Fujitsu
PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

SPECrate®2017_int_base = 297
SPECrate®2017_int_peak = Not Run

Fujitsu
3.00GHz

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

Hardware
CPU Name: Intel Xeon Gold 6354
Max MHz: 3600
Nominal: 3000
Enabled: 36 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: 39 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

Software
OS: Red Hat Enterprise Linux release 8.2 (Ootpa) 4.18.0-193.el8.x86_64
Compiler: C/C++: Version 19.1.2.275 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.1.2.275 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: Fujitsu BIOS Version V1.0.0.0 R1.6.0 for D3891-A1x. Released Jun-2021
tested as V1.0.0.0 R1.2.0 for D3891-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
Fujitsu
PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

CPU2017 License: 19
Test Sponsor: Fujitsu
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SPECrate®2017_int_base = 297
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Results Table

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</tbody>
</table>

SPECrate®2017_int_base = 297
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 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=1-71

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/PVT/speccpu-1.1.8/lib/intel64:/home/PVT/speccpu-1.1.8/lib/ia32:/h
ome/PVT/speccpu-1.1.8/je5.0.1-32"
MALLOCC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0
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)
Fujitsu
PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

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/PVT/speccpu-1.1.8/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca64d
running on localhost.localdomain Sat May 29 08:15:25 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 6354 CPU @ 3.00GHz
  2 "physical id"s (chips)
  72 "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 : 18
siblings : 36
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

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): 72
On-line CPU(s) list: 0-71
### Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tbody>
<tr>
<td>Thread(s) per core</td>
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<tr>
<td>Core(s) per socket</td>
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</tr>
<tr>
<td>Socket(s)</td>
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</tr>
<tr>
<td>NUMA node(s)</td>
<td>4</td>
</tr>
<tr>
<td>Vendor ID</td>
<td>GenuineIntel</td>
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<tr>
<td>CPU family</td>
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</tr>
<tr>
<td>Model</td>
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<tr>
<td>Model name</td>
<td>Intel(R) Xeon(R) Gold 6354 CPU @ 3.00GHz</td>
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<tr>
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<td>CPU min MHz</td>
<td>800.000.0000</td>
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<td>Virtualization</td>
<td>VT-x</td>
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<tr>
<td>L1d cache</td>
<td>48K</td>
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<tr>
<td>L1i cache</td>
<td>32K</td>
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<tr>
<td>L2 cache</td>
<td>1280K</td>
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<tr>
<td>L3 cache</td>
<td>39936K</td>
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<tr>
<td>NUMA node0 CPU(s)</td>
<td>0-8, 36-44</td>
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<tr>
<td>NUMA node1 CPU(s)</td>
<td>9-17, 45-53</td>
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<tr>
<td>NUMA node2 CPU(s)</td>
<td>18-26, 54-62</td>
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<tr>
<td>NUMA node3 CPU(s)</td>
<td>27-35, 63-71</td>
</tr>
<tr>
<td>Flags</td>
<td>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 xtrp pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 invpcid_single ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsavec cmq_llc cmq_occum_llc cmq_mbb_total cmq_mbb_local wbinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfnl vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_lid arch_capabilities</td>
</tr>
</tbody>
</table>

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 8 36 37 38 39 40 41 42 43 44
node 0 size: 257464 MB
node 0 free: 256695 MB
node 1 cpus: 9 10 11 12 13 14 15 16 17 45 46 47 48 49 50 51 52 53
```

(Continued on next page)
Platform Notes (Continued)

node 1 size: 258016 MB
node 1 free: 257505 MB
node 2 cpus: 18 19 20 21 22 23 24 25 26 54 55 56 57 58 59 60 61 62
node 2 size: 258043 MB
node 2 free: 257711 MB
node 3 cpus: 27 28 29 30 31 32 33 34 35 63 64 65 66 67 68 69 70 71
node 3 size: 258041 MB
node 3 free: 257651 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: 1056323368 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)
**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**
PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

<table>
<thead>
<tr>
<th>SPECrater®2017_int_base</th>
<th>297</th>
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<tr>
<td>SPECrater®2017_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-2021  
Hardware Availability: Jun-2021  
Software Availability: Aug-2020

---

**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: usercopy/swapgs barriers and __user pointer sanitation  
CVE-2017-5753 (Spectre variant 1): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling  
CVE-2017-5715 (Spectre variant 2): Not affected  
CVE-2020-0543 (Special Register Buffer Data Sampling): No status reported  
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 May 28 15:18

SPEC is set to: /home/PVT/speccpu-1.1.8

Filesystem | Type | Size | Used | Avail  | Use% | Mounted on
--- | --- | --- | --- | --- | --- | ---
/dev/sdb3 | xfs | 330G | 101G | 230G | 31% | /home

From /sys/devices/virtual/dmi/id

Vendor: FUJITSU  
Product: PRIMERGY RX2540 M6  
Product Family: SERVER  
Serial: EWAAAxxxxxx

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 D3891-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)
**Fujitsu**  
PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

| SPEC®2017_int_base = 297 | SPEC®2017_int_peak = Not Run |

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### Compiler Version Notes (Continued)

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<tr>
<th>525.x264_r(base) 557.xz_r(base)</th>
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<tbody>
<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604</td>
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<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
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<table>
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<th>548.exchange2_r(base)</th>
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</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

### Base Compiler Invocation

**C benchmarks:**
- icc

**C++ benchmarks:**
- icpc

**Fortran benchmarks:**
- ifort

### 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

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

Fujitsu

PRIMERGY RX2540 M6, Intel Xeon Gold 6354, 3.00GHz

SPECrate®2017_int_base = 297
SPECrate®2017_int_peak = Not Run

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

Test Date: May-2021
Hardware Availability: Jun-2021
Software Availability: Aug-2020

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:
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX2 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/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:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-ICL-RevA.xml
http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml
## SPEC CPU®2017 Integer Rate Result

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### Tested by: Fujitsu

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<th>Test Date:</th>
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<td>Software Availability:</td>
<td>Aug-2020</td>
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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 v1.1.8 on 2021-05-29 08:15:25-0400.
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