



SPEC CPU®2017 Floating Point Speed Result

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Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SDI200A3N-212
(2.50 GHz, Intel Xeon Gold 6548Y+)

SPECspeed®2017_fp_base = 315

SPECspeed®2017_fp_peak = 315

CPU2017 License: 006042

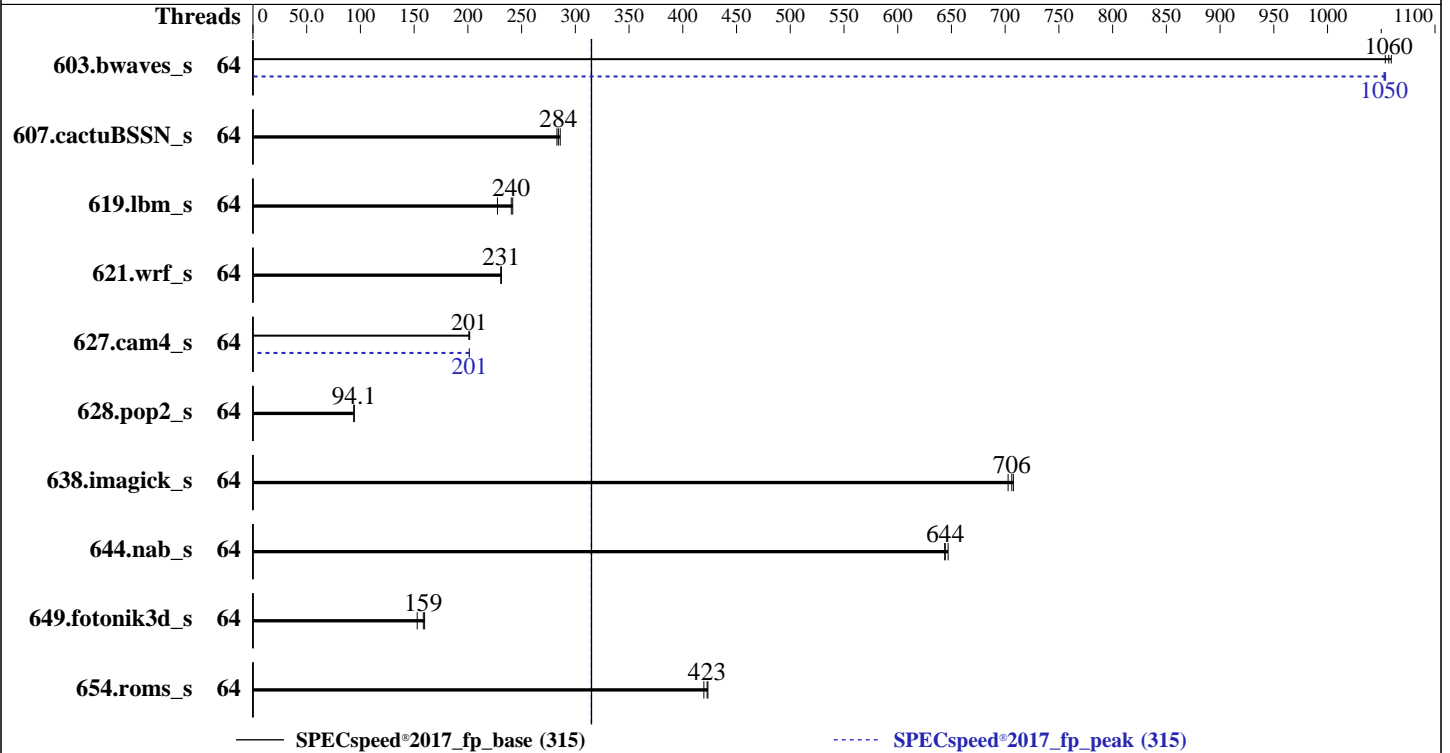
Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Jul-2024

Hardware Availability: Jan-2023

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon Gold 6548Y+
 Max MHz: 4100
 Nominal: 2500
 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: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 1 x 960 GB NVMe
 Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.3 (Plow)
 5.14.0-362.13.1.el9_3.x86_64
 Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
 Parallel: Yes
 Firmware: Version 2.3 released May-2024
 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 and OS set to prefer performance at cost of additional power.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	64	55.8	1060	55.7	1060	56.0	1050	64	56.0	1050	56.0	1050	56.0	1050
607.cactuBSSN_s	64	58.3	286	58.9	283	58.7	284	64	58.3	286	58.9	283	58.7	284
619.lbm_s	64	21.7	242	21.8	240	23.0	228	64	21.7	242	21.8	240	23.0	228
621.wrf_s	64	57.2	231	57.3	231	57.3	231	64	57.2	231	57.3	231	57.3	231
627.cam4_s	64	44.1	201	43.9	202	44.1	201	64	44.0	202	44.0	201	44.0	201
628.pop2_s	64	126	94.0	126	94.1	126	94.1	64	126	94.0	126	94.1	126	94.1
638.imagick_s	64	20.4	708	20.5	703	20.4	706	64	20.4	708	20.5	703	20.4	706
644.nab_s	64	27.0	647	27.1	644	27.1	644	64	27.0	647	27.1	644	27.1	644
649.fotonik3d_s	64	57.1	160	59.6	153	57.5	159	64	57.1	160	59.6	153	57.5	159
654.roms_s	64	37.5	420	37.3	423	37.2	423	64	37.5	420	37.3	423	37.2	423

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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"
We are using specific Kernel Version

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_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
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.
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.

