



SPEC CPU®2017 Floating Point Rate Result

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Supermicro

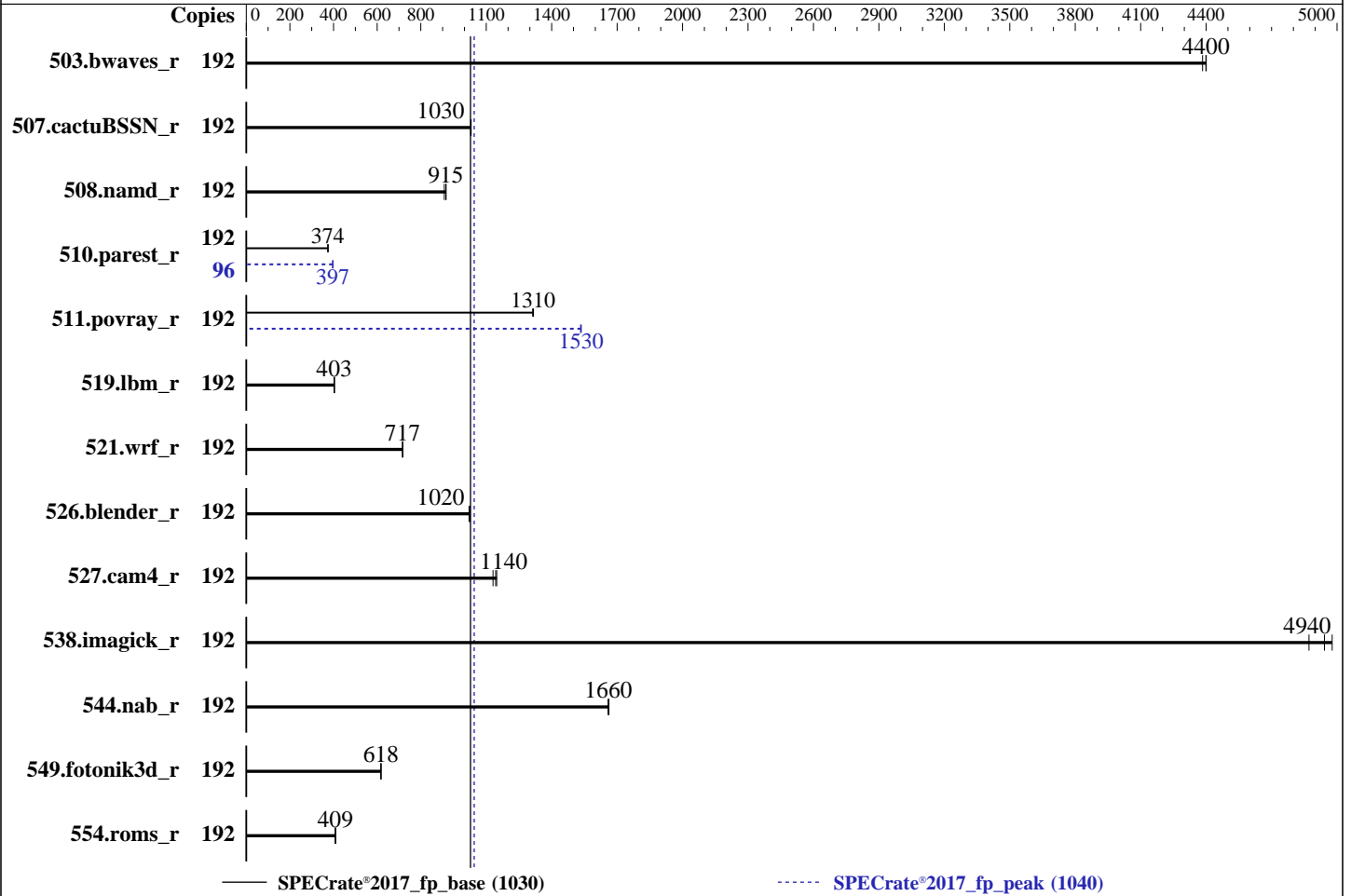
SuperServer SYS-112HA-TN
(X14SBH-AP , Intel Xeon 6970E+)

