



SPEC CPU®2017 Floating Point Rate Result

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Cisco Systems

Cisco UCS X410 M8 (Intel Xeon 6768P 2.4 GHz processor)

SPECrate®2017_fp_base = 2620

SPECrate®2017_fp_peak = 2710

CPU2017 License: 9019

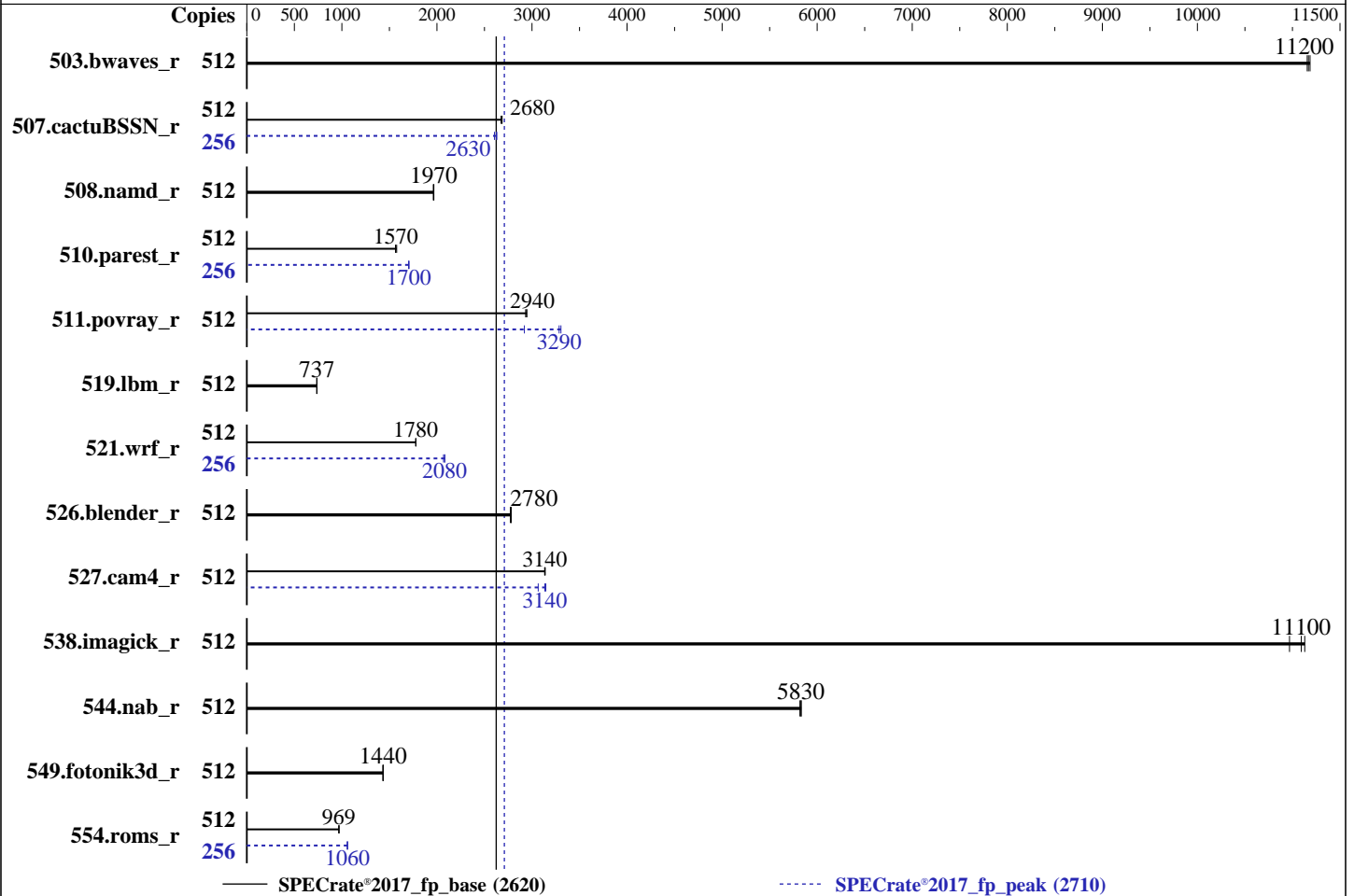
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2026

