



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero TDI100C3R-212
(2.00 GHz, Intel Xeon Gold 6338)

SPECrate®2017_fp_base = 433

SPECrate®2017_fp_peak = 452

CPU2017 License: 006042

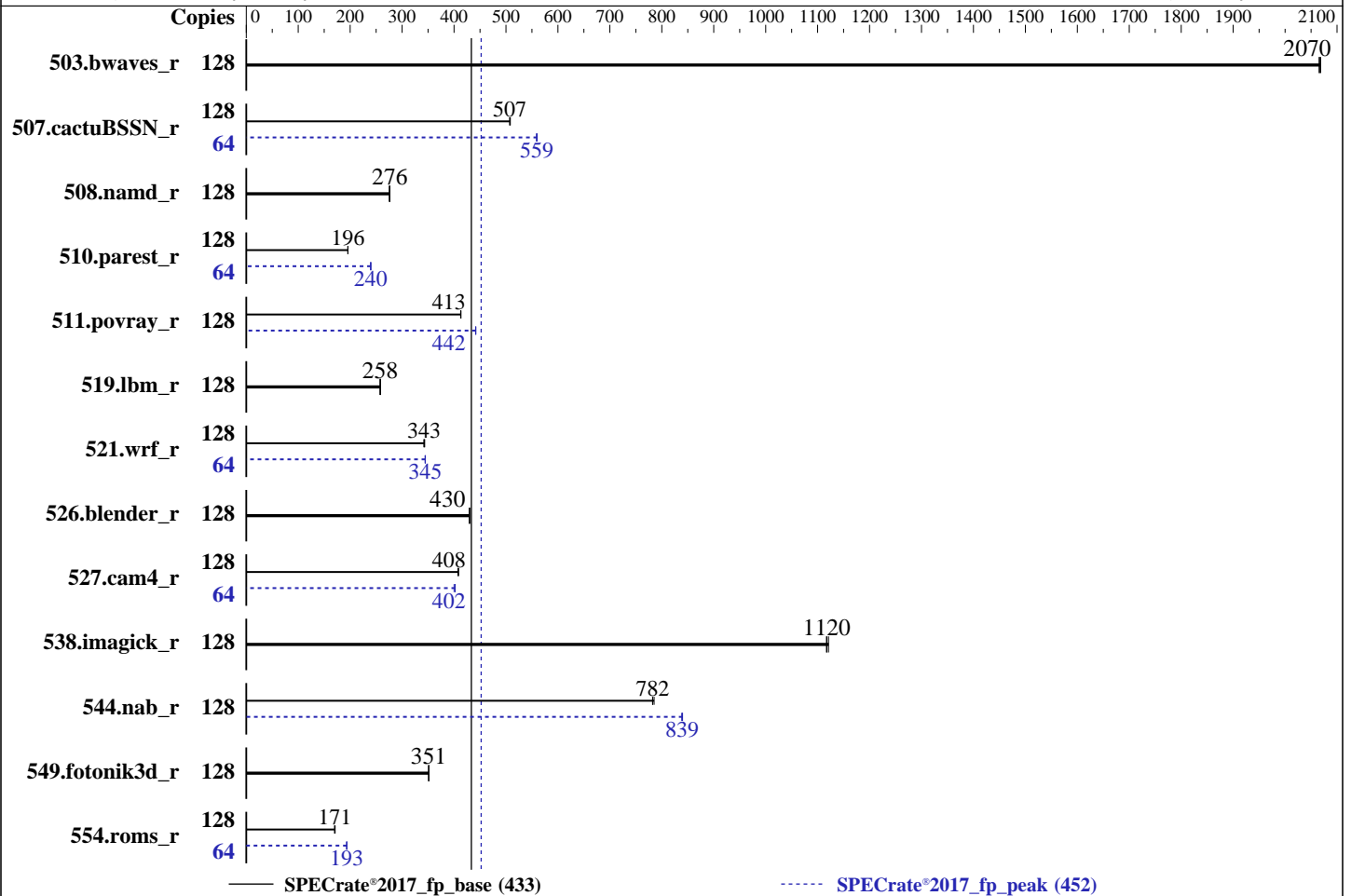
Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Mar-2023

Hardware Availability: Apr-2021

Software Availability: May-2022



Hardware

CPU Name: Intel Xeon Gold 6338
 Max MHz: 3200
 Nominal: 2000
 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: 1.25 MB I+D on chip per core
 L3: 48 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
 Storage: 1 x 512 GB NVMe SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 8.5 (Ootpa)
 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 PEGC0042 released Jan-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 and OS set to prefer performance at the cost
 of additional power usage.



