



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8444H, 2.90GHz)

SPECspeed®2017\_int\_base = 14.9

SPECspeed®2017\_int\_peak = 15.2

CPU2017 License: 9019

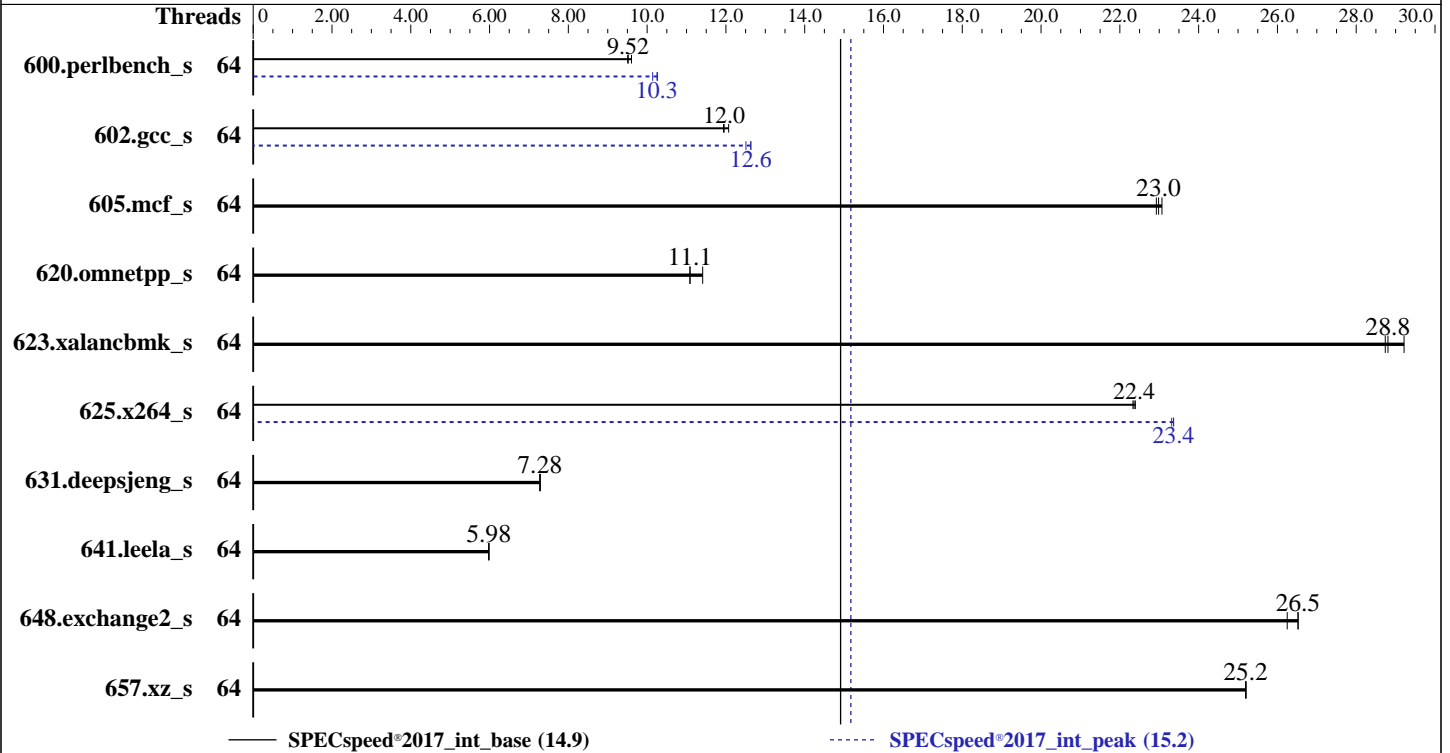
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Sep-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8444H  
 Max MHz: 4000  
 Nominal: 2900  
 Enabled: 64 cores, 4 chips  
 Orderable: 1,2,3,4 Chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 45 MB I+D on chip per chip  
 Other: None  
 Memory: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1.9 TB SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
 5.14.21-150400.22-default  
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2023.0 of Intel Fortran Compiler  
 for Linux;  
 Parallel: Yes  
 Firmware: Version 5.1.1e released May-2023  
 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 set to prefer power save  
 with minimal impact on performance