Hardware Availability: May-2025

Software Availability: Jun-2025



Hardware

CPU Name: Intel Xeon 6768P
 Max MHz: 3900
 Nominal: 2400
 Enabled: 256 cores, 4 chips, 2 threads/core
 Orderable: 2,4 Chips
 Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 336 MB I+D on chip per chip
 Other: None
 Memory: 2 TB (32 x 64 GB 2Rx4 PC5-6400B-R)
 Storage: 1 x 371G GB NVME SSD
 Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
 6.4.0-150600.21-default
 Compiler: C/C++: Version 2025.2 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2025.2 of Intel Fortran Compiler
 for Linux;
 Parallel: No
 Firmware: Version 6.0.2b released Jan-2026
 File System: btrfs
 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	512	459	11200	460	11200	460	11200	512	459	11200	460	11200	460	11200
507.cactuBSSN_r	512	241	2690	242	2680	242	2680	256	124	2600	123	2630	123	2630
508.namd_r	512	247	1970	248	1960	247	1970	512	247	1970	248	1960	247	1970
510.parest_r	512	850	1580	856	1560	855	1570	256	393	1700	393	1700	393	1700
511.povray_r	512	406	2940	408	2930	406	2940	512	362	3300	409	2920	364	3290
519.lbm_r	512	732	737	732	737	732	737	512	732	737	732	737	732	737
521.wrf_r	512	645	1780	645	1780	645	1780	256	276	2080	275	2080	277	2070
526.blender_r	512	281	2780	281	2770	280	2780	512	281	2780	281	2770	280	2780
527.cam4_r	512	286	3140	285	3140	286	3130	512	292	3070	285	3150	286	3140
538.imagick_r	512	116	11000	115	11100	114	11100	512	116	11000	115	11100	114	11100
544.nab_r	512	148	5830	148	5820	148	5830	512	148	5830	148	5820	148	5830
549.fotonik3d_r	512	1395	1430	1389	1440	1390	1440	512	1395	1430	1389	1440	1390	1440
554.roms_r	512	840	968	840	969	839	970	256	384	1060	385	1060	384	1060

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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:
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) is mitigated in the system as tested and documented.

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General Notes (Continued)

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:

Hardware prefetcher set to Enabled
Adjacent cache line prefetcher set to Enabled
Patrol scrub set to Disabled
XPT prefetch set to Disabled
LLC prefetch set to Enabled
Enhanced CPU performance set to Auto

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Wed Apr 1 10:37:10 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 254 (254.10+suse.84.ge8d77af424)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS

1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

```

-----
2. w
10:37:10 up 11 min,  2 users,  load average: 0.66, 0.28, 0.15
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      pts/0    10.29.148.201 10:31    30.00s 1.12s  0.03s  -bash

```

```

-----
3. Username
From environment variable $USER:  root

```

```

-----
4. ulimit -a
core file size          (blocks, -c) unlimited
data seg size          (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size               (blocks, -f) unlimited
pending signals        (-i) 8253180
max locked memory      (kbytes, -l) 8192
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) 8253180
virtual memory         (kbytes, -v) unlimited
file locks             (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0
-bash
-bash
runcpu --nobuild -n 3 --action validate --define default-platform-flags --define numcopies=512 -c
ic2025.2-lin-graniterapids-rate-20250605.cfg --define smt-on --define cores=256 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all fprate
runcpu --nobuild --iterations 3 --action validate --define default-platform-flags --define numcopies=512
--configfile ic2025.2-lin-graniterapids-rate-20250605.cfg --define smt-on --define cores=256 --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/CPU2017.097/templogs/preenv.fprate.097.0.log --lognum 097.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

```

```

-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6768P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode      : 0x1000405
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores     : 64
siblings       : 128
4 physical ids (chips)

```

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Platform Notes (Continued)

```

512 processors (hardware threads)
physical id 0: core ids 0-31,64-95
physical id 1: core ids 0-31,64-95
physical id 2: core ids 0-31,64-95
physical id 3: core ids 0-31,64-95
physical id 0: apicids 0-63,128-191
physical id 1: apicids 256-319,384-447
physical id 2: apicids 512-575,640-703
physical id 3: apicids 768-831,896-959

```

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 2.39.3:

```

Architecture:          x86_64
CPU op-mode(s):       32-bit, 64-bit
Address sizes:         46 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                512
On-line CPU(s) list:  0-511
Vendor ID:             GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
Model name:            Intel(R) Xeon(R) 6768P
BIOS Model name:      Intel(R) Xeon(R) 6768P  CPU @ 2.4GHz
BIOS CPU family:      179
CPU family:            6
Model:                 173
Thread(s) per core:   2
Core(s) per socket:   64
Socket(s):             4
Stepping:              1
CPU(s) scaling MHz:   21%
CPU max MHz:           3900.0000
CPU min MHz:           800.0000
BogoMIPS:              4800.00
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 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 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
xsaves xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local split_lock_detect user_shstk 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 ibt amx_bf16 avx512_fp16 amx_tile
amx_int8 flush_lld arch_capabilities

L1d cache:            12 MiB (256 instances)
L1i cache:            16 MiB (256 instances)
L2 cache:              512 MiB (256 instances)
L3 cache:              1.3 GiB (4 instances)

