## Fujitsu
PRIMERGY RX2540 M6, Intel Xeon Gold 5320, 2.20GHz

**SPECrater®2017_int_base = 350**

**SPECrater®2017_int_peak = Not Run**

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</tr>
<tr>
<td>557.xz_r</td>
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</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon Gold 5320  
**Max MHz:** 3400  
**Nominal:** 2200  
**Enabled:** 52 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, running at 2933)  
**Storage:** 1 x SATA M.2 SSD, 480GB  
**Other:** None

### Software

**OS:** Red Hat Enterprise Linux release 8.2 (Ootpa)  
**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
**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

PRIMERGY RX2540 M6, Intel Xeon Gold 5320, 2.20GHz

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

**SPECrate®2017_int_base =** 350  
**SPECrate®2017_int_peak =** Not Run

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### Results Table

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**SPECrate®2017_int_base =** 350  
**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=1-103

---

**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:/home/PVT/speccpu-1.1.8/jre5.0.1-32"
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`

(Continued on next page)
**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 982a61ec0915b55891ef0e16aca6a4d
running on localhost.localdomain Fri Jun 11 12:08:51 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 5320 CPU @ 2.20GHz
- 2 "physical id"s (chips)
- 104 "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: 26
  - siblings: 52
  - physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
  - physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

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

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

CPU(s): 104
On-line CPU(s) list: 0-103
Thread(s) per core: 2
Core(s) per socket: 26
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 5320 CPU @ 2.20GHz
Stepping: 6
CPU MHz: 2976.538
CPU max MHz: 3400.0000
CPU min MHz: 800.0000
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 39936K
NUMA node0 CPU(s): 0-12,52-64
NUMA node1 CPU(s): 13-25,65-77
NUMA node2 CPU(s): 26-38,78-90
NUMA node3 CPU(s): 39-51,91-103
Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdm org rdtscp lm constant tsc art arch_perfm pebs bts rep_good nopl xtopology nonstop tsc cpuid aperfmpref pni pclmulqdq dtes64 monitor ds cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrpm dcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx i60 rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_13 invpcid_single ssbd mba ibrs ibpb stibp ibrs enhanced tpr_shadow vmni flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 3ns invpcid rtm cm qm rd tdr a axv512f axv512d rdsed adx smap axv512fma clflushopt clwb intel pt axv512cd sha ni axv512bw axv512vl xsaveopt xsavec xgetbv1 xsaves cmq llc cmq occup llc cmq mbm total cmq mbm local wbnoind dtherm ida arat pln pts hwp hwp ac window hwp epp hwp pkg req avx512vbmi umap pku ospke axv512 vmbi2 gfi vaes vpcm lmdq avx512 vnni avx512 bitalg tme axv512 vpopcntdq la57 rdpid md clear pconfig flush lld arch capabilities

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 9 10 11 12 52 53 54 55 56 57 58 59 60 61 62 63 64
node 0 size: 257462 MB

(Continued on next page)
Fujitsu
PRIMERGY RX2540 M6, Intel Xeon Gold 5320, 2.20GHz

SPEC CPU®2017 Integer Rate Result
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SPECrate®2017_int_base = 350
SPECrate®2017_int_peak = Not Run

Fujitsu
2.20GHz
PRIMERGY RX2540 M6, Intel Xeon Gold 5320,

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<tbody>
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</table>

Platform Notes (Continued)

node 0 free: 256736 MB
node 1 cpus: 13 14 15 16 17 18 19 20 21 22 23 24 25 65 66 67 68 69 70 71 72 73 74 75 76 77
node 1 size: 258042 MB
node 1 free: 257761 MB
node 2 cpus: 26 27 28 29 30 31 32 33 34 35 36 37 38 78 79 80 81 82 83 84 85 86 87 88 89 90
node 2 size: 258014 MB
node 2 free: 257787 MB
node 3 cpus: 39 40 41 42 43 44 45 46 47 48 49 50 51 91 92 93 94 95 96 97 98 99 100 101 102 103
node 3 size: 258039 MB
node 3 free: 257680 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: 1056316576 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

(Continued on next page)
Platform Notes (Continued)

x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs barriers and __user pointer sanitization
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 Jun 11 12:03

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: EWAAxxxxxx

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, configured at 2933

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**

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C

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Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604
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C++

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Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604
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Fortran

| 548.exchange2_r(base) |

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Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200623
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**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

(Continued on next page)
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Tested by: Fujitsu
Hardware Availability: Aug-2021
Software Availability: Aug-2020

Base Portability Flags (Continued)

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

Base Optimization Flags

C benchmarks:
-m64 -gnextgen -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 -gnextgen -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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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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Tested with SPEC CPU®2017 v1.1.8 on 2021-06-11 12:08:51-0400.