Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

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

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

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 285</th>
</tr>
</thead>
</table>

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 Jun-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
Power Management: --

<table>
<thead>
<tr>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
</tr>
<tr>
<td>CPU Name: Intel Xeon Platinum 8260Y</td>
</tr>
<tr>
<td>Max MHz: 3900</td>
</tr>
<tr>
<td>Nominal: 2400</td>
</tr>
<tr>
<td>Enabled: 48 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>Cache L1: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2: 1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3: 35.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other: None</td>
</tr>
<tr>
<td>Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)</td>
</tr>
<tr>
<td>Storage: 1 x SATA M.2 SSD, 480 GB</td>
</tr>
<tr>
<td>Other: None</td>
</tr>
</tbody>
</table>

SPECrate®2017_int_peak = Not Run

## SPEC CPU®2017 Integer Rate Result

Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

Copyright 2017-2019 Standard Performance Evaluation Corporation

---

| Copies | 0  | 30.0 | 60.0 | 90.0 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 | 390 | 420 | 450 | 480 | 510 | 540 | 570 | 600 | 630 | 660 | 690 | 720 | 750 | 780 | 810 | 840 | 870 | 900 | 930 | 960 | 990 |
|--------|----|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 500.pcrekbell_r | 96 | 221 |
| 502.gcc_r | 96 | 226 |
| 505.mcf_r | 96 | 368 |
| 520.omnetpp_r | 96 | 489 |
| 523.xalancbmk_r | 96 | 489 |
| 525.x264_r | 96 | 572 |
| 531.deepsjeng_r | 96 | 572 |
| 541.leela_r | 96 | 572 |
| 548.exchange2_r | 96 | 572 |
| 557.xz_r | 96 | 572 |

---

SPEC CPU®2017 Int Base Result (285)
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_r</td>
<td>96</td>
<td>691</td>
<td>221</td>
<td>691</td>
<td>221</td>
<td>690</td>
<td>222</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gcc_r</td>
<td>96</td>
<td>600</td>
<td>226</td>
<td>598</td>
<td>227</td>
<td>600</td>
<td>226</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mcf_r</td>
<td>96</td>
<td>422</td>
<td>368</td>
<td>420</td>
<td>369</td>
<td>423</td>
<td>367</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>omnetpp_r</td>
<td>96</td>
<td>666</td>
<td>189</td>
<td>665</td>
<td>189</td>
<td>666</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xalanbmk_r</td>
<td>96</td>
<td>328</td>
<td>309</td>
<td>327</td>
<td>310</td>
<td>328</td>
<td>309</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x264_r</td>
<td>96</td>
<td>294</td>
<td>572</td>
<td>291</td>
<td>572</td>
<td>295</td>
<td>571</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>deepsjeng_r</td>
<td>96</td>
<td>450</td>
<td>244</td>
<td>450</td>
<td>244</td>
<td>450</td>
<td>244</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leela_r</td>
<td>96</td>
<td>682</td>
<td>233</td>
<td>698</td>
<td>228</td>
<td>681</td>
<td>233</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exchange2_r</td>
<td>96</td>
<td>484</td>
<td>520</td>
<td>484</td>
<td>519</td>
<td>485</td>
<td>518</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xz_r</td>
<td>96</td>
<td>536</td>
<td>193</td>
<td>537</td>
<td>193</td>
<td>536</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 285**  
**SPECrate®2017_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=1-95

General Notes

Environment variables set by runcpu before the start of the run:  
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/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.:  
umactl --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 Platinum 8260Y, 2.40 GHz

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

SPECRate®2017_int_base = 285
SPECRate®2017_int_peak = Not Run

CPU2017 License: 19
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/speccpu-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on RX2540M5-AD-537 Thu Jun 13 16:00:18 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) Platinum 8260C CPU @ 2.40GHz
        2 "physical id"s (chips)
         96 "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 : 24
    siblings : 48
    physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
    physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29

From lscpu:
    Architecture: x86_64
    CPU op-mode(s): 32-bit, 64-bit
    Byte Order: Little Endian
    CPU(s): 96
    On-line CPU(s) list: 0-95
    Thread(s) per core: 2
    Core(s) per socket: 24
    Socket(s): 2
    NUMA node(s): 4
    Vendor ID: GenuineIntel
    CPU family: 6
    Model: 85
    Model name: Intel(R) Xeon(R) Platinum 8260C CPU @ 2.40GHz
    Stepping: 6

(Continued on next page)
**Fujitsu**

PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>285</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
</tr>
</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)**

- CPU MHz: 2400.000
- CPU max MHz: 3900.0000
- CPU min MHz: 1000.0000
- BogoMIPS: 4800.00
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 36608K

NUMA node0 CPU(s): 0-7, 13-15, 19, 20, 48-51, 55-57, 61-63, 67, 68

NUMA node1 CPU(s): 4-10, 12-16, 18-23, 32-54, 58-60, 64-66, 69-71

NUMA node2 CPU(s): 24-27, 31-33, 37-39, 43, 44, 72-75, 79-81, 85-87, 91, 92

NUMA node3 CPU(s): 28-30, 34-36, 40-42, 45-47, 76-78, 82-84, 88-90, 93-95

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 pdelgb rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology

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

```
/proc/cpuinfo cache data
cache size : 36608 KB
```

(Continued on next page)
Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

**SPECrate®2017_int_base = 285**

**SPECrate®2017_int_peak = Not Run**

CPU2017 License: 19
Test Sponsor: Fujitsu
Test Date: May-2019
Hardware Availability: May-2019
Tested by: Fujitsu
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: 790773156 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-AD-537 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 Jun 13 15:52
```

```
SPEC is set to: /home/Benchmark/speccpu-1.0.5
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda5 xfs 405G 29G 377G 7% /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:
  1x Hynix HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2934
  23x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934
```

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

**Fujitsu**

PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 285</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = Not Run</td>
</tr>
</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)

(End of data from sysinfo program)

The marketing name for the processor in this result, which appears in the CPU name and hardware model areas, is different from sysinfo because a pre-production processor was used. The pre-production processor differs from the production processor in name only.

## Compiler Version Notes

```
<table>
<thead>
<tr>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
</tr>
<tr>
<td>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)</td>
</tr>
</tbody>
</table>

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.
```

```
<table>
<thead>
<tr>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>C++</td>
</tr>
<tr>
<td>520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leetcode_r(base)</td>
</tr>
</tbody>
</table>

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.
```

```
<table>
<thead>
<tr>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fortran</td>
</tr>
<tr>
<td>548.exchange2_r(base)</td>
</tr>
</tbody>
</table>

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 CPU®2017 Integer Rate Result

Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

SPECraté®2017_int_base = 285
SPECraté®2017_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

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:
-W1,-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:
-W1,-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:
-W1,-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-RevE.xml
### SPEC CPU®2017 Integer Rate Result

<table>
<thead>
<tr>
<th>SPEC CPU®2017 int_base = 285</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEC CPU®2017 int_peak = Not Run</td>
</tr>
</tbody>
</table>

**Fujitsu**

PRIMERGY RX2540 M5, Intel Xeon Platinum 8260Y, 2.40 GHz

<table>
<thead>
<tr>
<th>CPU2017 License: 19</th>
<th>Test Date: May-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Fujitsu</td>
<td>Hardware Availability: May-2019</td>
</tr>
<tr>
<td>Tested by: Fujitsu</td>
<td>Software Availability: Feb-2019</td>
</tr>
</tbody>
</table>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2019-06-13 03:00:17-0400.