1.0.5_rate_int/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-3m0d Fri May 31 19:04:19 2019

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Silver 4215 CPU @ 2.50GHz
  2 "physical id"s (chips)
  32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 8
  siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7

From lscpu:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel

(Continued on next page)
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<tbody>
<tr>
<td>94.4</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

| CPU family:          | 6                      |
| Model:               | 85                     |
| Model name:          | Intel(R) Xeon(R) Silver 4215 CPU @ 2.50GHz |
| Stepping:            | 6                      |
| CPU MHz:             | 2500.000               |
| CPU max MHz:         | 3500.0000              |
| CPU min MHz:         | 1000.0000              |
| BogoMIPS:            | 5000.00                |
| Virtualization:      | VT-x                   |
| L1d cache:           | 32K                    |
| L1i cache:           | 32K                    |
| L2 cache:            | 1024K                  |
| L3 cache:            | 11264K                 |
| NUMA node0 CPU(s):   | 0-7,16-23              |
| NUMA node1 CPU(s):   | 8-15,24-31             |

**Flags:**

- CPU family:          6
- Model:               85
- Model name:          Intel(R) Xeon(R) Silver 4215 CPU @ 2.50GHz
- Stepping:            6
- CPU MHz:             2500.000
- CPU max MHz:         3500.0000
- CPU min MHz:         1000.0000
- BogoMIPS:            5000.00
- Virtualization:      VT-x
- L1d cache:           32K
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- L2 cache:            1024K
- L3 cache:            11264K
- NUMA node0 CPU(s):   0-7,16-23
- NUMA node1 CPU(s):   8-15,24-31

**Processors:**

- 2 nodes
- node 0 cpus: 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
- node 0 size: 192226 MB
- node 0 free: 191849 MB
- node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
- node 1 size: 193499 MB
- node 1 free: 193185 MB
- node distances:
  - node 0: 10 18
  - node 1: 18 10

**Virtual Memory:**

- MemTotal: 394983264 KB

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SPEC CPU®2017 Integer Rate Result

Fujitsu
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<table>
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<tr>
<th>CPU2017 License: 19</th>
<th>Test Date: May-2019</th>
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<tr>
<td>Test Sponsor: Fujitsu</td>
<td>Hardware Availability: Apr-2019</td>
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SPECrate®2017_int_base = 94.4

SPECrate®2017_int_peak = Not Run

Platform Notes (Continued)

HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

os-release:
NAME="SLES"
VERSION="15"
VERSION_ID="15"
PRETTY_NAME="SUSE Linux Enterprise Server 15"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME=cpe:/o:suse:sles:15

uname -a:
Linux linux-3m0d 4.12.14-25.28-default #1 SMP Wed Jan 16 20:00:47 UTC 2019 (dd6077c)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

run-level 3 May 31 18:35

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5_rate_int
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 236G 150G 86G 64% /home

Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS FUJITSU V1.0.0.0 R1.3.3 for D3854-B1x 03/15/2019
Memory:
6x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2400
4x Not Specified Not Specified
6x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2400

(End of data from sysinfo program)
Fujitsu
PRIMERGY CX2560 M5, Intel Xeon Silver 4215, 2.50 GHz

SPECrater®2017_int_base = 94.4
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CPU2017 License: 19
Test Sponsor: Fujitsu
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Test Date: May-2019
Hardware Availability: Apr-2019
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Compiler Version Notes
==============================================================================
| C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)                  |
|         | 525.x264_r(base) 557.xz_r(base)                                       |
------------------------------------------------------------------------------
| Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, |
| Version 19.0.1.144 Build 20181018                                         |
| Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.          |
------------------------------------------------------------------------------

C++ benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Base Portability Flags
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64

(Base Compiler Invocation
C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

(Continued on next page)
**SPEC CPU®2017 Integer Rate Result**

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**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** May-2019  
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### Base Portability Flags (Continued)

- 523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX  
- 525.x264_r: -DSPEC_LP64  
- 531.deepsjeng_r: -DSPEC_LP64  
- 541.leela_r: -DSPEC_LP64  
- 548.exchange2_r: -DSPEC_LP64  
- 557.xz_r: -DSPEC_LP64

### Base Optimization Flags

**C benchmarks:**
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=4  
- -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
- -lqkmalloc

**C++ benchmarks:**
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=4  
- -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
- -lqkmalloc

**Fortran benchmarks:**
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
- -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
- -lqkmalloc

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU*2017 v1.0.5 on 2019-05-31 06:04:18-0400.  