**SPEC CPU®2017 Floating Point Rate Result**

## Test System Details

- **CPU Name:** Intel Xeon Silver 4410Y
- **Max MHz:** 3900
- **Nominal:** 2000
- **Enabled:** 24 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:** 30 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 512 GB NVMe SSD
- **Other:** None

## Software

- **OS:** Red Hat Enterprise Linux release 8.5 (Ootpa)
- **Kernel:** 4.18.0-348.el8.x86_64
- **Compiler:** C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
  Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;
- **Parallel:** No
- **Firmware:** Version 1.3 released Jun-2023
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** Jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage.

## Hardware Result

<table>
<thead>
<tr>
<th>Program</th>
<th>Copies</th>
<th>SPECrate®2017_fp_base</th>
<th>SPECrate®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>48</td>
<td>361</td>
<td>380</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>24</td>
<td>161</td>
<td>164</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>48</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>24</td>
<td>261</td>
<td>255</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>48</td>
<td>213</td>
<td>213</td>
</tr>
<tr>
<td>519.llvm_r</td>
<td>48</td>
<td>276</td>
<td>276</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>24</td>
<td>244</td>
<td>244</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>48</td>
<td>285</td>
<td>285</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>24</td>
<td>342</td>
<td>342</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>48</td>
<td>668</td>
<td>668</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>48</td>
<td>403</td>
<td>403</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>48</td>
<td>494</td>
<td>494</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>24</td>
<td>157</td>
<td>157</td>
</tr>
</tbody>
</table>

**Test Sponsor:** Netweb Pte Ltd

**Test Date:** Sep-2023

**Hardware Availability:** Jan-2023

**Software Availability:** May-2022

---

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Tyrone Systems

**Software Availability:** May-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>
<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>503.bwaves_r</td>
<td>48</td>
<td>349</td>
<td>1380</td>
<td>349</td>
<td>1380</td>
<td>349</td>
<td>1380</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>48</td>
<td>168</td>
<td>361</td>
<td>169</td>
<td>360</td>
<td>168</td>
<td>361</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>48</td>
<td>283</td>
<td>161</td>
<td>283</td>
<td>161</td>
<td>283</td>
<td>161</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>48</td>
<td>740</td>
<td>212</td>
<td>237</td>
<td>213</td>
<td>237</td>
<td>213</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>48</td>
<td>429</td>
<td>261</td>
<td>430</td>
<td>260</td>
<td>430</td>
<td>261</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>48</td>
<td>390</td>
<td>276</td>
<td>390</td>
<td>276</td>
<td>390</td>
<td>276</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>48</td>
<td>390</td>
<td>276</td>
<td>390</td>
<td>276</td>
<td>390</td>
<td>276</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>48</td>
<td>300</td>
<td>244</td>
<td>300</td>
<td>244</td>
<td>300</td>
<td>244</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>48</td>
<td>295</td>
<td>285</td>
<td>295</td>
<td>285</td>
<td>295</td>
<td>285</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>48</td>
<td>179</td>
<td>668</td>
<td>179</td>
<td>667</td>
<td>179</td>
<td>668</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>48</td>
<td>201</td>
<td>402</td>
<td>200</td>
<td>403</td>
<td>200</td>
<td>403</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>48</td>
<td>547</td>
<td>342</td>
<td>546</td>
<td>343</td>
<td>547</td>
<td>342</td>
<td>48</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>48</td>
<td>486</td>
<td>157</td>
<td>486</td>
<td>157</td>
<td>487</td>
<td>157</td>
<td>24</td>
<td>75.6</td>
<td>402</td>
<td>75.7</td>
<td>401</td>
<td>76.6</td>
<td>397</td>
</tr>
</tbody>
</table>

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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOCC_CONF = "retain:true"

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>
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.

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4410Y)

SPECrater®2017_fp_base = 306
SPECrater®2017_fp_peak = 308

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

General Notes (Continued)

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.