SPECrate®2017_fp_base = 1030

SPECrate®2017_fp_peak = 1040

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: May-2026
Hardware Availability: Jun-2026
Software Availability: Apr-2026



Hardware

CPU Name: Intel Xeon 6970E+
Max MHz: 3200
Nominal: 2300
Enabled: 192 cores, 1 chip
Orderable: 1 chip
Cache L1: 64 KB I + 32 KB D on chip per core
L2: 192 MB I+D on chip per chip, 4 MB shared / 4 cores
L3: 480 MB I+D on chip per chip
Other: None
Memory: 1152 GB (12 x 96 GB 2Rx4 PC5-8000B-R)
Storage: 1 x 480 GB NVMe SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.7
Kernel 5.14.0-611.5.1.el9_7.x86_64
Compiler: C/C++: Version 2026.0 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2026.0 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 1.5b released May-2026
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	192	439	4380	438	4400	438	4400	192	439	4380	438	4400	438	4400
507.cactuBSSN_r	192	236	1030	236	1030	236	1030	192	236	1030	236	1030	236	1030
508.namd_r	192	201	908	199	916	199	915	192	201	908	199	916	199	915
510.parest_r	192	1342	374	1342	374	1340	375	96	633	397	633	397	633	397
511.povray_r	192	341	1310	341	1310	341	1320	192	292	1540	293	1530	292	1530
519.lbm_r	192	502	403	502	403	500	404	192	502	403	502	403	500	404
521.wrf_r	192	600	717	600	717	600	717	192	600	717	600	717	600	717
526.blender_r	192	286	1020	286	1020	285	1030	192	286	1020	286	1020	285	1030
527.cam4_r	192	294	1140	292	1150	297	1130	192	294	1140	292	1150	297	1130
538.imagick_r	192	96.6	4940	95.9	4980	98.0	4870	192	96.6	4940	95.9	4980	98.0	4870
544.nab_r	192	195	1660	194	1660	195	1660	192	195	1660	194	1660	195	1660
549.fotonik3d_r	192	1211	618	1211	618	1213	617	192	1211	618	1211	618	1213	617
554.roms_r	192	747	409	745	410	748	408	192	747	409	745	410	748	408

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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"
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:
sync; echo 3> /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)

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General Notes (Continued)

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.
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:
Workload Profile = HPC
KTI Prefetch = Enable
Stale AtoS = Disable
LLC Dead Line Alloc = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on 135-179-165.engtw Wed May 27 23:24:33 2026

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 (252-55.e19)
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/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

1. uname -a
Linux 135-179-165.engtw 5.14.0-611.5.1.e19_7.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Oct 17 14:16:35 EDT 2025
x86_64 x86_64 x86_64 GNU/Linux

2. w
23:24:33 up 5:13, 1 user, load average: 142.03, 180.54, 187.12

(Continued on next page)



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Platform Notes (Continued)

USER	TTY	LOGIN@	IDLE	JCPU	PCPU	WHAT
root	tty1	18:11	5:10m	1.07s	0.01s	-bash

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) 4640390
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) 4640390
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 --define numcopies=192 -c
ic2026.0-lin-clearwaterforest-rate-20260429.cfg --define smt-on --define peakfpcopies=96 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base,peak -o all
fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 --configfile
ic2026.0-lin-clearwaterforest-rate-20260429.cfg --define smt-on --define peakfpcopies=96 --define
physicalfirst --define invoke_with_interleave --define drop_caches --reportable --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) 6970E+
vendor_id      : GenuineIntel
cpu family     : 6
model          : 221
stepping       : 1
microcode      : 0x1000120
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi spectre_v2_user
cpu cores      : 192
siblings       : 192
1 physical ids (chips)
192 processors (hardware threads)
physical id 0: core ids 0-63,128-191,256-319

```

(Continued on next page)



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Platform Notes (Continued)

physical id 0: apicids

0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342,344,346,348,350,352,354,356,358,360,362,364,366,368,370,372,374,376,378,380,382,512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,564,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,596,598,600,602,604,606,608,610,612,614,616,618,620,622,624,626,628,630,632,634,636,638

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 2.37.4:

```

Architecture:                x86_64
CPU op-mode(s):              32-bit, 64-bit
Address sizes:                52 bits physical, 48 bits virtual
Byte Order:                   Little Endian
CPU(s):                       192
On-line CPU(s) list:         0-191
Vendor ID:                    GenuineIntel
BIOS Vendor ID:              Intel(R) Corporation
Model name:                   Intel(R) Xeon(R) 6970E+
BIOS Model name:             Intel(R) Xeon(R) 6970E+
CPU family:                   6
Model:                        221
Thread(s) per core:          1
Core(s) per socket:          192
Socket(s):                    1
Stepping:                     1
BogoMIPS:                     4600.00
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 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 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 rdseed adx smap clflushopt clwb
                               intel_pt sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc
                               cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect
                               user_shstk avx_vnni lam wbnoinvd dtherm ida arat pln pts vnmi umip
                               pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid bus_lock_detect
                               cldemote movdiri movdir64b enqcmd fsrm md_clear serialize pconfig
                               arch_lbr ibt flush_l1d arch_capabilities
Virtualization:              VT-x
L1d cache:                   6 MiB (192 instances)
L1i cache:                   12 MiB (192 instances)
L2 cache:                    192 MiB (48 instances)
L3 cache:                    480 MiB (1 instance)
NUMA node(s):                3
NUMA node0 CPU(s):          0-63
NUMA node1 CPU(s):          64-127
NUMA node2 CPU(s):          128-191
Vulnerability Gather data sampling: Not affected
Vulnerability Indirect target selection: Not affected

```

(Continued on next page)



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Platform Notes (Continued)

Vulnerability Itlb multihit:	Not affected
Vulnerability Lltf:	Not affected
Vulnerability Mds:	Not affected
Vulnerability Meltdown:	Not affected
Vulnerability Mmio stale data:	Not affected
Vulnerability Reg file data sampling:	Not affected
Vulnerability Retbleed:	Not affected
Vulnerability Spec rstack overflow:	Not affected
Vulnerability Spec store bypass:	Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:	Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:	Mitigation; Enhanced / Automatic IBRS; IBPB conditional; PBRSE-eIBRS Not affected; BHI BHI_DIS_S
Vulnerability Srbds:	Not affected
Vulnerability Tsa:	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	32K	6M	8	Data	1	64	1	64
L1i	64K	12M	8	Instruction	1	128	1	64
L2	4M	192M	16	Unified	2	4096	1	64
L3	480M	480M	16	Unified	3	491520	1	64

8. numactl --hardware

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

```

available: 3 nodes (0-2)
node 0 cpus: 0-63
node 0 size: 386111 MB
node 0 free: 355598 MB
node 1 cpus: 64-127
node 1 size: 387055 MB
node 1 free: 361123 MB
node 2 cpus: 128-191
node 2 size: 386994 MB
node 2 free: 360826 MB
node distances:
node    0    1    2
0:    10   15   17
1:    15   10   15
2:    17   15   10

```

9. /proc/meminfo

MemTotal: 1188005584 kB

10. who -r

run-level 3 May 27 18:11

11. Systemd service manager version: systemd 252 (252-55.el9)

Default Target	Status
multi-user	running

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online

(Continued on next page)



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Platform Notes (Continued)

