## SPEC CPU®2017 Integer Rate Result

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Jun-2023  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Hardware

**CPU Name:** Intel Xeon Gold 5418N  
**Max MHz:** 3800  
**Nominal:** 1800  
**Enabled:** 48 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**L2:** 2 MB I+D on chip per core  
**L3:** 45 MB I+D on chip per chip  
**Other:** None  
**Memory:** 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4000)  
**Storage:** 1 x 480 GB M.2 SSD  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 15 SP4  
**Compiler:** C/C++, Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
**Parallel:** No  
**Firmware:** Fujitsu BIOS Version V1.0.0.0 R1.10.0 for D3989-A1x. Released May-2023  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

### SPECrate®2017_int_base = 397

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Description</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td></td>
<td>294</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td></td>
<td>335</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td></td>
<td>644</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td></td>
<td>280</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td></td>
<td>751</td>
</tr>
<tr>
<td>525.x264_r</td>
<td></td>
<td>744</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td></td>
<td>271</td>
</tr>
<tr>
<td>541.leela_r</td>
<td></td>
<td>255</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td></td>
<td>789</td>
</tr>
<tr>
<td>557.xz_r</td>
<td></td>
<td>183</td>
</tr>
</tbody>
</table>

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

Fujitsu
PRIMERGY CX2560 M7, Intel Xeon Gold 5418N, 1.80GHz

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

SPECRate®2017_int_base = 397
SPECRate®2017_int_peak = Not Run

Test Date: Jun-2023
Hardware Availability: May-2023
Software Availability: Dec-2022

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>96</td>
<td>537</td>
<td>284</td>
<td>537</td>
<td>284</td>
<td>537</td>
<td>285</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>405</td>
<td>335</td>
<td>405</td>
<td>336</td>
<td>406</td>
<td>335</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
<td>241</td>
<td>644</td>
<td>243</td>
<td>638</td>
<td>240</td>
<td>646</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
<td>449</td>
<td>280</td>
<td>449</td>
<td>280</td>
<td>448</td>
<td>281</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>96</td>
<td>135</td>
<td>749</td>
<td>135</td>
<td>751</td>
<td>134</td>
<td>754</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
<td>226</td>
<td>744</td>
<td>226</td>
<td>744</td>
<td>226</td>
<td>745</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
<td>406</td>
<td>271</td>
<td>406</td>
<td>271</td>
<td>406</td>
<td>271</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
<td>623</td>
<td>255</td>
<td>623</td>
<td>255</td>
<td>623</td>
<td>255</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
<td>319</td>
<td>789</td>
<td>319</td>
<td>789</td>
<td>319</td>
<td>789</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
<td>560</td>
<td>185</td>
<td>566</td>
<td>183</td>
<td>566</td>
<td>183</td>
</tr>
</tbody>
</table>

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

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalanchmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/lib/ia32:/home/Benchmark/speccpu/je5.0.1-32"

MALLOC_CONF = "retain:true"
SPEC CPU®2017 Integer Rate Result

Fujitsu

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SPECrate®2017_int_base = 397
SPECrate®2017_int_peak = Not Run

Test Date: Jun-2023
Hardware Availability: May-2023
Software Availability: Dec-2022

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
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.
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
Package C State limit = C0
LLC Dead Line Alloc = Disabled
CPU Performance Boost = Aggressive
SNC (Sub NUMA) = Enable SNC2

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c899b7ed5c36ae2c92cc097bec197
running on localhost Fri Jun 16 17:35:58 2023

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
Table of contents
------------------------------------------------------------
1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysct1
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/klhugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------

(Continued on next page)
Fujitsu
PRIMERGY CX2560 M7, Intel Xeon Gold 5418N, 1.80GHz

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Platform Notes (Continued)

1. `uname -a`
   Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
   x86_64 x86_64 x86_64 GNU/Linux

2. `w`
   17:35:58 up 1 min, 1 user, load average: 0.93, 0.39, 0.14
   USER    TTY     FROM       LOGIN@  IDLE   JCPU    PCPU WHAT
   root    tty1    -          17:35   14.00s  2.22s  0.14s -bash

