# SPEC CPU®2017 Integer Speed Result

**Tyrone Systems**  
(Test Sponsor: Netweb Pte Ltd)  
Tyrone Camarero SDI200C3R-28  
(2.40 GHz, Intel Xeon Gold 6448H)

**SPECspeed®2017_int_base = 12.6**  
**SPECspeed®2017_int_peak = 12.9**

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

## Hardware

- **CPU Name:** Intel Xeon Gold 6448H  
- **Max MHz:** 4100  
- **Nominal:** 2400  
- **Enabled:** 64 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:** 60 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 256 GB (8 x 32 GB 2Rx4 PC4-4800AA-R)  
- **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:** Yes  
- **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.

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>128</td>
<td>7.77</td>
<td>12.9</td>
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<tr>
<td>602.gcc_s</td>
<td>128</td>
<td>10.5</td>
<td>12.6</td>
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<td>605.mcf_s</td>
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<td>620.omnetpp_s</td>
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<td>623.xalancbmk_s</td>
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<td>625.x264_s</td>
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<td>631.deepsjeng_s</td>
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<td>641.leela_s</td>
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<td>4.76</td>
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<td>648.exchange2_s</td>
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<td>18.8</td>
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<tr>
<td>657.xz_s</td>
<td>128</td>
<td>24.6</td>
<td>12.6</td>
</tr>
</tbody>
</table>

### Summary

- **Threads:** 0, 2.00, 4.00, 6.00, 8.00, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0, 22.0, 24.0, 25.0
- **Hardware**  
  - CPU Name: Intel Xeon Gold 6448H  
  - Max MHz: 4100  
  - Nominal: 2400  
  - Enabled: 64 cores, 2 chips, 2 threads/core  
  - Orderable: 1.2 chips  
  - Cache L1: 32 KB I + 48 KB D on chip per core  
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  - Memory: 256 GB (8 x 32 GB 2Rx4 PC4-4800AA-R)  
  - Storage: 1 x 512 GB NVMe SSD  
  - Other: None

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  - 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;  
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  - Firmware: Version 1.3 released Jun-2023  
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  - 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.
SPEC CPU®2017 Integer Speed Result

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyronne Camarero SD1200C3R-28
(2.40 GHz, Intel Xeon Gold 6448H)

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

SPECspeed®2017_int_base = 12.6
SPECspeed®2017_int_peak = 12.9

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>24.6</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.xalanchmk_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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "*/home/cpu2017/lib/intel64:/home/cpu2017/jc5.0.1-64"
MALLOCC_CONF = "retain=true"
OMP_STACKSIZE = "192M"
**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
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.
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 18 04:41:46 2023

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

```
---------------------------
<table>
<thead>
<tr>
<th>Table of contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. uname -a</td>
</tr>
<tr>
<td>2. w</td>
</tr>
<tr>
<td>3. Username</td>
</tr>
<tr>
<td>4. ulimit -a</td>
</tr>
<tr>
<td>5. sysinfo process ancestry</td>
</tr>
<tr>
<td>6. /proc/cpuinfo</td>
</tr>
<tr>
<td>7. lscpu</td>
</tr>
<tr>
<td>8. numactl --hardware</td>
</tr>
<tr>
<td>9. /proc/meminfo</td>
</tr>
<tr>
<td>10. who -r</td>
</tr>
</tbody>
</table>
| 11. systemd service manager version: systemd 239 (239-51.el8)
| 12. Services, from systemctl list-unit-files
| 13. Linux kernel boot-time arguments, from /proc/cmdline
| 14. cpupower frequency-info|
| 15. tuned-adm active      |
| 16. sysctl                |
| 17. /sys/kernel/mm/transparent_hugepage
| 18. /sys/kernel/mm/transparent_hugepage/klhugepaged
| 19. OS release             |
| 20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
| 21. Disk information       |
| 22. /sys/devices/virtual/dmi/id|
| 23. dmidecode             |
```

(Continued on next page)
Platform Notes (Continued)

24. BIOS

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
   04:41:46 up 1 day, 17:44, 1 user, load average: 0.00, 0.00, 0.00
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                Sat10   10.00s  1.10s  0.00s -bash

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                 (-i) 1030244
   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) 1030244
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 17
   login -- root
     -bash
     $SPEC = /home/cpu2017
   runcpu --nobuild --action validate --define default-platform-flags -c
     ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=64 --tune base,peak -o all --define intspeedaffinity --define smt-on --define drop_caches intspeed
   runcpu --nobuild --action validate --define default-platform-flags --configfile
     ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=64 --tune base,peak --output_format all
     --define intspeedaffinity --define smt-on --define drop_caches --nopower --runmode speed --tune base:peak
     --size refspeed intspeed --noproject --note-preenv --logfile
     $SPEC/tmp/CP2017.004/templogs/preenv.intspeed.004.0.log --lognum 004.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