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS Settings:
Power Technology = Custom
ENERGY_PERF_BIAS_CFG mode = Maximum Performance
KTI Prefetch = Enable
LLC Dead Line Alloc = Disable
Hyper-Threading = Enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on Tyronespec Mon Sep 4 16:55:54 2023

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

1. uname -a
   Linux Tyronespec 4.18.0-348.el8.x86_64 #1 SMP Mon Oct 4 12:17:22 EDT 2021 x86_64 x86_64 x86_64 GNU/Linux

2. w
   16:55:54 up 6:22, 2 users, load average: 36.25, 45.33, 47.03

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4110Y)

Copyright 2017-2023 Standard Performance Evaluation Corporation

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

SPECrate®2017_fp_base = 306
SPECrate®2017_fp_peak = 308

Platform Notes (Continued)

<table>
<thead>
<tr>
<th>USER</th>
<th>TTY</th>
<th>FROM</th>
<th>LOGIN@</th>
<th>IDLE</th>
<th>JCPU</th>
<th>PCPU</th>
<th>WHAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>tty1</td>
<td>-</td>
<td>10:33</td>
<td>6:21m</td>
<td>0.91s</td>
<td>0.01s</td>
<td>-bash</td>
</tr>
<tr>
<td>root</td>
<td>tty2</td>
<td>-</td>
<td>10:34</td>
<td>6:20m</td>
<td>0.01s</td>
<td>0.01s</td>
<td>-bash</td>
</tr>
</tbody>
</table>

3. Username
   From environment variable $USER: root

4. ulimit -a
   core file size (blocks, -c) 0
   data seg size (kbytes, -d) unlimited
   scheduling priority (-e) 0
   file size (blocks, -f) unlimited
   pending signals (-l) 4126885
   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) 4126885
   virtual memory (kbytes, -v) unlimited
   file locks (-x) unlimited

5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 18
   login -- root
   -bash

   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 --c
   ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=24 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune_base,peak --o all fprate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 --configfile
   ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=24 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune_base,peak --output_format all --nopower
   --runmode rate --tune base:peak --size refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

6. /proc/cpuinfo
   model name : Intel(R) Xeon(R) Silver 4110Y
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 8
   microcode : 0x2b000461
   bugs : spectre_v1 spectre_v2 spec_store_bypass swaps
   cpu cores : 12
   siblings : 24
   2 physical ids (chips)
   48 processors (hardware threads)
   physical id 0: core ids 0-11
   physical id 1: core ids 0-11
   physical id 0: apicids 0-23

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

## Tyrone Systems

### Test Sponsor: Netweb Pte Ltd

### Tyrone Camarero SDI200C3R-28

(2.00 GHz, Intel Xeon Silver 4140Y)

<table>
<thead>
<tr>
<th>SPEC®2017_fp_base</th>
<th>SPEC®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>306</td>
<td>308</td>
</tr>
</tbody>
</table>

---

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Tyrone Systems

**Test Date:** Sep-2023

**Hardware Availability:** Jan-2023

**Software Availability:** May-2022

---

**Platform Notes (Continued)**

physical id 1: apic ids 128-151

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

---

### Platform Notes (Continued)

7. lscpu

From lscpu from util-linux 2.32.1:

<table>
<thead>
<tr>
<th>Architecture:</th>
<th>x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU op-mode(s):</td>
<td>32-bit, 64-bit</td>
</tr>
<tr>
<td>Byte Order:</td>
<td>Little Endian</td>
</tr>
<tr>
<td>CPU(s):</td>
<td>48</td>
</tr>
<tr>
<td>On-line CPU(s) list:</td>
<td>0-47</td>
</tr>
<tr>
<td>Thread(s) per core:</td>
<td>2</td>
</tr>
<tr>
<td>Core(s) per socket:</td>
<td>12</td>
</tr>
<tr>
<td>Socket(s):</td>
<td>2</td>
</tr>
<tr>
<td>NUMA node(s):</td>
<td>2</td>
</tr>
</tbody>
</table>