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	128	621	2070	621	2070	621	2070	128	621	2070	621	2070	621	2070
507.cactuBSSN_r	128	319	508	319	507	319	507	64	145	559	145	560	145	559
508.namd_r	128	442	275	440	276	440	276	128	442	275	440	276	440	276
510.parest_r	128	1711	196	1713	195	1710	196	64	699	240	698	240	700	239
511.povray_r	128	724	413	723	413	724	413	128	677	442	676	442	677	441
519.lbm_r	128	523	258	524	257	522	258	128	523	258	524	257	522	258
521.wrf_r	128	838	342	837	343	835	344	64	416	345	416	345	416	344
526.blender_r	128	454	430	454	430	453	430	128	454	430	454	430	453	430
527.cam4_r	128	548	408	549	408	548	409	64	278	402	278	402	280	400
538.imagick_r	128	285	1120	285	1120	284	1120	128	285	1120	285	1120	284	1120
544.nab_r	128	275	782	275	782	274	785	128	257	839	256	840	257	838
549.fotonik3d_r	128	1421	351	1421	351	1418	352	128	1421	351	1421	351	1418	352
554.roms_r	128	1189	171	1192	171	1197	170	64	525	194	526	193	526	193

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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"

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"
MALLOC_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:

(Continued on next page)



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General Notes (Continued)

```
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
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

BIOS Settings:

```
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Extreme Performance
SNC (Sub NUMA) = Enable
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 Mar 6 22:16:44 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 239 (239-51.e18)`
12. Services, from `systemctl list-unit-files`
13. Linux kernel boot-time arguments, from `/proc/cmdline`

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Platform Notes (Continued)

```

14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
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
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
22:16:44 up 8:58, 1 user, load average: 75.06, 113.17, 120.46
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1    -                13:19   8:48m  1.28s  0.01s  -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) 4126627
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) 4126627
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited

```

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Platform Notes (Continued)

5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
```

```
login -- root
```

```
-bash
```

```
-bash
```

```
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 -c  
ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=64 --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=128 --configfile  
ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=64 --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) Gold 6338 CPU @ 2.00GHz  
vendor_id      : GenuineIntel  
cpu family     : 6  
model          : 106  
stepping       : 6  
microcode      : 0xd0002e0  
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: 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.

7. lscpu

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
```

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Platform Notes (Continued)