3. Username
   From environment variable $USER: root

4. `ulimit -a`
   core file size (blocks, -c) unlimited
   data seg size (kbytes, -d) unlimited
   scheduling priority (-e) 0
   file size (blocks, -f) unlimited
   pending signals (-i) 4125313
   max locked memory (kbytes, -l) 64
   max memory size (kbytes, -m) unlimited
   open files (-n) 1024
   pipe size (512 bytes, -p) 8
   POSIX message queues (bytes, -q) 819200
   real-time priority (-r) 0
   stack size (kbytes, -s) unlimited
   cpu time (seconds, -t) unlimited
   max user processes (-u) 4125313
   virtual memory (kbytes, -v) unlimited
   file locks (-x) unlimited

5. `sysinfo process ancestry`
   /usr/lib/systemd/systemd --switched-root --system --deserialize 30
   login -- root
   -bash
   -bash
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 --c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base -o all intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
   rate --tune base --size refine intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/Benchmark/speccpu

6. `/proc/cpuinfo`
   model name : Intel(R) Xeon(R) Gold 5418N
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 8
   microcode : 0x2b0001b0
   bugs : spectre_v1 spectre_v2 spec_store_bypass swaps
   cpu cores : 24

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

siblings : 48
2 physical ids (chips)
96 processors (hardware threads)
physical id 0: core ids 0-23
physical id 1: core ids 0-23
physical id 0: apic ids 0-47
physical id 1: apic ids 128-175

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.2:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>x86_64</td>
</tr>
<tr>
<td>CPU op-mode(s)</td>
<td>32-bit, 64-bit</td>
</tr>
<tr>
<td>Address sizes</td>
<td>46 bits physical, 57 bits virtual</td>
</tr>
<tr>
<td>Byte Order</td>
<td>Little Endian</td>
</tr>
<tr>
<td>CPU(s)</td>
<td>96</td>
</tr>
<tr>
<td>On-Line CPU(s) list</td>
<td>0-95</td>
</tr>
<tr>
<td>Vendor ID</td>
<td>GenuineIntel</td>
</tr>
<tr>
<td>Model name</td>
<td>Intel(R) Xeon(R) Gold 5418N</td>
</tr>
<tr>
<td>CPU family</td>
<td>6</td>
</tr>
<tr>
<td>Model</td>
<td>143</td>
</tr>
<tr>
<td>Thread(s) per core</td>
<td>2</td>
</tr>
<tr>
<td>Core(s) per socket</td>
<td>24</td>
</tr>
<tr>
<td>Socket(s)</td>
<td>2</td>
</tr>
<tr>
<td>Stepping</td>
<td>8</td>
</tr>
<tr>
<td>CPU max MHz</td>
<td>3800.000</td>
</tr>
<tr>
<td>CPU min MHz</td>
<td>800.000</td>
</tr>
<tr>
<td>BogoMIPS</td>
<td>3600.000</td>
</tr>
<tr>
<td>Flags:</td>
<td></td>
</tr>
<tr>
<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 tsc_known_freq 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 3nowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_13 invpcid_single intel_pmm cdp_12 ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vnumi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap avx512sfma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsaveopt xsave xsetbv1 xsaves cqm_llc cqm_occup_llc cqm_mmm_total cqm_mmm_local split_lock_detect avx_vnni avx512_if16 vmbnonvd dtherm ida arat pln pts hwp hwp_act_window hwp_ewp hwp_pkg_req avx512vbm umip pku ospke waltkg avx512_vmbm2 gfn1 vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote modvird movdir64b enqcmd frm md_clear serialize tsxidtrk pconfg arch_lbr avx512_fp16 amx_tile flush_lld arch_capabilities</td>
<td></td>
</tr>
<tr>
<td>Virtualization</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache</td>
<td>2.3 MiB (48 instances)</td>
</tr>
<tr>
<td>L1i cache</td>
<td>1.5 MiB (48 instances)</td>
</tr>
<tr>
<td>L2 cache</td>
<td>96 MiB (48 instances)</td>
</tr>
<tr>
<td>L3 cache</td>
<td>90 MiB (2 instances)</td>
</tr>
<tr>
<td>NUMA node(s)</td>
<td>4</td>
</tr>
<tr>
<td>NUMA node0 CPU(s)</td>
<td>0-11,48-59</td>
</tr>
<tr>
<td>NUMA node1 CPU(s)</td>
<td>12-23,60-71</td>
</tr>
<tr>
<td>NUMA node2 CPU(s)</td>
<td>24-35,72-83</td>
</tr>
<tr>
<td>NUMA node3 CPU(s)</td>
<td>36-47,84-95</td>
</tr>
<tr>
<td>Vulnerability Itlb multihit</td>
<td>Not affected</td>
</tr>
</tbody>
</table>

