SPEC CPU®2017 Floating Point Rate Result

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Supermicro

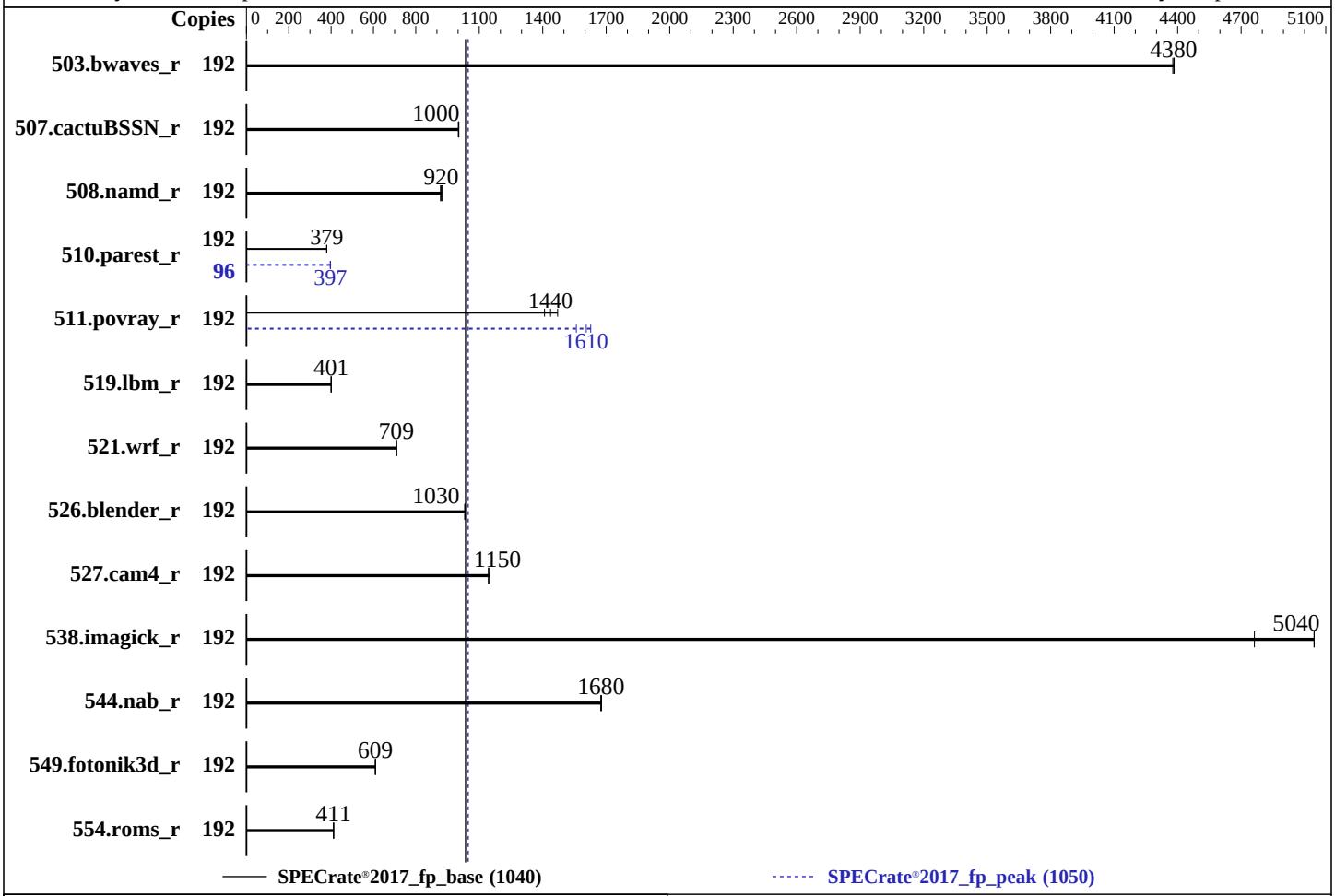
Blade SBI-612BA-1NE34-LCC
(B14SBE-CPU-AP , Intel Xeon 6970E+)

SPECrate®2017_fp_base = 1040

SPECrate®2017_fp_peak = 1050

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: DLC

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 1.5 released Apr-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	440	4380	439	4380	**439**	**4380**	192	440	4380	439	4380	**439**	**4380**
507.cactuBSSN_r	192	**242**	**1000**	242	1000	243	1000	192	**242**	**1000**	242	1000	243	1000
508.namd_r	192	197	924	199	917	**198**	**920**	192	197	924	199	917	**198**	**920**
510.parest_r	192	1323	380	1325	379	**1324**	**379**	96	633	397	633	397	**633**	**397**
511.povray_r	192	**312**	**1440**	305	1470	318	1410	192	288	1560	276	1630	**279**	**1610**
519.lbm_r	192	**505**	**401**	506	400	505	401	192	**505**	**401**	506	400	505	401
521.wrf_r	192	607	708	**607**	**709**	606	709	192	607	708	**607**	**709**	606	709
526.blender_r	192	283	1030	284	1030	**283**	**1030**	192	283	1030	284	1030	**283**	**1030**
527.cam4_r	192	**293**	**1150**	294	1140	292	1150	192	**293**	**1150**	294	1140	292	1150
538.imagick_r	192	100	4760	94.6	5050	**94.7**	**5040**	192	100	4760	94.6	5050	**94.7**	**5040**
544.nab_r	192	193	1670	193	1680	**193**	**1680**	192	193	1670	193	1680	**193**	**1680**
549.fotonik3d_r	192	1229	609	**1228**	**609**	1227	610	192	1229	609	**1228**	**609**	1227	610
554.roms_r	192	**742**	**411**	740	412	742	411	192	**742**	**411**	740	412	742	411