```

Socket(s):                2
NUMA node(s):            2
Vendor ID:                GenuineIntel
BIOS Vendor ID:          Intel(R) Corporation
CPU family:               6
Model:                    106
Model name:               Intel(R) Xeon(R) Gold 6338 CPU @ 2.00GHz
BIOS Model name:         Intel(R) Xeon(R) Gold 6338 CPU @ 2.00GHz
Stepping:                 6
CPU MHz:                  2000.000
CPU max MHz:              3200.0000
CPU min MHz:              800.0000
BogoMIPS:                 4000.00
Virtualization:           VT-x
L1d cache:                48K
L1i cache:                32K
L2 cache:                 1280K
L3 cache:                 49152K
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 art
                           arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni
                           pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 sse3 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 invpcid_single intel_ppin ssbd mba ibrs ibpb
                           stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust
                           sgx bml hle 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
                           wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi
                           umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
                           avx512_vpopcntdq la57 rdpid sgx_lc fsrm md_clear pconfig flush_l1d 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: 0-31,64-95
node 0 size: 515673 MB
node 0 free: 487084 MB
node 1 cpus: 32-63,96-127
node 1 size: 516042 MB
node 1 free: 490160 MB
node distances:
node  0  1
 0:  10  20

```

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Platform Notes (Continued)

1: 20 10

9. /proc/meminfo

MemTotal: 1056476736 kB

10. who -r

run-level 3 Mar 6 13:18

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 chronyd crond cups display-manager firewalld gdm getty@ import-state insights-client-boot irqbalance iscsi iscsi-onboot kdump ksm ksmtuned libstoragemgmt libvirt loadmodules lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname nvidia-hibernate nvidia-resume nvidia-suspend nvmefc-boot-connections ostree-remount qemu-guest-agent rhsmcertd rpcbind rsyslog rtkit-daemon selinux-autorelabel-mark sep5 smartd sshd sssd syslog timedatex tuned udisks2 vdo vgauthd vmtoolsd
disabled	arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot chrony-wait console-getty cpupower cups-browsed debug-shell dnsmasq ebttables gssproxy httpd httpd@ initial-setup initial-setup-reconfiguration iprdump iprinit iprupdate iscsid iscsiui kpatch kvm_stat ledmon man-db-restart-cache-update ndctl-monitor netcf-transaction nfs-blkmap nfs-convert nfs-server nftables numad nvidia-powerd nvme-autoconnect oddjobd podman podman-auto-update podman-restart psacct radvd ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts saslauthd serial-getty@ snmpd snmptrapd speech-dispatcherd sshd-keygen@ switcheroo-control systemd-nspawn@ systemd-resolved tcsd tog-pegasus upower virtinterfaced virtnetworkd virtnodevdev virtnwfilterd virtproxyd virtqemud virtsecret virtstorage 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-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-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

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Platform Notes (Continued)

```
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet
```

14. cpupower frequency-info

analyzing CPU 0:

current policy: frequency should be within 800 MHz and 3.20 GHz.

The governor "performance" may decide which speed to use within this range.

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.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
```

17. /sys/kernel/mm/transparent_hugepage

```
defrag          always defer+madvice [madvice] never
enabled         [always] madvice never
hpage_pmd_size  2097152
```

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Platform Notes (Continued)

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

```

For more information, see the Linux documentation on hardware vulnerabilities, for example <https://www.kernel.org/doc/html/latest/admin-guide/hw-vuln/index.html>

```

-----
21. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 402G 209G 194G 52% /home

```

```

-----
22. /sys/devices/virtual/dmi/id
Vendor: TyroneSystems
Product: TDI100C3R-212
Product Family: Family
Serial: 2X20022302

```

```

-----
23. dmidecode

```

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Platform Notes (Continued)

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 Micron 36ASF8G72PZ-3G2F1 64 GB 2 rank 3200

24. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: PEGC0042
BIOS Date: 01/16/2023
BIOS Revision: 5.22

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)
=====

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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
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Compiler Version Notes (Continued)

=====
C++, C, Fortran | 507.cactuBSSN_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.1.0 Build 20220316

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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.1.0 Build 20220316

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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
2022.1.0 Build 20220316

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=====
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

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=====
Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)

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Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

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Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero TDI100C3R-212
(2.00 GHz, Intel Xeon Gold 6338)

SPECrate®2017_fp_base = 433

SPECrate®2017_fp_peak = 452

CPU2017 License: 006042

Test Sponsor: Netweb Pte Ltd

Tested by: Tyrone Systems

Test Date: Mar-2023

Hardware Availability: Apr-2021

Software Availability: May-2022

Base Compiler Invocation (Continued)

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

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

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Base Optimization Flags (Continued)

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 -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

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



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Tested by: Tyrone Systems

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Software Availability: May-2022

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

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

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Hardware Availability: Apr-2021
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Peak Optimization Flags (Continued)

```
511.povray_r: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(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
-L/usr/local/jemalloc64-5.0.1/lib
```

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

http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.html
<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-ICX-revA.html>

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

http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml
<http://www.spec.org/cpu2017/flags/Tyrone-Platform-Settings-V1.2-ICX-revA.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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