



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M8 (Intel Xeon 6740P 2.1 GHz processor)

SPECspeed®2017_int_base = 13.9

SPECspeed®2017_int_peak = 14.0

CPU2017 License: 9019

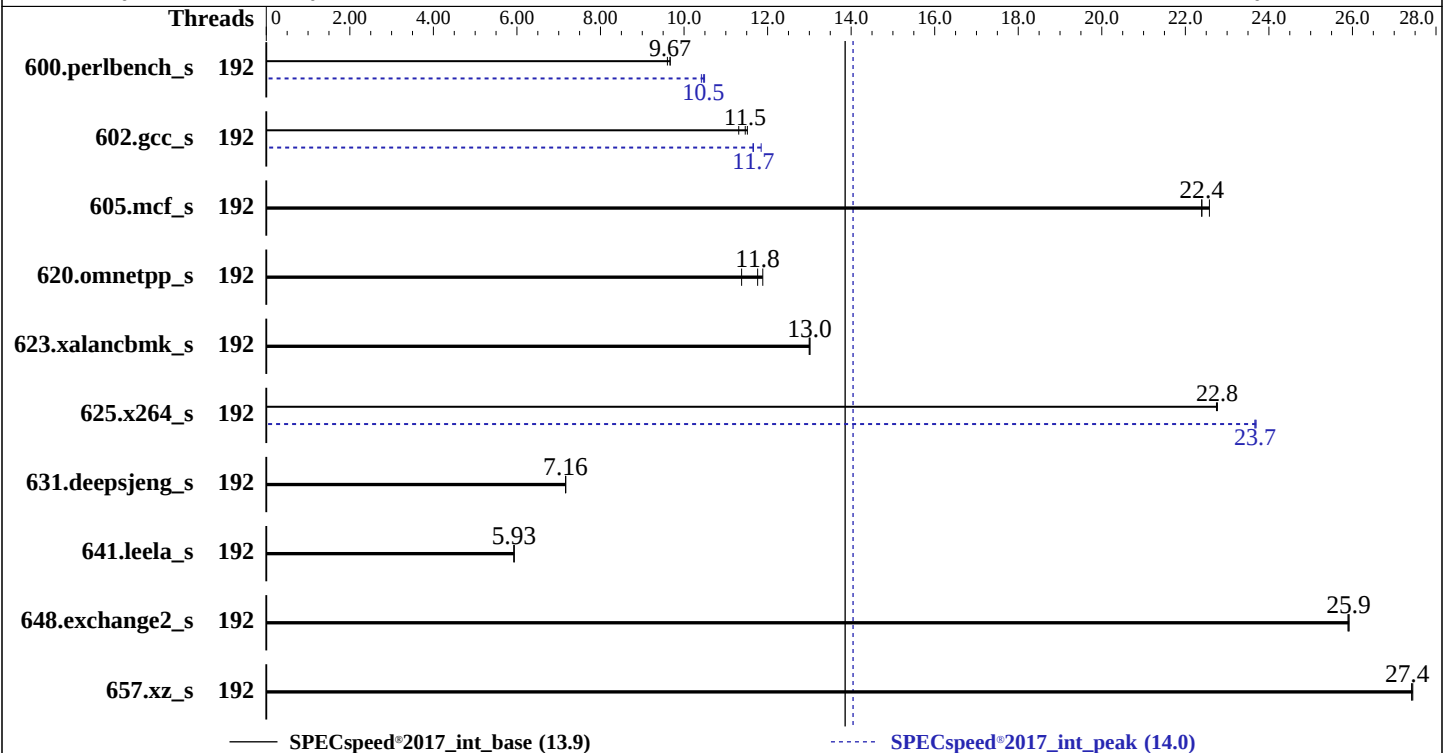
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: May-2025

Hardware Availability: Feb-2025

Software Availability: Mar-2025



Hardware

CPU Name: Intel Xeon 6740P
Max MHz: 3800
Nominal: 2100
Enabled: 96 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: 288 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 1 x 224 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 4.3.6a released Mar-2025
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc 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	192	184	9.67	184	9.67	185	9.60	192	170	10.5	170	10.4	169	10.5
602.gcc_s	192	347	11.5	352	11.3	346	11.5	192	336	11.8	342	11.6	341	11.7
605.mcf_s	192	211	22.4	211	22.4	209	22.6	192	211	22.4	211	22.4	209	22.6
620.omnetpp_s	192	143	11.4	139	11.8	137	11.9	192	143	11.4	139	11.8	137	11.9
623.xalancbmk_s	192	109	13.0	109	13.0	109	13.0	192	109	13.0	109	13.0	109	13.0
625.x264_s	192	77.6	22.7	77.5	22.8	77.5	22.8	192	74.4	23.7	74.5	23.7	74.5	23.7
631.deepsjeng_s	192	200	7.16	200	7.17	200	7.16	192	200	7.16	200	7.17	200	7.16
641.leela_s	192	288	5.93	288	5.93	288	5.93	192	288	5.93	288	5.93	288	5.93
648.exchange2_s	192	114	25.9	113	25.9	113	25.9	192	114	25.9	113	25.9	113	25.9
657.xz_s	192	225	27.4	225	27.4	225	27.4	192	225	27.4	225	27.4	225	27.4

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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:

