



SPEC CPU®2017 Floating Point Speed Result

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Nettrix

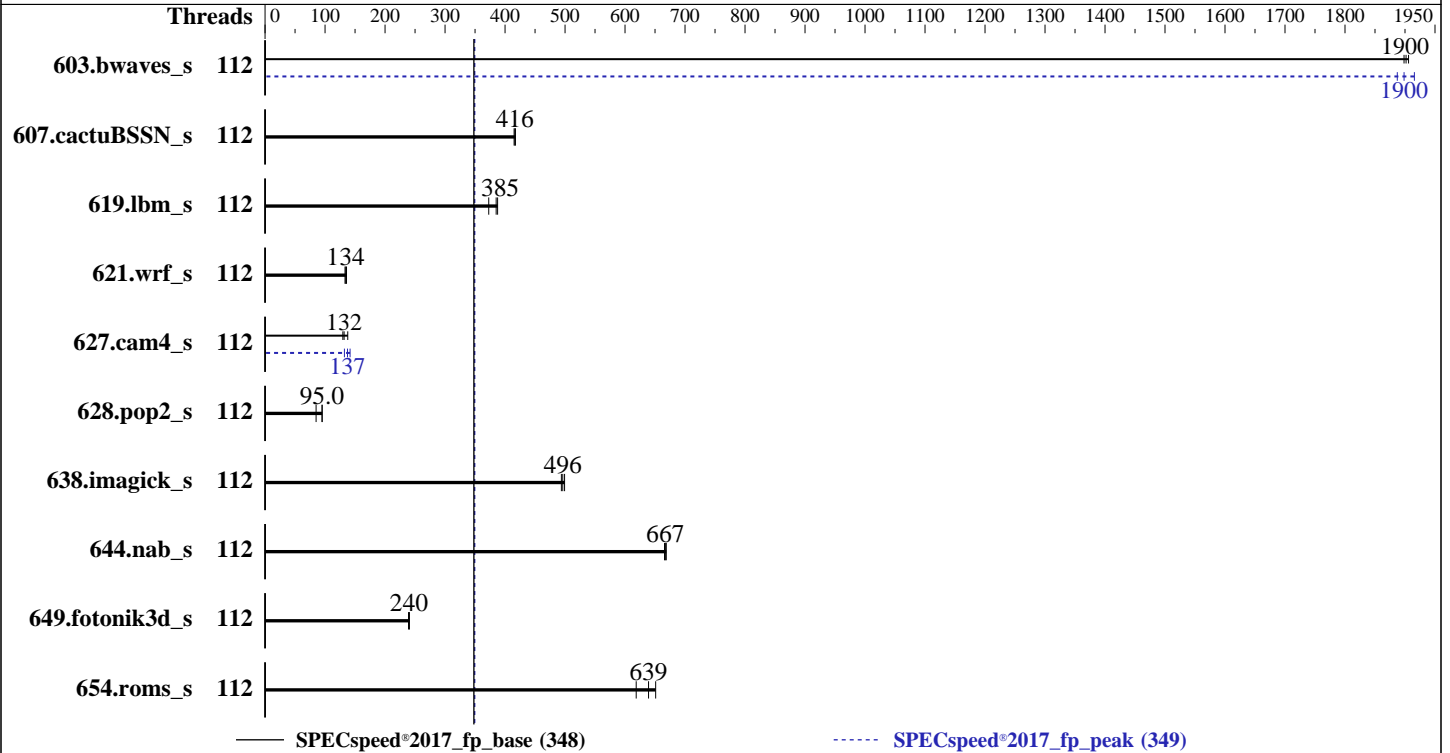
SPECspeed®2017_fp_base = 348

R620 G50 (Intel Xeon Max 9480, 1.9 GHz)

SPECspeed®2017_fp_peak = 349

CPU2017 License: 6138
Test Sponsor: Nettrix
Tested by: Nettrix

Test Date: Jul-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Max 9480
 Max MHz: 3500
 Nominal: 1900
 Enabled: 112 cores, 2 chips
 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: 112.5 MB I+D on chip per chip
 Other: None
 Memory: 1152 GB (16 x 64 GB 2Rx4 PC5-4800B-R + 2 x 64 GB HBM)
 Storage: 1 x 480 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 5.14.21-150400.22-default
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler
 for Linux;
 Parallel: Yes
 Firmware: Nettrix BIOS Version NNH1041020 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 set to prefer performance at the cost
 of additional power usage