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

**SPECrate®2017_int_base = 397**
**SPECrate®2017_int_peak = Not Run**

Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>2.3M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>1.5M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L2</td>
<td>2M</td>
<td>96M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L3</td>
<td>45M</td>
<td>90M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>49152</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0-11,48-59
node 0 size: 257587 MB
node 0 free: 256518 MB
node 1 cpus: 12-23,60-71
node 1 size: 258041 MB
node 1 free: 257638 MB
node 2 cpus: 24-35,72-83
node 2 size: 258041 MB
node 2 free: 257638 MB
node 3 cpus: 36-47,84-95
node 3 size: 257680 MB
node 3 free: 257075 MB
node distances:
node 0  1  2  3
0:  10  12  21  21
1:  12  10  21  21
2:  21  21  10  12
3:  21  21  12  10

9. /proc/meminfo
MemTotal: 1056104592 kB

10. who --r
run-level 3 Jun 16 17:35

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
Default Target Status
multi-user degraded

12. Failed units, from systemctl list-units --state=failed
UNIT LOAD ACTIVE SUB DESCRIPTION
* sep5.service loaded failed failed systemd script to load sep5 driver at boot time

13. Services, from systemctl list-unit-files
STATE UNIT FILES

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

### enabled
- YaST2-Firstboot
- YaST2-Second-Stage
- apparmor
- auditd
- cron
- display-manager
- getty@
- havedged
- irqbalance
- issue-generator
- kbdsettings
- kdump
- early klog
- lvm2-monitor
- nscd
- postfix
- purge-kernels
- rollback
- rsyslog
- secp5
- smartd
- sshd
- wicked
- wickedd-auto4
- wickedd-dhcp4
- wickeddd
- wickedd-nanny

### enabled-runtime
- systemd-remount-fs

### disabled
- autofs
- autoyast-initscripts
- blk-availability
- boot-sysctl
- ca-certificates
- chrony-wait
- chronyd
- console-getty
- cups
- cups-browsed
- debug-shell
- ebtables
- exchange-bmc-os-info
- firewalld
- gpm
- grub2-once
- haveged
- switch-root
- ipmi
- ipmievd
- issue-add-ssh-keys
- kexec-load
- lsmask
- man-db-create
- multipathd
- nfs
- nfs-blkmap
- rdisc
- rpcbind
- rpmconfigcheck
- rsyncd
- serial-getty@
- smartd_generate_opts
- snmpd
- snmptrapd
- systemd-boot-check-no-failures
- systemd-network-generator
- systemd-sysext
- systemd-time-wait-sync
- systemd-timesyncd
- udisks2
- indirect
- wicked

### Platform Notes (Continued)

---

14. Linux kernel boot-time arguments, from /proc/cmdline

```plaintext
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=1877acc7-b872-4c2a-931f-b65cccf192e7
splash=silent
mitigations=auto
quiet
security=apparmor
```

---

15. cpupower frequency-info

analyzing CPU 0:

```
current policy: frequency should be within 800 MHz and 3.80 GHz.
The governor "powersave" may decide which speed to use within this range.
```

```
boost state support:
Supported: yes
Active: yes
```