```

accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker firewalld
gdm getty@ insights-client-boot irqbalance iscsi-onboot iscsi-starter kdump libstoragemgmt
low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
nvme-fc-boot-connections ostree-remount qemu-guest-agent rhsmcertd rsyslog rtkit-daemon
selinux-autorelabel-mark smartd sshd sssd switcheroo-control systemd-boot-update
systemd-network-generator systemd-pstore tuned udisks2 upower vgauthd vmtoolsd
enabled-runtime systemd-remount-fs
disabled arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait chronyd-restricted cni-dhcp console-getty
cpupower cups-browsed dbus-daemon debug-shell dnf-system-upgrade dnsmasq iprump iprinit
iprupdate iscsi-init iscsid iscsiui kpatch kvm_stat ledmon lvm-devices-import
man-db-restart-cache-update netavark-dhcp-proxy netavark-firewalld-reload nftables
nvme-autoconnect ostree-readonly-sysroot-migration ostree-state-overlay@ podman
podman-auto-update podman-clean-transient podman-kube@ podman-restart psacct ras-mc-ctl
rasdaemon rdisc rhcd rhsm rhsm-facts rpmdb-rebuild selinux-check-proper-disable
serial-getty@ speech-dispatcherd sshd-keygen@ systemd-boot-check-no-failures
systemd-sysexec tuned-ppd wpa_supplicant
indirect iscsi spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
systemd-sysupdate systemd-sysupdate-reboot

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-611.5.1.el9_7.x86_64
root=/dev/mapper/rhel_135--180--133-root
ro
resume=/dev/mapper/rhel_135--180--133-swap
rd.lvm.lv=rhel_135-180-133/root
rd.lvm.lv=rhel_135-180-133/swap
rhgb
quiet
crashkernel=1G-2G:192M,2G-64G:256M,64G-:512M

```

```

-----
14. cpupower frequency-info
analyzing CPU 47:
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     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
vm.dirtytime_expire_seconds    43200
vm.extfrag_threshold            500
vm.min_unmapped_ratio           1
vm.nr_hugepages                 0
vm.nr_hugepages_mempolicy       0

```

(Continued on next page)



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Platform Notes (Continued)

```

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+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      Red Hat Enterprise Linux 9.7 (Plow)
redhat-release Red Hat Enterprise Linux release 9.7 (Plow)
system-release Red Hat Enterprise Linux release 9.7 (Plow)

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2017
Filesystem                                Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel_135--180--133-home xfs   372G  109G  263G  30% /home

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:      Supermicro
Product:     Super Server
Product Family: Family
Serial:      0123456789

```

```

-----
22. dmidecode
Additional information from dmidecode 3.6 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:
12x SK Hynix HMCGM4AMBRB970N 96 GB 2 rank 8000

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      American Megatrends International, LLC.
BIOS Version:     1.5b
BIOS Date:        05/04/2026
BIOS Revision:    5.35

```



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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 2026.0.0 Build 20260331
Copyright (C) 1985-2026 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 2026.0.0 Build 20260331
Copyright (C) 1985-2026 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 2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2026.0.0 Build 20260331
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
=====

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

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2026.0.0 Build 20260331
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2026.0.0 Build 20260331
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2026.0.0 Build 20260331
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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 2026.0.0 Build 20260331
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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

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SPEC CPU®2017 Floating Point Rate Result

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Supermicro

SuperServer SYS-112HA-TN
(X14SBH-AP , Intel Xeon 6970E+)

SPECrate®2017_fp_base = 1030

SPECrate®2017_fp_peak = 1040

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: May-2026
Hardware Availability: Jun-2026
Software Availability: Apr-2026

Base Compiler Invocation (Continued)

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

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 -xclearwaterforest -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

-w -std=c++14 -m64 -Wl,-z,muldefs -xclearwaterforest -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops

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Base Optimization Flags (Continued)

C++ benchmarks (continued):

-qopt-mem-layout-trans=4 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

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

Benchmarks using both C and C++:

-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xclearwaterforest
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using Fortran, C, and C++:

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

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Peak Compiler Invocation (Continued)

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xclearwaterforest
-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: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

(Continued on next page)



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Peak Optimization Flags (Continued)

```
511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs  
-fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2 -flto  
-Ofast -ffast-math -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2026-official-linux64.html>

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

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

<http://www.spec.org/cpu2017/flags/Intel-ic2026-official-linux64.xml>

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

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