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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	64	187	9.51	185	9.60	<b>186</b>	<b>9.52</b>	64	175	10.1	173	10.3	<b>173</b>	<b>10.3</b>
602.gcc_s	64	<b>333</b>	<b>12.0</b>	330	12.1	334	11.9	64	318	12.5	315	12.6	<b>315</b>	<b>12.6</b>
605.mcf_s	64	206	22.9	205	23.1	<b>205</b>	<b>23.0</b>	64	206	22.9	205	23.1	<b>205</b>	<b>23.0</b>
620.omnetpp_s	64	147	11.1	143	11.4	<b>147</b>	<b>11.1</b>	64	147	11.1	143	11.4	<b>147</b>	<b>11.1</b>
623.xalancbmk_s	64	<b>49.2</b>	<b>28.8</b>	48.5	29.2	49.3	28.7	64	<b>49.2</b>	<b>28.8</b>	48.5	29.2	49.3	28.7
625.x264_s	64	79.0	22.3	78.8	22.4	<b>78.9</b>	<b>22.4</b>	64	75.7	23.3	<b>75.5</b>	<b>23.4</b>	75.5	23.4
631.deepsjeng_s	64	197	7.28	197	7.29	<b>197</b>	<b>7.28</b>	64	197	7.28	197	7.29	<b>197</b>	<b>7.28</b>
641.leela_s	64	<b>285</b>	<b>5.98</b>	285	5.98	285	5.98	64	<b>285</b>	<b>5.98</b>	285	5.98	285	5.98
648.exchange2_s	64	<b>111</b>	<b>26.5</b>	112	26.2	111	26.5	64	<b>111</b>	<b>26.5</b>	112	26.2	111	26.5
657.xz_s	64	245	25.2	<b>245</b>	<b>25.2</b>	245	25.2	64	245	25.2	<b>245</b>	<b>25.2</b>	245	25.2

SPECspeed®2017\_int\_base = **14.9**

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk\_r / 623.xalancbmk\_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 [https://www.spec.org/cpu2017/Docs/runrules.html#rule\\_1.4](https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4)), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

## 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,compact"  
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 Redhat Enterprise Linux 8.0  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation

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## General Notes (Continued)

Filesystem page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

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.

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:

Intel Hyper-Threading Technology set to Disabled

Sub NUMA Clustering set to Disabled

LLC Dead Line set to Disabled

ADDDC Sparing set to Disabled

Processor C6 Report set to Enabled

UPI Link Enablement 1

UPI Power Management Enabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Wed Sep 13 14:51:28 2023

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 249 (249.11+suse.124.g2bc0b2c447)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent\_hugepage
17. /sys/kernel/mm/transparent\_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS

-----  
1. uname -a  
-----

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### Platform Notes (Continued)

Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT\_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----  
2. w  
14:51:28 up 2 min, 1 user, load average: 0.50, 0.45, 0.18  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 14:51 8.00s 1.59s 0.21s -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) 8255691  
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) 8255691  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

-----  
5. sysinfo process ancestry  
/usr/lib/systemd/systemd --switched-root --system --deserialize 30  
login -- root  
-bash  
-bash  
runcpu --define default-platform-flags -c ic2023.0-lin-sapphirerapids-speed-20221201 --define cores=64  
--tune all -o all --define drop\_caches intspeed  
runcpu --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201 --define  
cores=64 --tune all --output\_format all --define drop\_caches --nopower --runmode speed --tune base:peak  
--size refspeed intspeed --nopreenv --note-preenv --logfile  
\$SPEC/tmp/CPU2017.139/temlogs/preenv.intspeed.139.0.log --lognum 139.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/cpu2017

-----  
6. /proc/cpuinfo  
model name : Intel(R) Xeon(R) Platinum 8444H  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 143  
stepping : 8  
microcode : 0x2b000461  
bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swaps  
cpu cores : 16  
siblings : 16  
4 physical ids (chips)  
64 processors (hardware threads)

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### Platform Notes (Continued)

physical id 0: core ids 0-15  
physical id 1: core ids 0-15  
physical id 2: core ids 0-15  
physical id 3: core ids 0-15  
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30  
physical id 1: apicids 128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158  
physical id 2: apicids 256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286  
physical id 3: apicids 384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414

