**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base =</th>
<th>SPECrate®2017_int_peak =</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>275</td>
<td>Not Run</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Gold 6346
- **Max MHz:** 3600
- **Nominal:** 3100
- **Enabled:** 32 cores, 2 chips, 2 threads/core
- **Orderable:** 1.2 chips
- **Cache L1:** 32 KB I + 48 KB D on chip per core
- **L2:** 1.25 MB I+D on chip per core
- **L3:** 36 MB I+D on chip per chip
- **Other:** None
- **Memory:** 1 TB (32 x 32 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x SATA M.2 SSD, 480GB
- **Other:** None

**Software**

- **OS:** Red Hat Enterprise Linux release 8.2 (Ootpa)
  4.18.0-193.el8.x86_64
- **Compiler:** C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
  Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;
- **Parallel:** No
- **Firmware:** Fujitsu BIOS Version V1.0.0.0 R1.6.0 for D3890-A1x. Released Jun-2021 tested as V1.0.0.0 R1.2.0 for D3890-A1x Apr-2021
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage
## SPEC CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

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

SPECrate®2017_int_base = 275
SPECrate®2017_int_peak = Not Run

### Results Table

<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>64</td>
<td>545</td>
<td>187</td>
<td>546</td>
<td>187</td>
<td>547</td>
<td>186</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>64</td>
<td><strong>400</strong></td>
<td>226</td>
<td>399</td>
<td>227</td>
<td>403</td>
<td>225</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>64</td>
<td>227</td>
<td>456</td>
<td>227</td>
<td><strong>455</strong></td>
<td>228</td>
<td>454</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>64</td>
<td>477</td>
<td>176</td>
<td>476</td>
<td>176</td>
<td>475</td>
<td>177</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>64</td>
<td>192</td>
<td>353</td>
<td>193</td>
<td><strong>350</strong></td>
<td>194</td>
<td>349</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>64</td>
<td>199</td>
<td>564</td>
<td>199</td>
<td><strong>562</strong></td>
<td>200</td>
<td>561</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>64</td>
<td>354</td>
<td>207</td>
<td>353</td>
<td>208</td>
<td><strong>354</strong></td>
<td><strong>207</strong></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>64</td>
<td>527</td>
<td>201</td>
<td>527</td>
<td>201</td>
<td>527</td>
<td>201</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>64</td>
<td>284</td>
<td>590</td>
<td><strong>285</strong></td>
<td><strong>589</strong></td>
<td>285</td>
<td>588</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>64</td>
<td><strong>465</strong></td>
<td><strong>149</strong></td>
<td>466</td>
<td>148</td>
<td>465</td>
<td>149</td>
</tr>
</tbody>
</table>

### Submit Notes

The config file option 'submit' was used.

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Kernel Boot Parameter set with : nohz_full=1-63

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:
```
LD_LIBRARY_PATH =
MALLOC_CONF = "retain:true"
```

### General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
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.:

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

Fujitsu
PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

SPECraten®2017_int_base = 275
SPECraten®2017_int_peak = Not Run

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

General Notes (Continued)

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.
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:
DCU Streamer Prefetcher = Disabled
CPU C1E Support = Disabled
Package C State Limit = C2
UPI Link Frequency Select = 10.4 GT/s
XPT Prefetch = Enabled
LLC Prefetch = Enabled
SNC = Enable SNC2
UPI Prefetch = Disabled
FAN Control = Full

Sysinfo program /home/Benchmark/SPECCPU2021.1-b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost.localdomain Fri Sep 3 00:10:50 2021

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 6346 CPU @ 3.10GHz
  2 "physical id"s (chips)
  64 "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 : 16
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 64
On-line CPU(s) list: 0-63

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

Fujitsu
PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

SPECrate®2017_int_base = 275
SPECrate®2017_int_peak = Not Run

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

Test Date: Sep-2021
Hardware Availability: Jun-2021
Software Availability: Dec-2020

Platform Notes (Continued)

Thread(s) per core: 2
Core(s) per socket: 16
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6346 CPU @ 3.10GHz
Stepping: 6
CPU MHz: 3600.000
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
BogoMIPS: 6200.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 36864K
NUMA node0 CPU(s): 0-7,32-39
NUMA node1 CPU(s): 8-15,40-47
NUMA node2 CPU(s): 16-23,48-55
NUMA node3 CPU(s): 24-31,56-63
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 bts 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 abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid Single ssbd
mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmi flexpriority ept vpid fsgsbase
tsc_adjust bmi1 hle avx2 smep bmi2 ertms invpcid rtm cmp rdt_a avx512f avx512dq
rdseed adx smap avx512sfma clflushopt clwb intel_pt avx512cd sha ni avx512bw
avx512vl xsaveopt xsavecaffe xsavev1 xsavec vcmplq xcomis b看了一次 cmp cmqm_local
wbinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_requ avx512vbmi umip pku ospke avx512_vbmi2 gfn i vaes vpcm1udad avx512_vnni
avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_lld
arch_capabilities