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General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

Platform Notes

BIOS Settings:

Power Technology = Custom
ENERGY_PERF_BIAS_CFG mode = Maximum Performance
KTI Prefetch = Enable
LLC Dead Line Alloc = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Mon Jul 29 13:46:07 2024

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 252 (252-18.e19)
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. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS

1. uname -a
Linux localhost.localdomain 5.14.0-362.13.1.el9_3.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Nov 24 01:57:57 EST 2023 x86_64 x86_64 x86_64 GNU/Linux

2. w
13:46:07 up 1 day, 22:39, 1 user, load average: 6.77, 6.32, 3.71
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root tty1 Sat15 3:12m 1.00s 0.00s -bash

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Platform Notes (Continued)

3. Username

From environment variable \$USER: root

4. ulimit -a

```

real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 4126679
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) 4126679
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

```

5. sysinfo process ancestry

```

/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags -c
ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=64 --tune base,peak -o all --define smt-on
--define drop_caches fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=64 --tune base,peak --output_format all
--define smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed
--nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.004/templogs/preenv.fpspeed.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 6548Y+
vendor_id      : GenuineIntel
cpu family      : 6
model           : 207
stepping        : 2
microcode       : 0x21000240
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
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: apicids 0-63
physical id 1: apicids 128-191
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

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Platform Notes (Continued)

7. lscpu

From lscpu from util-linux 2.37.4:

```

Architecture:          x86_64
CPU op-mode(s):       32-bit, 64-bit
Address sizes:        46 bits physical, 57 bits virtual
Byte Order:           Little Endian
CPU(s):               128
On-line CPU(s) list: 0-127
Vendor ID:            GenuineIntel
BIOS Vendor ID:      Intel(R) Corporation
Model name:           INTEL(R) XEON(R) GOLD 6548Y+
BIOS Model name:     INTEL(R) XEON(R) GOLD 6548Y+
CPU family:           6
Model:                207
Thread(s) per core:  2
Core(s) per socket:  32
Socket(s):            2
Stepping:             2
Frequency boost:      enabled
CPU max MHz:          2501.0000
CPU min MHz:          800.0000
BogoMIPS:             5000.00
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 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 3dnowprefetch cpuid_fault epb cat_l3 cat_l2
                    cdp_l3 invpcid_single intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp
                    ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad fsgsbase
                    tsc_adjust bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq
                    rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni
                    avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
                    cqm_mbm_total cqm_mbm_local split_lock_detect avx_vnni avx512_bf16
                    wbnoinvd dtherm ida arat pln pts hfi vnmi avx512vbmi umip pku ospke
                    waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
                    avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                    enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr ibt amx_bf16
                    avx512_fp16 amx_tile amx_int8 flush_l1d arch_capabilities
Virtualization:       VT-x
L1d cache:           3 MiB (64 instances)
L1i cache:           2 MiB (64 instances)
L2 cache:            128 MiB (64 instances)
L3 cache:            120 MiB (2 instances)
NUMA node(s):        4
NUMA node0 CPU(s):  0-15,64-79
NUMA node1 CPU(s):  16-31,80-95
NUMA node2 CPU(s):  32-47,96-111
NUMA node3 CPU(s):  48-63,112-127
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:       Not affected
Vulnerability Lltf:                 Not affected
Vulnerability Mds:                  Not affected
Vulnerability Meltdown:             Not affected
Vulnerability Mmio stale data:      Not affected
Vulnerability Retbleed:             Not affected
Vulnerability Spec rstack overflow: Not affected

```

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Platform Notes (Continued)

Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
 Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
 Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS, IBPB conditional, RSB filling, PBRSE-eIBRS SW sequence
 Vulnerability Srbds: Not affected
 Vulnerability Tsx async abort: Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	3M	12	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	2M	128M	16	Unified	2	2048	1	64
L3	60M	120M	15	Unified	3	65536	1	64

8. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-15,64-79
node 0 size: 257675 MB
node 0 free: 235953 MB
node 1 cpus: 16-31,80-95
node 1 size: 257986 MB
node 1 free: 239627 MB
node 2 cpus: 32-47,96-111
node 2 size: 258039 MB
node 2 free: 232616 MB
node 3 cpus: 48-63,112-127
node 3 size: 258034 MB
node 3 free: 239903 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: 1056497244 kB

10. who -r

run-level 3 Jul 27 15:07

11. Systemd service manager version: systemd 252 (252-18.e19)