SPECrate®2017_fp_base = 1040

SPECrate®2017_fp_peak = 1050

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)
```

(Continued on next page)

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 135-175-95.engtw Fri May 22 22:27:00 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.el9)
 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 135-175-95.engtw 5.14.0-611.5.1.el9_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
    22:27:00 up  5:10,  1 user,  load average: 138.67, 179.51, 185.92
```

(Continued on next page)

Platform Notes (Continued)

```
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1      17:17    5:09m  1.06s  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) 4640649
  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) 4640649
  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)

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
     ,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,256,258,2
     60,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,31
     2,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342,344,346,348,350,352,354,356,358,360,362,364
     ,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,
     546,548,550,552,554,556,558,560,562,564,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,596,5
     98,600,602,604,606,608,610,612,614,616,618,620,622,624,626,628,630,632,634,636,638
   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)

Platform Notes (Continued)

```
  Vulnerability Itlb multihit:             Not affected
  Vulnerability L1tf:                      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/swapgs barriers and __user pointer
                                           sanitization
  Vulnerability Spectre v2:                Mitigation; Enhanced / Automatic IBRS; IBPB conditional;
                                           PBRSB-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: 386158 MB
  node 0 free: 355758 MB
  node 1 cpus: 64-127
  node 1 size: 387009 MB
  node 1 free: 357913 MB
  node 2 cpus: 128-191
  node 2 size: 387039 MB
  node 2 free: 354445 MB
  node distances:
  node     0    1    2
     0:   10   15   17
     1:   15   10   15
     2:   17   15   10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1188053256 kB

------------------------------------------------------------
10. who -r
  run-level 3 May 22 17:16

------------------------------------------------------------
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          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online atd auditd bluetooth
```

(Continued on next page)

Platform Notes (Continued)

```
                  chronyd crond dbus-broker firewalld getty@ insights-client-boot irqbalance iscsi-onboot
                  iscsi-starter kdump libstoragemgmt lvm2-monitor mcelog mdmonitor microcode multipathd
                  nis-domainname nvmefc-boot-connections rhsmcertd rsyslog selinux-autorelabel-mark smartd
                  sshd sssd systemd-boot-update systemd-network-generator systemd-pstore tas tuned udisks2
  enabled-runtime systemd-remount-fs
  disabled        arp-ethers blk-availability chrony-wait chronyd-restricted cni-dhcp console-getty cpupower
                  debug-shell dnf-system-upgrade iprdump iprinit iprupdate iscsi-init iscsid iscsiuio kpatch
                  kvm_stat ledmon lvm-devices-import man-db-restart-cache-update netavark-dhcp-proxy
                  netavark-firewalld-reload nftables nvmf-autoconnect podman podman-auto-update
                  podman-clean-transient podman-kube@ podman-restart psacct rdisc rhcd rhsm rhsm-facts
                  rpmdb-rebuild selinux-check-proper-disable serial-getty@ sshd-keygen@
                  systemd-boot-check-no-failures systemd-sysext
  indirect        iscsi 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=(hd1,gpt2)/vmlinuz-5.14.0-611.5.1.el9_7.x86_64
  root=/dev/mapper/rhel_135--171--45-root
  ro
  crashkernel=1G-2G:192M,2G-64G:256M,64G-:512M
  resume=/dev/mapper/rhel_135--171--45-swap
  rd.lvm.lv=rhel_135-171-45/root
  rd.lvm.lv=rhel_135-171-45/swap
  rhgb
  quiet

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 91:
    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
  vm.nr_overcommit_hugepages          0
  vm.swappiness                      10
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                0
```

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Platform Notes (Continued)

```
------------------------------------------------------------
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--171--45-home xfs   344G  110G  235G  32% /home

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         PM_1768968004
    Product:        PPM_1768968004
    Product Family: SMC B14
    Serial:         PS_1768968004

------------------------------------------------------------
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:      1.5
   BIOS Date:         04/22/2026
   BIOS Revision:     5.35
```

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

==============================================================================================================
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
Copyright (C) 1985-2026 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran 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.
--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

(Continued on next page)

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

(Continued on next page)

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)

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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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.9 on 2026-05-22 10:26:59-0400.
Report generated on 2026-06-16 17:50:35 by CPU2017 PS formatter v6716.
Originally published on 2026-06-16.