/proc/cpuinfo cache data
cache size : 36864 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 32 33 34 35 36 37 38 39
node 0 size: 257464 MB
node 0 free: 256745 MB
node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47

(Continued on next page)
Fujitsu
PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jun-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2020</td>
</tr>
</tbody>
</table>

SPECrate®2017_int_base = 275
SPECrate®2017_int_peak = Not Run

Platform Notes (Continued)

- node 1 size: 258016 MB
- node 1 free: 257645 MB
- node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
- node 2 size: 258044 MB
- node 2 free: 257838 MB
- node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
- node 3 size: 258041 MB
- node 3 free: 257816 MB
- node distances:
  - node 0 1 2 3
  - 0: 10 11 20 20
  - 1: 11 10 20 20
  - 2: 20 20 10 11
  - 3: 20 20 11 10

From /proc/meminfo
- MemTotal: 1056324980 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/sbin/tuned-adm active
- Current active profile: throughput-performance

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release* /etc/*version*
- os-release:
  - NAME="Red Hat Enterprise Linux"
  - VERSION="8.2 (Ootpa)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="8.2"
  - PLATFORM_ID="platform:el8"
  - PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
  - ANSI_COLOR="0;31"
  - redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  - system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  - system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
- Linux localhost.localdomain 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020
  x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
- CVE-2018-12207 (iTLB Multihit): Not affected

(Continued on next page)
**Fujitsu**  
PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 275</th>
<th>SPECrate®2017_int_peak = Not Run</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Test Date: Sep-2021</th>
<th>Hardware Availability: Jun-2021</th>
<th>Software Availability: Dec-2020</th>
</tr>
</thead>
</table>

**Platform Notes (Continued)**

- **CVE-2018-3620 (L1 Terminal Fault):** Not affected
- **Microarchitectural Data Sampling:** Not affected
- **CVE-2017-5754 (Meltdown):** Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2018-3639 (Speculative Store Bypass):** Mitigation: seccomp
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: usercopy/swapgs barriers and __user pointer sanitation
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
- **CVE-2020-0543 (Special Register Buffer Data Sampling):** No status reported
- **CVE-2019-11135 (TSX Asynchronous Abort):** Not affected

run-level 3 Sep 3 00:08

SPEC is set to: /home/Benchmark/SPECCPU2021.1-b

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda5</td>
<td>xfs</td>
<td>350G</td>
<td>33G</td>
<td>318G</td>
<td>10%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

- **Vendor:** FUJITSU
- **Product:** PRIMERGY RX2530 M6
- **Product Family:** SERVER
- **Serial:** EWABxxxxxx

Additional information from dmidecode 3.2 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.

Memory:

32x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

**BIOS:**

- **BIOS Vendor:** FUJITSU
- **BIOS Version:** V1.0.0.0 R1.2.0 for D3890-A1x
- **BIOS Date:** 04/01/2021
- **BIOS Revision:** 1.2
- **Firmware Revision:** 3.20

(End of data from sysinfo program)

**Compiler Version Notes**

```
| C             | 500.perlbench_r(base) | 502.gcc_r(base) | 505.mcf_r(base) |
```

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

**Fujitsu**

PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

<table>
<thead>
<tr>
<th>Spec CPU2017 License: 19</th>
<th>Test Date: Sep-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Fujitsu</td>
<td>Hardware Availability: Jun-2021</td>
</tr>
<tr>
<td>Tested by: Fujitsu</td>
<td>Software Availability: Dec-2020</td>
</tr>
</tbody>
</table>

**Compiler Version Notes (Continued)**

\[
\begin{array}{ll}
\text{Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113} \\
\text{Copyright (C) 1985-2020 Intel Corporation. All rights reserved.}
\end{array}
\]

\[
\begin{array}{l}
\text{Base Compiler Invocation}
\end{array}
\]

**C benchmarks:**
icx

**C++ benchmarks:**
icpx

**Fortran benchmarks:**
ifort

\[
\begin{array}{ll}
\text{Base Portability Flags} \\
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64 \\
502.gcc_r: -DSPEC_LP64 \\
505.mcf_r: -DSPEC_LP64 \\
520.omnetpp_r: -DSPEC_LP64 \\
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX \\
525.x264_r: -DSPEC_LP64
\end{array}
\]

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

## Fujitsu

PRIMERGY RX2530 M6, Intel Xeon Gold 6346, 3.10GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>275</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by</td>
<td>Fujitsu</td>
</tr>
</tbody>
</table>

### Base Portability Flags (Continued)

- 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:
- `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -gopt-mem-layout-trans=4`
- `-mbranches-within-32B-boundaries`
- `-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

#### C++ benchmarks:
- `-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -gopt-mem-layout-trans=4`
- `-mbranches-within-32B-boundaries`
- `-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

#### Fortran benchmarks:
- `-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ipo -no-prec-div`
- `-gopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte`
- `-auto -mbranches-within-32B-boundaries`
- `-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin`
- `-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:


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 v1.1.8 on 2021-09-03 00:10:50-0400.
Originally published on 2021-09-28.