



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M8 (Intel Xeon 6530P 2.3 GHz processor)

SPECspeed®2017_int_base = 14.9

SPECspeed®2017_int_peak = 15.1

CPU2017 License: 9019

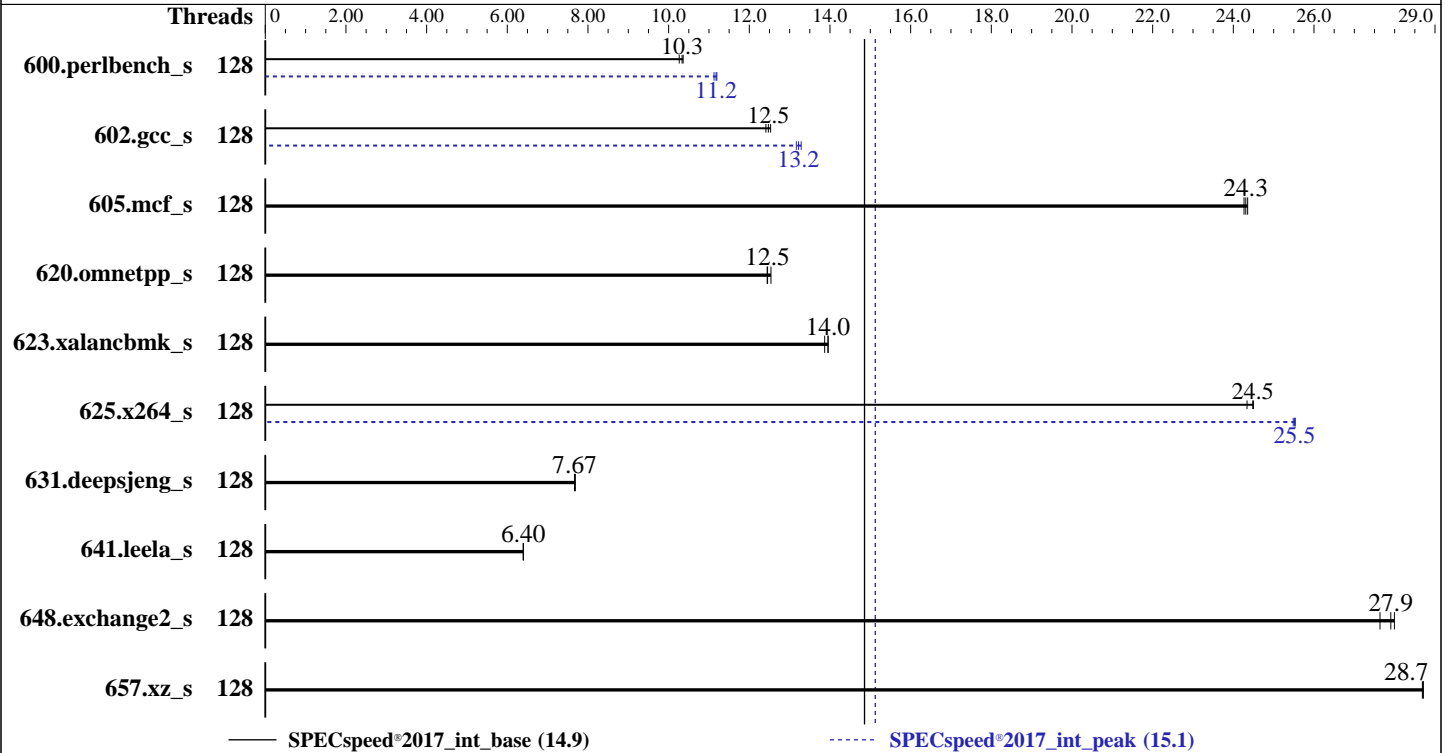
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2025

Hardware Availability: Feb-2025

Software Availability: Jun-2024



Hardware

CPU Name: Intel Xeon 6530P
 Max MHz: 4100
 Nominal: 2300
 Enabled: 64 cores, 2 chips, 2 threads/core
 Orderable: 1,2 Chips
 Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 144 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
 Storage: 1 x 741 GB SATA SSD
 Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
 6.4.0-150600.21-default
 Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
 Parallel: Yes
 Firmware: Version 4.3.6b released Apr-2025
 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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	128	172	10.3	171	10.4	173	10.3	128	159	11.2	160	11.1	159	11.2
602.gcc_s	128	321	12.4	318	12.5	319	12.5	128	302	13.2	300	13.3	301	13.2
605.mcf_s	128	195	24.3	194	24.4	194	24.3	128	195	24.3	194	24.4	194	24.3
620.omnetpp_s	128	130	12.5	131	12.4	131	12.5	128	130	12.5	131	12.4	131	12.5
623.xalancbmk_s	128	102	14.0	102	14.0	102	13.9	128	102	14.0	102	14.0	102	13.9
625.x264_s	128	72.5	24.3	72.1	24.5	72.0	24.5	128	69.1	25.5	69.1	25.5	69.2	25.5
631.deepsjeng_s	128	187	7.67	186	7.69	187	7.67	128	187	7.67	186	7.69	187	7.67
641.leela_s	128	267	6.40	267	6.40	267	6.40	128	267	6.40	267	6.40	267	6.40
648.exchange2_s	128	105	28.0	105	27.9	106	27.6	128	105	28.0	105	27.9	106	27.6
657.xz_s	128	215	28.7	215	28.7	216	28.7	128	215	28.7	215	28.7	216	28.7

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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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

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.
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.