```

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Platform Notes (Continued)

```

NUMA node(s): 8
NUMA node0 CPU(s): 0-31,256-287
NUMA node1 CPU(s): 32-63,288-319
NUMA node2 CPU(s): 64-95,320-351
NUMA node3 CPU(s): 96-127,352-383
NUMA node4 CPU(s): 128-159,384-415
NUMA node5 CPU(s): 160-191,416-447
NUMA node6 CPU(s): 192-223,448-479
NUMA node7 CPU(s): 224-255,480-511
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf: Not affected
Vulnerability Mds: Not affected
Vulnerability Melttdown: 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; RSB filling;
PBRSE-eIBRS Not affected; BHI BHI_DIS_S
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	12M	12	Data	1	64	1	64
L1i	64K	16M	16	Instruction	1	64	1	64
L2	2M	512M	16	Unified	2	2048	1	64
L3	336M	1.3G	16	Unified	3	344064	1	64

8. numactl --hardware

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

```

available: 8 nodes (0-7)
node 0 cpus: 0-31,256-287
node 0 size: 257260 MB
node 0 free: 256217 MB
node 1 cpus: 32-63,288-319
node 1 size: 258031 MB
node 1 free: 257416 MB
node 2 cpus: 64-95,320-351
node 2 size: 258031 MB
node 2 free: 257322 MB
node 3 cpus: 96-127,352-383
node 3 size: 258031 MB
node 3 free: 257156 MB
node 4 cpus: 128-159,384-415
node 4 size: 258031 MB
node 4 free: 257394 MB
node 5 cpus: 160-191,416-447
node 5 size: 258031 MB
node 5 free: 256239 MB
node 6 cpus: 192-223,448-479
node 6 size: 258031 MB
node 6 free: 257415 MB
node 7 cpus: 224-255,480-511
node 7 size: 257874 MB
node 7 free: 257166 MB

```

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Platform Notes (Continued)

node distances:

node	0	1	2	3	4	5	6	7
0:	10	12	21	21	21	21	21	21
1:	12	10	21	21	21	21	21	21
2:	21	21	10	12	21	21	21	21
3:	21	21	12	10	21	21	21	21
4:	21	21	21	21	10	12	21	21
5:	21	21	21	21	12	10	21	21
6:	21	21	21	21	21	21	10	12
7:	21	21	21	21	21	21	12	10

9. /proc/meminfo

MemTotal: 2112840928 kB

10. who -r

run-level 3 Apr 1 10:27

11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)

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	YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback rsyslog sep5 smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime	systemd-remount-fs
disabled	autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info firewallld fsidd gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd tuned udisks2 vncserver@
indirect	systemd-userdbd wickedd

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

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=c9a29bb1-f95d-4e5a-816b-db69c8356128
mitigations=auto
quiet
security=apparmor

15. cpupower frequency-info

analyzing CPU 492:
current policy: frequency should be within 800 MHz and 3.90 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. tuned-adm active
Current active profile: latency-performance

17. sysctl
kernel.numa_balancing 1
kernel.randomize_va_space 2
vm.compaction_proactiveness 20
vm.dirty_background_bytes 0
vm.dirty_background_ratio 3
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 10
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0

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

19. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag 1
max_ptes_none 511
max_ptes_shared 256
max_ptes_swap 64
pages_to_scan 4096
scan_sleep_millisecs 10000

20. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP6

21. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme1n1p2 btrfs 371G 27G 341G 8% /home

22. /sys/devices/virtual/dmi/id

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Platform Notes (Continued)

Vendor: Cisco Systems Inc
Product: UCSX-410C-M8
Serial: FVH2920P0DV

23. dmidecode

Additional information from dmidecode 3.4 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:

1x 0xCE00 M321R8GA0PB2-CCPEC 64 GB 2 rank 6400
18x 0xCE00 M321R8GA0PB2-CCPKC 64 GB 2 rank 6400
13x 0xCE00 M321R8GA0PB2-CCPPC 64 GB 2 rank 6400

24. BIOS

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

BIOS Vendor: Cisco Systems, Inc.
BIOS Version: X410M8.6.0.2b.0.0130261958
BIOS Date: 01/30/2026
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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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Cisco UCS X410 M8 (Intel Xeon 6768P 2.4 GHz processor)

SPECrate®2017_fp_base = 2620

SPECrate®2017_fp_peak = 2710

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2026

Hardware Availability: May-2025

Software Availability: Jun-2025

Compiler Version Notes (Continued)

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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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Base 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

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

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Base Portability Flags (Continued)

```
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 -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Fortran benchmarks:

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

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
```

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Base Optimization Flags (Continued)

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

`-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`

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:

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Peak Optimization Flags (Continued)

508.namd_r: basepeak = yes

```
510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xgraniterapids
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512
-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 -xgraniterapids -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 -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:

```
511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```



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

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V2.0-GNR-revI.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V2.0-GNR-revI.xml>

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