Sub NUMA clustering set to Enabled

Hardware prefetcher set to Enabled

Adjacent cache line prefetcher set to Enabled

XPT prefetch set to Auto

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 c240m8-spec Sun Jun 1 12:55:53 2025

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. 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 c240m8-spec 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
12:55:53 up 18 min, 1 user, load average: 0.01, 0.04, 0.07

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Platform Notes (Continued)

USER	TTY	FROM	LOGIN@	IDLE	JCPU	PCPU	WHAT
root	tty1	-	12:51	8.00s	1.14s	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)	4124862
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)	4124862
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=192 --tune base --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=192 --tune base --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/CPU2017.150/templogs/preenv.intspeed.150.0.log --lognum 150.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6740P
vendor_id       : GenuineIntel
cpu family      : 6
model           : 173
stepping        : 1
microcode       : 0x1000380
bugs             : spectre_v1 spectre_v2 spec_store_bypass swaps bhi
cpu cores       : 48
siblings        : 96
2 physical ids (chips)
192 processors (hardware threads)
physical id 0:  core ids 0-23,64-87
physical id 1:  core ids 0-23,64-87
physical id 0:  apicids 0-47,128-175
physical id 1:  apicids 256-303,384-431
```

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Platform Notes (Continued)

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):	192
On-line CPU(s) list:	0-191
Vendor ID:	GenuineIntel
BIOS Vendor ID:	Intel(R) Corporation
Model name:	Intel(R) Xeon(R) 6740P
BIOS Model name:	Intel(R) Xeon(R) 6740P CPU @ 2.1GHz
BIOS CPU family:	179
CPU family:	6
Model:	173
Thread(s) per core:	2
Core(s) per socket:	48
Socket(s):	2
Stepping:	1
CPU(s) scaling MHz:	26%
CPU max MHz:	3800.0000
CPU min MHz:	800.0000
BogoMIPS:	4200.00
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 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_l1d arch_capabilities
L1d cache:	4.5 MiB (96 instances)
L1i cache:	6 MiB (96 instances)
L2 cache:	192 MiB (96 instances)
L3 cache:	576 MiB (2 instances)
NUMA node(s):	4
NUMA node0 CPU(s):	0-23,96-119
NUMA node1 CPU(s):	24-47,120-143
NUMA node2 CPU(s):	48-71,144-167
NUMA node3 CPU(s):	72-95,168-191
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/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	4.5M	12	Data	1	64	1	64
L1i	64K	6M	16	Instruction	1	64	1	64
L2	2M	192M	16	Unified	2	2048	1	64
L3	288M	576M	16	Unified	3	294912	1	64

8. numactl --hardware

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

available: 4 nodes (0-3)
node 0 cpus: 0-23,96-119
node 0 size: 257176 MB
node 0 free: 256172 MB
node 1 cpus: 24-47,120-143
node 1 size: 258035 MB
node 1 free: 257402 MB
node 2 cpus: 48-71,144-167
node 2 size: 258035 MB
node 2 free: 257459 MB
node 3 cpus: 72-95,168-191
node 3 size: 257995 MB
node 3 free: 257085 MB
node distances:
node 0 1 2 3
0: 10 12 21 21
1: 12 10 21 21
2: 21 21 10 12
3: 21 21 12 10

9. /proc/meminfo

MemTotal: 1055991480 kB

10. who -r

run-level 3 Jun 1 12:39

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 klogd lvm2-monitor nsd postfix purge-kernels rollback rsyslog

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Platform Notes (Continued)

```
enabled-runtime  sep5 smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
disabled          wickedd-nanny
                  systemd-remount-fs
autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
firewalld 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-sysext systemd-time-wait-sync systemd-timesyncd tuned
indirect          udisks2 vncserver@
                  systemd-userdbd wickedd
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=b8c00dfc-5a0d-44f3-8f1e-fc38481a7f9e
splash=silent
mitigations=auto
quiet
security=apparmor
-----
```

```
-----
14. cpupower frequency-info
analyzing CPU 101:
  current policy: frequency should be within 800 MHz and 3.80 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
-----
```

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Platform Notes (Continued)

defrag always defer defer+madvice [madvice] never
enabled [always] madvice never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

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

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

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 224G 33G 188G 15% /home

21. /sys/devices/virtual/dmi/id
Vendor: Cisco Systems Inc
Product: UCSC-C240-M8SX
Serial: WZP28449TNB

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:
2x 0xCE00 M321R8GA0PB2-CCPEC 64 GB 2 rank 6400
14x 0xCE00 M321R8GA0PB2-CCPPC 64 GB 2 rank 6400

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Cisco Systems, Inc.
BIOS Version: C240M8.4.3.6a.0.0319250402
BIOS Date: 03/19/2025
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
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

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Compiler Version Notes (Continued)

```
=====
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
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

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

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

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 -xsapphirerapids -O3 -ffast-math

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Base Optimization Flags (Continued)

C benchmarks (continued):

-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 -xsapfirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -xsapfirerapids -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.profdata(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

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

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Cisco Systems

Cisco UCS C240 M8 (Intel Xeon 6740P 2.1 GHz processor)

SPECspeed®2017_int_base = 13.9

SPECspeed®2017_int_peak = 14.0

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: May-2025

Hardware Availability: Feb-2025

Software Availability: Mar-2025

Peak Optimization Flags (Continued)

600.perlbench_s (continued):

-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.profdata(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 -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-V1.2-GNR-revD.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-V1.2-GNR-revD.xml>



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