Vendor ID: GenuineIntel

BIOS Vendor ID: Intel(R) Corporation

CPU family: 6

Model: 143

Model name: Intel(R) Xeon(R) Silver 4410Y

Stepping: 8

CPU MHz: 2001.000

CPU max MHz: 2001.0000

CPU min MHz: 800.0000

BogoMIPS: 4000.00

Virtualization: VT-x

L1d cache: 48K

L1i cache: 32K

L2 cache: 2048K

L3 cache: 30720K

NUMA node0 CPU(s): 0-11,24-35

NUMA node1 CPU(s): 12-23,36-47

Flags: fpu vme de pse mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc 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 rdrnd lahf_lm abm 3mnowprefetch cpuid_fault epb cat_l3 cat_l2 cdп_l3

invpcid_single cdп_l2 sbbd mba ibrs ibp blp ibrs_enhanced tpr_shadow vni

flexpriority ept vpid ept_ad fsgsbase tsc_adjust sgx bmi1 hle avx2 smep bmi2 3ms

invpcid cmqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsaves xgetbv xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm local split_lock_detect avx_vnni avx512_bf16 wbinvd dtherm ida arat pln pts avx512vmni umip pkum ospke wairtpkg avx512_vmbi gfni vae vpclmulqdq

avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect cidemote

movdiri movdir64b enqcmd sgx lc fsm md clear serialize tsxidtrk pconf arch lbr

avx512_fp16 flush_lld arch_capabilities

---

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 2 nodes (0-1)

node 0 cpus: 0-11,24-35

node 0 size: 515692 MB

node 0 free: 501448 MB

node 1 cpus: 12-23,36-47

node 1 size: 516088 MB

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4410Y)

SPECrate®2017_fp_base = 306
SPECrate®2017_fp_peak = 308

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>006042</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Netweb Pte Ltd</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Tyrone Systems</td>
</tr>
</tbody>
</table>

Test Date: Sep-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)

---

node 1 free: 503821 MB
node distances:
node 0 1
0: 10 21
1: 21 10

---

9. /proc/meminfo
MemTotal: 1056542912 kB

---

10. who -r
run-level 3 Sep 4 10:33

---

11. Systemd service manager version: systemd 239 (239-51.el8)
Default Target Status
multi-user running

---

12. Services, from systemctl list-unit-files

STATE UNIT FILES
enabled
ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon
atd auditd autovt@ avahi-daemon bluetooth chrony cron dmesg cups cups-display-manager firewalld gdm
getty@ import-state Insights-client-boot irqbalance iscsi iscsi-onboot kdump kam kam-tuned
libstoragegmgt libvirt libvirtd loadmodules lvm2-monitor mcdlog mdmonitor microcode multipathd
nis-domainname nvidia-hibernate nvidia-resume nvidia-suspend nvme-fc-boot-connections
ostree-remount qemu-guest-agent rshmcertd rpcbind rsyslog rtkit-daemon selinux-autorelabel-mark
sep5 smartd sshd ssd syslog timedatex tuned udisks2 vdo vgauthd vmttld

disabled
arp-ethers blk-availability brttty canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait console-getty cpupower cups-browsed debug-shell
dnsmasq ebtables gssproxy httpd httpd@ initial-setup initial-setup-reconfiguration iprdump
ipinit iprudate iscsid iscsiutil kpatch kwm_stat ledmon man-db-restart-cache-update
ndctl-monitor netcf-transaction nfs-blkmap nfs-converg nfs-server nftables numad nvidia-powerd
nvme-fc-autoconnect oddjobd podman podman-auto-update podman-restart psacct radvd ras-mc-ctl
rasdaemon rdisc rhcd rhsm-facts saslauthd serial-getty@ snmpd snmptrapd speech-dispatcher
sshd-keygen@ switcheroo-control systemd-nspawn@ systemd-resolved tcsl tog-pegasus upower
virtinterfaced virtnetworkd virtnode dev virtnetworkd virtnode dev virtproxyd virtqemud virtsecreted
virtstoraged wpa_supplicant

---

13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd1,gpt2)/vmlinuz-4.18.0-348.el8.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet