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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 | 112 | <u>31.0</u> | <u>1900</u> | 31.1 | 1900 | 31.0 | 1910 | 112 | <u>31.1</u> | <u>1900</u> | 31.3 | 1890 | 30.8 | 1920 |
| 607.cactuBSSN_s | 112 | 39.9 | 417 | <u>40.0</u> | <u>416</u> | 40.2 | 415 | 112 | 39.9 | 417 | <u>40.0</u> | <u>416</u> | 40.2 | 415 |
| 619.lbm_s | 112 | 14.0 | 373 | <u>13.6</u> | <u>385</u> | 13.5 | 388 | 112 | 14.0 | 373 | <u>13.6</u> | <u>385</u> | 13.5 | 388 |
| 621.wrf_s | 112 | 99.2 | 133 | 97.4 | 136 | <u>98.4</u> | <u>134</u> | 112 | 99.2 | 133 | 97.4 | 136 | <u>98.4</u> | <u>134</u> |
| 627.cam4_s | 112 | <u>67.3</u> | <u>132</u> | 68.4 | 130 | 64.3 | 138 | 112 | 62.5 | 142 | 67.0 | 132 | <u>64.5</u> | <u>137</u> |
| 628.pop2_s | 112 | 140 | 85.1 | <u>125</u> | <u>95.0</u> | 125 | 95.2 | 112 | 140 | 85.1 | <u>125</u> | <u>95.0</u> | 125 | 95.2 |
| 638.imagick_s | 112 | 29.2 | 494 | 28.9 | 499 | <u>29.1</u> | <u>496</u> | 112 | 29.2 | 494 | 28.9 | 499 | <u>29.1</u> | <u>496</u> |
| 644.nab_s | 112 | <u>26.2</u> | <u>667</u> | 26.1 | 669 | 26.2 | 666 | 112 | <u>26.2</u> | <u>667</u> | 26.1 | 669 | 26.2 | 666 |
| 649.fotonik3d_s | 112 | <u>38.0</u> | <u>240</u> | 38.1 | 239 | 37.9 | 241 | 112 | <u>38.0</u> | <u>240</u> | 38.1 | 239 | 37.9 | 241 |
| 654.roms_s | 112 | 25.5 | 619 | 24.2 | 651 | <u>24.6</u> | <u>639</u> | 112 | 25.5 | 619 | 24.2 | 651 | <u>24.6</u> | <u>639</u> |

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

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,compact"
LD_LIBRARY_PATH = "/home/SPECcpu2017_ic2023/lib/intel64:/home/SPECcpu2017_ic2023/je5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
NA : The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
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
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 Configuration:
Enable LP [Global] set to Single LP
LLC Prefetch set to Enabled

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Platform Notes (Continued)

SNC (Sub NUMA) set to Disabled
Patrol Scrub set to Disabled
LLC dead line alloc set to Disabled
XPT Prefetch set to Enabled
KTI Prefetch set to Disabled
DCU Streamer Prefetcher set to Disabled
Hardware P-States set to Native Mode

Sysinfo program /home/SPECcpu2017_ic2023/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Tue Jul 25 07:21:04 2023

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

Table of contents

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

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

2. w
07:21:04 up 13:21, 0 users, load average: 0.48, 34.22, 70.82
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT

3. Username
From environment variable \$USER: root

4. ulimit -a
core file size (blocks, -c) unlimited
data seg size (kbytes, -d) unlimited

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Platform Notes (Continued)

```

scheduling priority      (-e) 0
file size                (blocks, -f) unlimited
pending signals          (-i) 4126683
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) 4126683
virtual memory           (kbytes, -v) unlimited
file locks               (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 29
sh run_speed.sh
runcpu --nobuild --action validate --define default-platform-flags -c
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=112 --tune base,peak -o all --define
  drop_caches fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=112 --tune base,peak --output_format all
  --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
  --note-preenv --logfile $SPEC/tmp/CPU2017.066/templogs/preenv.fpspeed.066.0.log --lognum 066.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/SPECcpu2017_ic2023

```

```

-----
6. /proc/cpuinfo
model name      : Intel (R) Xeon (R) CPU Max 9480
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2c000120
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 56
siblings       : 56
2 physical ids (chips)
112 processors (hardware threads)
physical id 0: core ids 0-55
physical id 1: core ids 0-55
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,23
2,234,236,238
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

```

-----
7. lscpu

From lscpu from util-linux 2.37.2:
Architecture:      x86_64

```

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Platform Notes (Continued)

```

CPU op-mode(s):          32-bit, 64-bit
Address sizes:          52 bits physical, 57 bits virtual
Byte Order:             Little Endian
CPU(s):                 112
On-line CPU(s) list:   0-111
Vendor ID:              GenuineIntel
Model name:             Intel (R) Xeon (R) CPU Max 9480
CPU family:             6
Model:                  143
Thread(s) per core:    1
Core(s) per socket:    56
Socket(s):              2
Stepping:               8
CPU max MHz:           3500.0000
CPU min MHz:           800.0000
BogoMIPS:               3800.00
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 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 vnmi
                        flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
                        erms invpcid rtm 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
                        hwp hwp_act_window hwp_epp hwp_pkg_req 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 avx512_fp16
                        amx_tile flush_l1d arch_capabilities