6. /proc/cpuinfo
   model name      : Intel(R) Xeon(R) Gold 6448H
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 143
   stepping        : 8

(Continued on next page)
Platform Notes (Continued)

microcode : 0x2b000461
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores : 32
siblings : 64
2 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31
physical id 0: apic ids 0-63
physical id 1: apic ids 128-191
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

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): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
CPU family: 6
Model: 143
Model name: Intel(R) Xeon(R) Gold 6448H
BogomIPS: 4800.00
Virtualization: VT-x
CPU MHz: 2400.000
L1d cache: 48K
L1i cache: 32K
L2 cache: 2048K
L3 cache: 61440K
NUMA node0 CPU(s): 0-31,64-95
NUMA node1 CPU(s): 32-63,96-127
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 aperfmperf rep_good nopl xtopology
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 ebpx cat_13 cat_12 cdp_13
invpcid_single cdp_12 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept pvd upd_ad fsgate base tsc_adjust sgx bmi1 hle avx2 smep bmi2 erms
invpcid cmqm rdt_a avx512f avx512dq rdseed adx smap avx512ifm clflushopt clwb intel_pt
avx512cd sha_ni avx512bw avx512vl xsaveopt xsaves xsavec xgetbv1 xsaves cmqm_llc cmqm_occmap_llc
cq_mbb_total cmqm_mbb_local split_lock_detect cmv_nvni avx512_br16 wbinvd dtherm ida
arat pln pts avx512vbmi umip pku ospe wmtk avx512_vbmi ifni vaes vpcm1ldq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq ia57 rdsp bus_lock_detect cldemote
movdiri movdir64b enqcmd sgx lc fsrm md_clear serialize txslitdrk pconf arch_lbr
avx512_fp16 flush_l1d arch_capabilities

8. numactl --hardware
Platform Notes (Continued)

NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)
  node 0 cpus: 0-31,64-95
  node 0 free: 88667 MB
  node 1 cpus: 32-63,96-127
  node 1 size: 128970 MB
  node 1 free: 93046 MB
node distances:
  node 0: 10 21
  node 1: 21 10

9. /proc/meminfo
   MemTotal: 263802716 kB

10. who -r
    run-level 3 Sep 16 10:58

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-dispatcher NetworkManager-wait-online accounts-daemon
    std auditd autot@ avahi-daemon bluetooth chronyd crond cups display-manager firewalld gdm
    getty@ import-state insights-client-boot irqbalance iscsi iscsi-onboot kdump ksm ksmtuned
    libplacement loadmodules lm2-monitor mcelog mdmonitor microcode multipathd
    nis-domainname nvidia-hibernate nvidia-reuse nvidia-suspend nvme-boost-connections
    ostree-remount qemu-guest-agent rmemcached rproc rsyslog rtkit-daemon selinux-autorelabel-mark
    sep5 smartd ssd systemd sysctl systemd-swap systemd-timesync systemd-update-udevd
disabled arps-ethers blk-availability btrfs btrfs-crypt btrfs-crypt-boot btrfs-crypt-root
    btrfs-crypt-root-boot btrfs-crypt-root-subvol btrfs-recovery btrfs-swap btrfs-subvol
    canna-system-system-bootup canna-system-system-shutdown
    canna-system-system-reboot cron hole wait console-getty console-getty-idle console-getty-idle
    cpu-power cups-browse debug-shell
    dnsmasq ebtstable gss-proxy httpd httpd@ initial-setup-initial-setup-reconfiguration
    iproute iproute2 iscsi iscsi-10 kpatch kvm_stat ledman man-db-restart-cache-update
    ndctl-monitor netcf-transaction nfs-bkmmap nfs-convertnfs-server ntfs-ntfs-server ntfs-ntfs-server
    numad nvidia-powerd
    nvme-autoconnect oddjobd podman podman-auto-update podman-restart psacct radvd ras-mc-ctl
    rasdaemon rdisc rhcm rhsm-facts saslaauthd serial-getty@ snmpd snmptrapd speech-dispatcherd
    sshd-keystore unix-getty-control systemd-napaw@ systemd-resolution tcsd tog-pegasus upower
    virtinterfaced virtknowdot virtnode@ virtnode@ virtnode@ virtnode@ virtnode@ virtnode@
    virtstoraged wpa_supplicant
    generated SystemTap compile-server gcc-toolset-10-stap-server gcc-toolset-10-systemtap
    gcc-toolset-11-stap-server gcc-toolset-11-systemtap gcc-toolset-9-stap-server
    gcc-toolset-9-systemtap scripts startup
    indirect spice-vgagentd ssds-autofs ssds-kcm ssds-nas ssds-pac ssds-pam ssds-ssh ssds-sudo virtlockd
    virtlogd
    masked systemd-timedated