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General Notes (Continued)

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 Auto
LLC prefetch set to Enabled
Enhanced CPU performance set to Auto
Intel SST-Performance Profile set to Profile0

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on c240m8-spec1 Wed Jun 25 10:32:09 2025

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

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10. who -r
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13. Linux kernel boot-time arguments, from /proc/cmdline
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15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
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21. /sys/devices/virtual/dmi/id
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1. uname -a
Linux c240m8-spec1 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

2. w

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Platform Notes (Continued)

```
10:32:09 up 2:51, 1 user, load average: 0.04, 0.01, 0.00
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      tty1     -             10:02       9.00s      0.97s      0.00s      -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) 4124939
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) 4124939
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
-bash
runcpu --nobuild -n 3 --action validate --define default-platform-flags --configfile
ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=128 --tune base,peak --output_format all
--define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base,peak --size refspeed
intspeed
runcpu --nobuild --iterations 3 --action validate --define default-platform-flags --configfile
ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=128 --tune base,peak --output_format all
--define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base,peak --size refspeed
--nopower --runmode speed --tune base:peak --size refspeed intspeed --nopreenv --note-preenv --logfile
\$SPEC/tmp/CPU2017.415/templogs/preenv.intspeed.415.0.log --lognum 415.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/cpu2017

6. /proc/cpuinfo
model name : Intel(R) Xeon(R) 6530P
vendor_id : GenuineIntel
cpu family : 6
model : 173
stepping : 1
microcode : 0x1000380
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores : 32
siblings : 64
2 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31

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Platform Notes (Continued)

physical id 0: apicids 0-63
physical id 1: apicids 128-191

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.39.3:

```

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):                      128
On-line CPU(s) list:        0-127
Vendor ID:                   GenuineIntel
BIOS Vendor ID:             Intel(R) Corporation
Model name:                  Intel(R) Xeon(R) 6530P
BIOS Model name:            Intel(R) Xeon(R) 6530P  CPU @ 2.8GHz
BIOS CPU family:            179
CPU family:                  6
Model:                      173
Thread(s) per core:         2
Core(s) per socket:         32
Socket(s):                   2
Stepping:                   1
CPU(s) scaling MHz:         26%
CPU max MHz:                 4100.0000
CPU min MHz:                 800.0000
BogoMIPS:                   5600.00
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 monitor 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
                             xsavec 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 hfi avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni
                             vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57
                             rdprid 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_l1d arch_capabilities
L1d cache:                   3 MiB (64 instances)
L1i cache:                   4 MiB (64 instances)
L2 cache:                    128 MiB (64 instances)
L3 cache:                    288 MiB (2 instances)
NUMA node(s):                2
NUMA node0 CPU(s):          0-31,64-95
NUMA node1 CPU(s):          32-63,96-127
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:         Not affected
Vulnerability Mds:          Not affected

```

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Platform Notes (Continued)

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; 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	3M	12	Data	1	64	1	64
L1i	64K	4M	16	Instruction	1	64	1	64
L2	2M	128M	16	Unified	2	2048	1	64
L3	144M	288M	16	Unified	3	147456	1	64

8. numactl --hardware

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

```

available: 2 nodes (0-1)
node 0 cpus: 0-31,64-95
node 0 size: 515222 MB
node 0 free: 513847 MB
node 1 cpus: 32-63,96-127
node 1 size: 516039 MB
node 1 free: 515006 MB
node distances:
node 0 1
0: 10 21
1: 21 10

```

9. /proc/meminfo

MemTotal: 1056011584 kB

10. who -r

run-level 3 Jun 25 07:41

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

```

Default Target Status
multi-user      running

```

12. 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 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

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Platform Notes (Continued)

```

systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned
udisks2 vncserver@
indirect          systemd-userdbd wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=52f44b73-418f-485e-abb1-6b40f358d6a0
splash=silent
mitigations=auto
quiet
security=apparmor

```

```

-----
14. cpupower frequency-info
analyzing CPU 68:
  current policy: frequency should be within 800 MHz and 4.10 GHz.
                   The governor "performance" may decide which speed to use
                   within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

-----
15. tuned-adm active
It seems that tuned daemon is not running, preset profile is not activated.
Preset profile: latency-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                  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 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

```

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Platform Notes (Continued)

```
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 SP6

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdc2 xfs 445G 57G 389G 13% /

21. /sys/devices/virtual/dmi/id
Vendor: Cisco Systems Inc
Product: UCSC-C240-M8SX
Serial: WZP28449MSW

22. 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:
16x 0xCE00 M321R8GA0PB2-CCPEC 64 GB 2 rank 6400

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Cisco Systems, Inc.
BIOS Version: C240M8.4.3.6b.0.0430251037
BIOS Date: 04/30/2025
BIOS Revision: 5.35

Compiler Version Notes

=====
C | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
657.xz_s(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====
C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
641.leela_s(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Compiler Version Notes (Continued)

=====
Fortran | 648.exchange2_s(base, peak)
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-w -std=c11 -m64 -Wl,-z,muldefs -xsaphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:

-w -std=c++14 -m64 -Wl,-z,muldefs -xsaphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -w -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

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Cisco Systems

Cisco UCS C240 M8 (Intel Xeon 6530P 2.3 GHz processor)

SPECspeed®2017_int_base = 14.9

SPECspeed®2017_int_peak = 15.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2025

Hardware Availability: Feb-2025

Software Availability: Jun-2024

Peak Optimization Flags (Continued)

602.gcc_s (continued):

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

605.mcf_s: basepeak = yes

```
625.x264_s: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP  
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V2.3-GNR-revR.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V2.3-GNR-revR.xml>

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