---

14. cpupower frequency-info
analyzing CPU 0:

(Continued on next page)
Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4410Y)

SPECrate®2017_fp_base = 306
SPECrate®2017_fp_peak = 308

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Platform Notes (Continued)

current policy: frequency should be within 800 MHz and 2.00 GHz.
The governor "performance* may decide which speed to use
within this range.
boost state support:
   Supported: yes
   Active: yes

Platform Notes (Continued)

15. tuned-adm active
   Current active profile: throughput-performance

16. sysctl
   kernel.numa_balancing 1
   kernel.randomize_va_space 2
   vm.compartment_proactiveness 0
   vm.dirty_background_bytes 0
   vm.dirty_background_ratio 10
   vm.dirty_bytes 0
   vm.dirty_expire_centisecs 3000
   vm.dirty_ratio 40
   vm.dirty_writeback_centisecs 500
   vm.dirtytime_expire_seconds 43200
   vm.extfrag_threshold 500
   vm.min_unmapped_ratio 1
   vm.nr_hugepages 0
   vm.nr_hugepagesize_mempolicy 0
   vm.nr_overcommit_hugepages 0
   vm.swappiness 10
   vm.watermark_boost_factor 15000
   vm.watermark_scale_factor 10
   vm.zone_reclaim_mode 0

17. /sys/kernel/mm/transparent_hugepage
   defrag always defer defer+madvice [madvice] never
   enabled [always] madvice never
   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_swap 64
   pages_to_scan 4096
   scan_sleep_millisecs 10000

19. OS release
   From /etc/*-release /etc/*-version
   os-release Red Hat Enterprise Linux 8.5 (Ootpa)
   redhat-release Red Hat Enterprise Linux release 8.5 (Ootpa)
   system-release Red Hat Enterprise Linux release 8.5 (Ootpa)

20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
   itlb_multihit Not affected
   l1tf Not affected

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

Copyright 2017-2023 Standard Performance Evaluation Corporation

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4410Y)

SPECrate®2017_fp_base = 306
SPECrate®2017_fp_peak = 308

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Platform Notes (Continued)

mds                                    Not affected
meltdown                               Not affected
spec_store_bypass                      Mitigation: Speculative Store Bypass disabled via prctl and seccomp
spectre_v1                              Mitigation: usercopy/swappgs barriers and __user pointer sanitization
spectre_v2                              Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
srbs                                    Not affected
tsx_async_abort                        Not affected

For more information, see the Linux documentation on hardware vulnerabilities, for example

21. Disk information
SPEC is set to: /home/cpu2017
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   402G  374G   29G  94% /home

22. /sys/devices/virtual/dmi/id
Vendor:         Tyrone Systems
Product:        Tyrone Camarero SDI200C3R-28
Product Family: Family
Serial:         A497867X3106771

23. 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-CQKZH 64 GB 2 rank 4800, configured at 4000

24. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:       American Megatrends International, LLC.
BIOS Version:      1.3
BIOS Date:         06/01/2023
BIOS Revision:     5.31

Compiler Version Notes

```
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
-----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------------------
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------------------
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
```

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 4410Y)

SPECRate®2017_fp_base = 306
SPECRate®2017_fp_peak = 308

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Test Date: Sep-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

============================================================================================================
Fortran | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
============================================================================================================
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

============================================================================================================
Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
============================================================================================================
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using both C and C++:
icpx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx
## SPEC CPU®2017 Floating Point Rate Result

**Tyrone Systems**
(Test Sponsor: Netweb Pte Ltd)

**Tyrone Camarero SDI200C3R-28**
(2.00 GHz, Intel Xeon Silver 41010Y)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>006042</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Netweb Pte Ltd</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Tyrone Systems</td>
</tr>
</tbody>
</table>

| SPECrate®2017_fp_base = | 306 |
| SPECrate®2017_fp_peak = | 308 |

**Test Date:** Sep-2023  
**Hardware Availability:** Jan-2023  
**Software Availability:** May-2022

### Base Portability Flags

503.bwaves_r: -DSPEC_LP64  
507.cactuBSSN_r: -DSPEC_LP64  
508.namd_r: -DSPEC_LP64  
510.parest_r: -DSPEC_LP64  
511.povray_r: -DSPEC_LP64  
519.lbm_r: -DSPEC_LP64  
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian  
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char  
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG  
538.imagick_r: -DSPEC_LP64  
544.nab_r: -DSPEC_LP64  
549.fotonik3d_r: -DSPEC_LP64  
554.roms_r: -DSPEC_LP64

