Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Gold 6234, 3.30 GHz

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_int_base</th>
<th>SPECrate2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>95.8</td>
<td>Not Run</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>90.4</td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>78.6</td>
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<tr>
<td>520.omnetpp_r</td>
<td>173</td>
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<td>523.xalancbmk_r</td>
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<tr>
<td>525.x264_r</td>
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<td>531.deepsjeng_r</td>
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<td>541.leela_r</td>
<td>239</td>
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<tr>
<td>548.exchange2_r</td>
<td>223</td>
<td></td>
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<tr>
<td>557.xz_r</td>
<td>65.8</td>
<td></td>
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SPECrate2017_int_base = 116

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Hardware
CPU Name: Intel Xeon Gold 6234
Max MHz.: 4000
Nominal: 3300
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 24.75 MB I+D on chip per chip
Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x SATA M.2 SSD, 240GB
Other: None

Software
OS: SUSE Linux Enterprise Server 15
4.12.14-25.28-default
Compiler: 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
Parallel: No
Firmware: Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3384-B1x. Released Jan-2019 tested as V5.0.0.14 R1.2.0 for D3384-B1x Feb-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Copies</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
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<td>525.x264_r</td>
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<td>245</td>
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<td>518</td>
<td>70.8</td>
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<td>223</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>525</td>
<td>549</td>
<td>63.0</td>
<td>431</td>
<td>80.1</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base =** 116

**SPECrate2017_int_peak =** Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### 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/spec2017-1.0.5/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) is mitigated in the system as tested and documented.

(Continued on next page)
Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Gold 6234, 3.30 GHz

SPECratenode_int_base = 116
SPECratenode_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: May-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

General Notes (Continued)

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:
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
DCU Ip Prefetcher = Disabled
DCU Streamer Prefetcher = Disabled
Stale AtoS = Enable
Fan Control = Full

Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2540M5 Thu May 23 10:26:13 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) Gold 6234 CPU @ 3.30GHz
  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 1 2 4 9 20 25 26 27
physical 1: cores 4 9 17 18 19 24 25 27

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): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6234 CPU @ 3.30GHz
Stepping: 7

(Continued on next page)
### Platform Notes (Continued)

<table>
<thead>
<tr>
<th>CPU MHz:</th>
<th>3300.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU max MHz:</td>
<td>4000.0000</td>
</tr>
<tr>
<td>CPU min MHz:</td>
<td>1200.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>6600.00</td>
</tr>
<tr>
<td>Virtualization:</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>1024K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>25344K</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0,1,3,5,16,17,19,21</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
<td>2,4,6,7,18,20,22,23</td>
</tr>
<tr>
<td>NUMA node2 CPU(s):</td>
<td>8,11,12,15,24,27,28,31</td>
</tr>
<tr>
<td>NUMA node3 CPU(s):</td>
<td>9,10,13,14,25,26,29,30</td>
</tr>
</tbody>
</table>
| Flags:              | fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abtm lms cmovabd strc<hr />

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

<table>
<thead>
<tr>
<th>available: 4 nodes (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 0 cpus: 0 1 3 5 16 17 19 21</td>
</tr>
<tr>
<td>node 0 size: 191969 MB</td>
</tr>
<tr>
<td>node 0 free: 191644 MB</td>
</tr>
<tr>
<td>node 1 cpus: 2 4 6 7 18 20 22 23</td>
</tr>
<tr>
<td>node 1 size: 193534 MB</td>
</tr>
<tr>
<td>node 1 free: 193311 MB</td>
</tr>
<tr>
<td>node 2 cpus: 8 11 12 15 24 27 28 31</td>
</tr>
<tr>
<td>node 2 size: 193293 MB</td>
</tr>
<tr>
<td>node 2 free: 193024 MB</td>
</tr>
<tr>
<td>node 3 cpus: 9 10 13 14 25 26 29 30</td>
</tr>
<tr>
<td>node 3 size: 129022 MB</td>
</tr>
<tr>
<td>node 3 free: 128791 MB</td>
</tr>
<tr>
<td>node distances: node 0 1 2 3 0: 10 11 21 21</td>
</tr>
</tbody>
</table>

(Continued on next page)
**SPEC CPU2017 Integer Rate Result**

**Fujitsu**

**PRIMERGY RX2540 M5, Intel Xeon Gold 6234, 3.30 GHz**

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<th>SPECrate2017_int_base =</th>
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<tbody>
<tr>
<td>SPECrate2017_int_peak =</td>
<td>Not Run</td>
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</tbody>
</table>

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** May-2019  
**Hardware Availability:** May-2019  
**Software Availability:** Feb-2019

---

**Platform Notes (Continued)**

1: 11 10 21 21  
2: 21 21 10 11  
3: 21 21 11 10

From /proc/meminfo
- MemTotal: 724807636 kB  
- 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 RX2540M5 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 23 10:24

**SPEC is set to:** /home/Benchmark/speccpu2017-1.0.5

**Filesystem** | **Type** | **Size** | **Used** | **Avail** | **Use%** | **Mounted on**
---|---|---|---|---|---|---
/dev/sda5 | xfs | 191G | 57G | 135G | 30% | /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 // American Megatrends Inc. V5.0.0.14 R1.2.0 for D3384-B1x**  
02/28/2019

**Memory:**
- 2x Samsung M393A4K40CB2-CVF 2 rank 2933, configured at 2934
- 22x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Fujitsu
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Platform Notes (Continued)
(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  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.

==============================================================================
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
      541.leela_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.

==============================================================================
FC  548.exchange2_r(base)
==============================================================================
Intel(R) Fortran 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.

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
SPEC CPU2017 Integer Rate Result

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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
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:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevA.xml
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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.5 on 2019-05-22 21:26:13-0400.
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