```
Default Target Status
multi-user      degraded
```

12. Failed units, from systemctl list-units --state=failed

```
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
* dnf-makecache.service loaded failed failed dnf makecache
```

13. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker firewalld
```

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Platform Notes (Continued)

```

gdm getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt
lm_sensors low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd
nis-domainname nvmeofc-boot-connections ostree-remount pmcd pmie pmlogger
power-profiles-daemon qemu-guest-agent rhsmcertd rpcbind rsyslog rtkit-daemon
selinux-autorelabel-mark smartd sshd sssd switcheroo-control sysstat systemd-boot-update
systemd-network-generator tuned udisks2 upower vgauthd virtqemud vmtoolsd

enabled-runtime  systemd-remount-fs
disabled         arp-ethers autofs blk-availability brltyt canberra-system-bootup canberra-system-shutdown
                 canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed
                 dbus-daemon debug-shell dnf-system-upgrade dnsmasq dovecot fancontrol fcoe grafana-server
                 gssproxy httpd httpd@ ibacm iprdump iprinit iprupdate ipsec iscsid iscsiuiio kpatch
                 kvm_stat ledmon libvirt-guests libvirtfd llqpad man-db-restart-cache-update named
                 named-chroot netavark-dhcp-proxy nfs-blkmap nfs-server nftables nmb numad nvmmf-autoconnect
                 ostree-readonly-sysroot-migration pesign pmfind pmie_farm pmlogger_farm pmproxy podman
                 podman-auto-update podman-clean-transient podman-kube@ podman-restart postfix powertop
                 psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmdb-rebuild rrdcached saslauthd
                 selinux-check-proper-disable serial-getty@ smb snmpd snmptrapd spamassassin
                 speech-dispatcherd srp_daemon srp_daemon_port@ sshd-keygen@ systemd-boot-check-no-failures
                 systemd-nspawn@ systemd-pstore systemd-sysextr target targetclid tog-pegasus trace-cmd
                 virtinterfaced virtnetworkd virtnodedevd virtwfilterd virtproxyd virtsecretfd virtstoraged
                 vsftpd wpa_supplicant

indirect        pcsd spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
                 systemd-sysupdate systemd-sysupdate-reboot virtlockd virtlogd vsftpd@

```

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-362.13.1.el9_3.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

```

```

-----
15. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 2.50 GHz.
                   The governor "performance" may decide which speed to use
                   within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

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

```

```

-----
17. sysctl
kernel.numa_balancing          1
kernel.randomize_va_space      2
vm.compaction_proactiveness     20
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

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Platform Notes (Continued)

```

vm.dirtytime_expire_seconds 43200
vm.extfrag_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

```

```

-----
18. /sys/kernel/mm/transparent_hugepage
defrag          always defer+madvice [madvice] never
enabled         [always] madvice never
hpage_pmd_size 2097152
shmem_enabled   always within_size advise [never] deny force

```

```

-----
19. /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

```

```

-----
20. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 9.3 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.3 (Plow)
system-release  Red Hat Enterprise Linux release 9.3 (Plow)

```

```

-----
21. Disk information
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   856G  591G  265G  70% /home

```

```

-----
22. /sys/devices/virtual/dmi/id
Vendor:          Tyrone Systems
Product:         Tyrone Camarero SDI200A3N-212
Product Family: Family
Serial:          0123456789

```

```

-----
23. dmidecode
Additional information from dmidecode 3.5 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-CQKZJ 64 GB 2 rank 4800

```

24. BIOS

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Platform Notes (Continued)

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 2.3
BIOS Date: 05/14/2024
BIOS Revision: 5.32

Compiler Version Notes

=====
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
=====

=====
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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=====

=====
Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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=====

=====
Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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=====

Base Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

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SPEC CPU®2017 Floating Point Speed Result

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Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SDI200A3N-212
(2.50 GHz, Intel Xeon Gold 6548Y+)

SPECspeed®2017_fp_base = 315

SPECspeed®2017_fp_peak = 315

CPU2017 License: 006042

Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Jul-2024

Hardware Availability: Jan-2023

Software Availability: Dec-2023

Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
```

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CPU2017 License: 006042

Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Jul-2024

Hardware Availability: Jan-2023

Software Availability: Dec-2023

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

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

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Tyrone Camarero SDI200A3N-212
(2.50 GHz, Intel Xeon Gold 6548Y+)

SPECspeed®2017_fp_base = 315

SPECspeed®2017_fp_peak = 315

CPU2017 License: 006042

Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Jul-2024

Hardware Availability: Jan-2023

Software Availability: Dec-2023

Peak Optimization Flags (Continued)

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

```
627.cam4_s: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-SPR-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-SPR-revC.xml>

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