### Base Optimization Flags

**C benchmarks:**

- `w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`  
- `flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc`  
- `-L/usr/local/jemalloc64-5.0.1/lib`

**C++ benchmarks:**

- `w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto`  
- `mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc`  
- `-L/usr/local/jemalloc64-5.0.1/lib`

**Fortran benchmarks:**

- `w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto`  
- `mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`  
- `-nostandard-realloc-lhs -align array32byte -auto -ljemalloc`  
- `-L/usr/local/jemalloc64-5.0.1/lib`

**Benchmarks using both Fortran and C:**

- `w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`  
- `flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`  
- `-nostandard-realloc-lhs -align array32byte -auto -ljemalloc`  
- `-L/usr/local/jemalloc64-5.0.1/lib`

**Benchmarks using both C and C++:**

- `w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`  
- `flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`  
- `-L/usr/local/jemalloc64-5.0.1/lib`

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

**Tyrone Systems**
(Test Sponsor: Netweb Pte Ltd)
**Tyrone Camarero SDI200C3R-28**
(2.00 GHz, Intel Xeon Silver 4410Y)

<table>
<thead>
<tr>
<th>CPU2017 License: 006042</th>
<th>Test Date: Sep-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Netweb Pte Ltd</td>
<td>Hardware Availability: Jan-2023</td>
</tr>
<tr>
<td>Tested by: Tyrone Systems</td>
<td>Software Availability: May-2022</td>
</tr>
</tbody>
</table>

**SPECrate®2017_fp_base = 306**
**SPECrate®2017_fp_peak = 308**

---

**Base Optimization Flags (Continued)**

Benchmarks using Fortran, C, and C++:
- `-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`
- `-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs -align array32byte -auto -ljemalloc`
- `-L/usr/local/jemalloc64-5.0.1/lib`

---

**Peak Compiler Invocation**

C benchmarks:
- `icx`

C++ benchmarks:
- `icpx`

Fortran benchmarks:
- `ifx`

Benchmarks using both Fortran and C:
- `ifx icx`

Benchmarks using both C and C++:
- `icpx icx`

Benchmarks using Fortran, C, and C++:
- `icpx icx ifx`

---

**Peak Portability Flags**

Same as Base Portability Flags

---

**Peak Optimization Flags**

C benchmarks:
- `519.lbm_r: basepeak = yes`
- `538.imagick_r: basepeak = yes`

Fortran benchmarks:
- `544.nab_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast`
- `-ffast-math -flto -mfpmath=sse -funroll-loops`

(Continued on next page)
Peak Optimization Flags (Continued)

544.nab_r (continued):
-qopt-mem-layout-trans=4 -qopt-zmm-usage=high -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

508.namd_r:basepeak = yes

510.parest_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves_r:basepeak = yes

549.fotonik3d_r:basepeak = yes

554.roms_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both C and C++:

511.povray_r: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

526.blender_r:basepeak = yes

Benchmarks using Fortran, C, and C++:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc

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

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.00 GHz, Intel Xeon Silver 410Y)

SPECrate®2017_fp_base = 306
SPECrate®2017_fp_peak = 308

CPU2017 License: 006042
Test Sponsor: Netweb Pte Ltd
Tested by: Tyrone Systems

Test Date: Sep-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-L/usr/local/jemalloc64-5.0.1/lib

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/Tyrone-Platform-Settings-V1.2-SPR-revC.xml

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 v1.1.9 on 2023-09-04 12:55:53-0400.
Originally published on 2023-10-10.