Virtualization:         VT-x
L1d cache:              5.3 MiB (112 instances)
L1i cache:              3.5 MiB (112 instances)
L2 cache:               224 MiB (112 instances)
L3 cache:               225 MiB (2 instances)
NUMA node(s):          2
NUMA node0 CPU(s):     0-55
NUMA node1 CPU(s):     56-111
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:     Not affected
Vulnerability Mds:      Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds:    Not affected
Vulnerability Tsx async abort: Not affected

```

From lscpu --cache:

| NAME | ONE-SIZE | ALL-SIZE | WAYS | TYPE | LEVEL | SETS | PHY-LINE | COHERENCY-SIZE |
|------|----------|----------|------|-------------|-------|--------|----------|----------------|
| L1d | 48K | 5.3M | 12 | Data | 1 | 64 | 1 | 64 |
| L1i | 32K | 3.5M | 8 | Instruction | 1 | 64 | 1 | 64 |
| L2 | 2M | 224M | 16 | Unified | 2 | 2048 | 1 | 64 |
| L3 | 112.5M | 225M | 15 | Unified | 3 | 122880 | 1 | 64 |

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Platform Notes (Continued)

8. numactl --hardware

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

```
available: 2 nodes (0-1)
node 0 cpus: 0-55
node 0 size: 515640 MB
node 0 free: 514169 MB
node 1 cpus: 56-111
node 1 size: 516052 MB
node 1 free: 514790 MB
node distances:
node  0  1
  0:  10  26
  1:  26  10
```

9. /proc/meminfo

```
MemTotal:      1056454440 kB
```

10. who -r

```
run-level 3 Jul 24 18:00
```

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)

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

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

```
UNIT          LOAD  ACTIVE SUB    DESCRIPTION
* sep5.service loaded failed failed systemd script to load sep5 driver at boot time
```

13. Services, from systemctl list-unit-files

```
STATE          UNIT FILES
enabled        apparmor auditd chronyd cron getty@ haveged irqbalance issue-generator iuvolt kbdsettings
                postfix purge-kernels rollback sep5 sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
                wickedd-nanny
enabled-runtime systemd-remount-fs
disabled       boot-sysctl ca-certificates chrony-wait console-getty debug-shell exchange-bmc-os-info
                grub2-once haveged-switch-root ipmievd issue-add-ssh-keys kexec-load lunmask munge nfs
                nfs-blkmap rdisc rpcbind rpmconfigcheck rsyncd serial-getty@ slurmd smartd
                smartd_generate_opts srp_daemon srp_daemon_port@ systemd-boot-check-no-failures
                systemd-network-generator systemd-sysextd systemd-time-wait-sync systemd-timesyncd ypbind
indirect       wickedd
```

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

```
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=3e42e6f0-0a08-4b20-8347-f1472220dfdb
splash=silent
mitigations=auto
quiet
```

15. cpupower frequency-info

```
analyzing CPU 0:
current policy: frequency should be within 800 MHz and 3.50 GHz.
                The governor "performance" may decide which speed to use
                within this range.
```

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Platform Notes (Continued)

boost state support:
Supported: yes
Active: yes

```

-----
16. 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                 20
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                  60
vm.watermark_boost_factor     15000
vm.watermark_scale_factor     10
vm.zone_reclaim_mode          0

-----
17. /sys/kernel/mm/transparent_hugepage
defrag          always defer+madvise [madvise] never
enabled        [always] madvise 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_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs   10000

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

-----
20. Disk information
SPEC is set to: /home/SPECcpu2017_ic2023
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   413G  231G  183G  56% /home

-----
21. /sys/devices/virtual/dmi/id
Vendor:          Nettrix
Product:         R620 G50
Product Family:  Rack
Serial:          6101810603447812

```

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Platform Notes (Continued)

22. dmidecode

Additional information from dmidecode 3.2 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

8x Hynix HMC94MEBQA121N 64 GB 2 rank 4800
8x Hynix HMC94MEBQA123N 64 GB 2 rank 4800
8x Intel 16 GB 1 rank 3200

23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: NNH1041020
BIOS Date: 01/09/2023
BIOS Revision: 5.29

Each Intel Xeon CPU Max processor is configured with 64 GB of High Bandwidth Memory (HBM) in-package. dmidecode is additionally reporting the capacity of the CPU in-package HBM stack as: '8x Intel 16 GB 1 rank 3200'

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

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 2023.0.0 Build 20221201
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Base 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

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:

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

Fortran benchmarks:

```
-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:

```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
```

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SPEC CPU®2017 Floating Point Speed Result

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Nettrix

SPECspeed®2017_fp_base = 348

R620 G50 (Intel Xeon Max 9480, 1.9 GHz)

SPECspeed®2017_fp_peak = 349

CPU2017 License: 6138
Test Sponsor: Nettrix
Tested by: Nettrix

Test Date: Jul-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

```
-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++:

```
-m64 -std=c++14 -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
```

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

(Continued on next page)



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Nettrix

SPECspeed®2017_fp_base = 348

R620 G50 (Intel Xeon Max 9480, 1.9 GHz)

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CPU2017 License: 6138
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Test Date: Jul-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Peak Optimization Flags (Continued)

644.nab_s: basepeak = yes

Fortran benchmarks:

```
603.bwaves_s: -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
```

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

```
627.cam4_s: -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-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Nettrix-Platform-Settings-V1.3-SPR-revA.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Nettrix-Platform-Settings-V1.3-SPR-revA.xml>

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