### 16. sysctl

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>kernel.numa_balancing</td>
<td>1</td>
</tr>
<tr>
<td>kernel.randomize_va_space</td>
<td>2</td>
</tr>
<tr>
<td>vm.compaction_proactiveness</td>
<td>20</td>
</tr>
<tr>
<td>vm.dirty_background_bytes</td>
<td>0</td>
</tr>
<tr>
<td>vm.dirty_background_ratio</td>
<td>10</td>
</tr>
<tr>
<td>vm.dirty_bytes</td>
<td>0</td>
</tr>
<tr>
<td>vm.dirty_expire_centisecs</td>
<td>3000</td>
</tr>
<tr>
<td>vm.dirty_ratio</td>
<td>20</td>
</tr>
<tr>
<td>vm.dirty_writeback_centisecs</td>
<td>500</td>
</tr>
<tr>
<td>vm.dirtytime_expire_seconds</td>
<td>43200</td>
</tr>
<tr>
<td>vm.extfrag_threshold</td>
<td>500</td>
</tr>
<tr>
<td>vm.min_unmapped_ratio</td>
<td>1</td>
</tr>
<tr>
<td>vm.nr_hugepages</td>
<td>0</td>
</tr>
<tr>
<td>vm.nr_hugepages_mempolicy</td>
<td>0</td>
</tr>
<tr>
<td>vm.nr_overcommit_hugepages</td>
<td>0</td>
</tr>
<tr>
<td>vm.swappiness</td>
<td>60</td>
</tr>
<tr>
<td>vm.watermark_boost_factor</td>
<td>15000</td>
</tr>
<tr>
<td>vm.watermark_scale_factor</td>
<td>10</td>
</tr>
<tr>
<td>vm.zone_reclaim_mode</td>
<td>0</td>
</tr>
</tbody>
</table>

---

17. /sys/kernel/mm/transparent_hugepage

```
defrag always defer defer+madvise [madvise] never
enabled [always] madvise never
```

(Continued on next page)
Fujitsu
PRIMERGY CX2560 M7, Intel Xeon Gold 5418N, 1.80GHz

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

SPECrate®2017_int_base = 397
SPECrate®2017_int_peak = Not Run

Test Date: Jun-2023
Hardware Availability: May-2023
Software Availability: Dec-2022

Platform Notes (Continued)

hpage_pmd_size  2097152
shmem_enabled  always within_size advise [never] deny force

18. /sys/kernel/mm/transparent_hugepage/khugepaged
   alloc_sleep_millisecs 60000
defrag 1
max_ptes_none 511
max_ptes_shared 256
max_ptes_swap 64
pages_to_scan 4096
scan_sleep_millisecs 10000

19. OS release
   From /etc/*-release /etc/*-version
   os-release SUSE Linux Enterprise Server 15 SP4

20. Disk information
   SPEC is set to: /home/Benchmark/speccpu
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   447G   56G  391G  13% /

21. /sys/devices/virtual/dmi/id
   Vendor:         FUJITSU
   Product:        PRIMERGY CX2560 M7
   Product Family: SERVER
   Serial:         EWCDXXXXXX

22. dmidecode
   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:
      16x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800, configured at 4000

23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor: FUJITSU
   BIOS Version: V1.0.0.0 R1.1.0 for D3989-A1x
   BIOS Date: 04/07/2023
   BIOS Revision: 1.1
   Firmware Revision: 2.20

Compiler Version Notes

C     | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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(Continued on next page)
## SPEC CPU®2017 Integer Rate Result

<table>
<thead>
<tr>
<th>Fujitsu</th>
<th>SPECrate®2017_int_base = 397</th>
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<tbody>
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<td>SPECrate®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Test Date:** Jun-2023  
**Tested by:** Fujitsu  
**Hardware Availability:** May-2023  
**Software Availability:** Dec-2022

### Compiler Version Notes (Continued)

<table>
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<tr>
<th>C++</th>
<th>520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran</th>
<th>548.exchange2_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

### Base Compiler Invocation

- **C benchmarks:** icx
- **C++ benchmarks:** icpx
- **Fortran benchmarks:** ifx

### 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:**  
  -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math  
  -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
  -L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin

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

Fujitsu
PRIMERGY CX2560 M7, Intel Xeon Gold 5418N, 1.80GHz

SPECrate®2017_int_base = 397
SPECrate®2017_int_peak = Not Run

Base Optimization Flags (Continued)

C benchmarks (continued):
- lqkmalloc

C++ benchmarks:
- w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
- flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
- L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
  -lqkmalloc

Fortran benchmarks:
- w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
- mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
- nostandard-realloc-lhs -align array32byte -auto
- L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
  -lqkmalloc

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.xml

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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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