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

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)
Tyrone Camarero SDI200C3R-28
(2.40 GHz, Intel Xeon Gold 6448H)

SPECspeed®2017_int_base = 12.6
SPECspeed®2017_int_peak = 12.9

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

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

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Platform Notes (Continued)

rd.lvm.lv=rhel/swap
rhgb
quiet

-----------------------------------------------------------------------------------
14. cpupower frequency-info
   analyzing CPU 0:
      Unable to determine current policy
      boost state support:
         Supported: yes
         Active: yes

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

-----------------------------------------------------------------------------------
16. sysctl
   kernel.numa_balancing               1
   kernel.randomize_va_space           2
   vm.compaction_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.extrfrag_threshold               500
   vm.min_unmapped_ratio               1
   vm.nr_hugepages                    0
   vm.nr_hugepages_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+madwise [madwise] never
   enabled [always] madwise 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)

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

**Tyrone Systems**  
(Test Sponsor: Netweb Pte Ltd)  
**Tyrone Camarero SDI200C3R-28**  
(2.40 GHz, Intel Xeon Gold 6448H)

**Copyright 2017-2024 Standard Performance Evaluation Corporation**

**SPECspeed®2017_int_base = 12.6**

**SPECspeed®2017_int_peak = 12.9**

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

**Platform Notes (Continued)**

20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
   - itlb_multihit: Not affected
   - l1tf: Not affected
   - 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, RGB filling
   - srbds: 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  | 28G   | 94%  | /home

22. /sys/devices/virtual/dmi/id
   Vendor: Tyrone Systems
   Product: Tyrone Camarero SDI200C3R-28
   Product Family:
   Serial: A886319X3827516

23. 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:
    - 8x Samsung M321R4GA3BB6-CQKET 32 GB 2 rank 4800

24. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor: American Megatrends International, LLC.
   BIOS Version: 1.3a
   BIOS Date: 06/02/2023
   BIOS Revision: 5.31

**Compiler Version Notes**

<table>
<thead>
<tr>
<th>C</th>
<th>600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)</th>
</tr>
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<td>C++</td>
<td>620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</td>
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(Continued on next page)
SPECCPU®2017 Integer Speed Result

Tyrone Systems
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CPU2017 License: 006042
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Tested by: Tyrone Systems

SPECspeed®2017_int_base = 12.6
SPECspeed®2017_int_peak = 12.9

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.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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

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

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

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**Base Optimization Flags (Continued)**

C++ benchmarks:
- `-m64` `-Wl,-z,muldefs` `-xCORE-AVX512` `-O3` `-ffast-math` `-flto`
- `-mfpmath=sse` `-funroll-loops` `-qopt-mem-layout-trans=4`
- `-L/usr/local/jemalloc64-5.0.1/lib` `-ljemalloc`

Fortran benchmarks:
- `-m64` `-Wl,-z,muldefs` `-xCORE-AVX512` `-O3` `-ffast-math` `-flto`
- `-mfpmath=sse` `-funroll-loops` `-qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs` `-align array32byte`
- `-L/usr/local/jemalloc64-5.0.1/lib` `-ljemalloc`

---

**Peak Compiler Invocation**

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

---

**Peak Portability Flags**

Same as Base Portability Flags

---

**Peak Optimization Flags**

C benchmarks:
- `600.perlbench_s`: `-m64` `-std=c11` `-Wl,-z,muldefs` `-fprofile-generate(pass 1)`
- `-fprofile-use=default.profdata(pass 2)` `-xCORE-AVX512` `-O3`
- `-ffast-math` `-flto` `-mfpmath=sse` `-funroll-loops`
- `-qopt-mem-layout-trans=4` `-fiopenmp` `-DSPEC_OPENMP`
- `-fno-strict-overflow` `-L/usr/local/jemalloc64-5.0.1/lib`
- `-ljemalloc`

- `602.gcc_s`: `-m64` `-std=c11` `-Wl,-z,muldefs` `-fprofile-generate(pass 1)`
- `-fprofile-use=default.profdata(pass 2)` `-xCORE-AVX512` `-O3`
- `-ffast-math` `-flto` `-mfpmath=sse` `-funroll-loops`

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

**Tyrone Systems**  
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**SPECspeed®2017_int_base = 12.6**  
**SPECspeed®2017_int_peak = 12.9**

---

**Peak Optimization Flags (Continued)**

602.gcc_s (continued):
- `--opt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

605.mcf_s: basepeak = yes

625.x264_s: `-m64 -std=c11 -W1,-z,muldefs -xCORE-AVX512 -O3`
- `--fast-math -flto -mfpmath=sse -funroll-loops`
- `--opt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP`
- `-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

---

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

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