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 2.37.2:

```
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): 64
On-line CPU(s) list: 0-63
Vendor ID: GenuineIntel
Model name: Intel(R) Xeon(R) Platinum 8444H
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 4
Stepping: 8
CPU max MHz: 4000.0000
CPU min MHz: 800.0000
BogoMIPS: 5800.00
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 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
invpcid_single intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
tpr_shadow vnmi flexpriority ept vpid ept_ad 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 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 avx512_fp16
amx_tile flush_l1d arch_capabilities

Virtualization: VT-x
L1d cache: 3 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 128 MiB (64 instances)
L3 cache: 180 MiB (4 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-15
NUMA node1 CPU(s): 16-31
NUMA node2 CPU(s): 32-47
NUMA node3 CPU(s): 48-63
```

(Continued on next page)



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### Platform Notes (Continued)

Vulnerability Itlb multihit:	Not affected
Vulnerability L1tf:	Not affected
Vulnerability Mds:	Not affected
Vulnerability Meltdown:	Not affected
Vulnerability Spec store bypass:	Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:	Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:	Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
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	32K	2M	8	Instruction	1	64	1	64
L2	2M	128M	16	Unified	2	2048	1	64
L3	45M	180M	15	Unified	3	49152	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: 0-15
node 0 size: 515700 MB
node 0 free: 514664 MB
node 1 cpus: 16-31
node 1 size: 516091 MB
node 1 free: 515666 MB
node 2 cpus: 32-47
node 2 size: 516091 MB
node 2 free: 515506 MB
node 3 cpus: 48-63
node 3 size: 516062 MB
node 3 free: 515685 MB
node distances:
node  0  1  2  3
0:  10  21  21  21
1:  21  10  21  21
2:  21  21  10  21
3:  21  21  21  10

```

9. /proc/meminfo

MemTotal: 2113481100 kB

10. who -r

run-level 3 Sep 13 14:49

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)

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 getty@ haveged irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime	systemd-remount-fs

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### Platform Notes (Continued)

```

disabled      autofsd autofast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
              chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
              firewallld gpm grub2-once haveged-switch-root ipmi ipmievld issue-add-ssh-keys kexec-load
              ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap rdisc rpcbind rpmconfigcheck
              rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd svnserve
              systemd-boot-check-no-failures systemd-network-generator systemd-sysext
              systemd-time-wait-sync systemd-timesyncd udisks2
indirect      wickedd

```

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

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=e21e8d67-b30a-4ea7-8055-b0885f263ec2
splash=silent
mitigations=auto
quiet
security=apparmor

```

-----  
14. cpupower frequency-info

```

analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 4.00 GHz.
                  The governor "powersave" may decide which speed to use
                  within this range.

boost state support:
  Supported: yes
  Active: yes

```

-----  
15. sysctl

```

kernel.numa_balancing      1
kernel.randomize_va_space  0
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              8
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                1
vm.watermark_boost_factor    15000
vm.watermark_scale_factor    10
vm.zone_reclaim_mode         0

```

-----  
16. /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

```

-----  
17. /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

```

```

-----
18. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP4

```

```

-----
19. Disk information
SPEC is set to: /home/cpu2017
Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sdb2   btrfs 222G  13G  208G   6% /home

```

```

-----
20. /sys/devices/virtual/dmi/id
Vendor:      Cisco Systems Inc
Product:     UCSX-410C-M7
Serial:      FCH264873NP

```

```

-----
21. dmidecode
Additional information from dmidecode 3.2 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:
  4x 0xAD00 HMC94MEBRA121N 64 GB 2 rank 4800
 28x 0xAD00 HMC94MEBRA123N 64 GB 2 rank 4800

```

```

-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Cisco Systems, Inc.
BIOS Version:     X410M7.5.1.1e.0.0524232049
BIOS Date:        05/24/2023
BIOS Revision:    5.29

```

### 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

```

```

=====
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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

```

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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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 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:

-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -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:

-m64 -std=c++14 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

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# SPEC CPU®2017 Integer Speed Result

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## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8444H, 2.90GHz)

SPECspeed®2017\_int\_base = 14.9

SPECspeed®2017\_int\_peak = 15.2

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Sep-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## Base Optimization Flags (Continued)

C++ benchmarks (continued):

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

Fortran benchmarks:

```
-m64 -Wl,-z,muldefs -xsaphirerapids -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: -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: -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 -L/usr/local/jemalloc64-5.0.1/lib
```

(Continued on next page)



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CPU2017 License: 9019

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Test Date: Sep-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

## Peak Optimization Flags (Continued)

602.gcc\_s (continued):

-ljemalloc

605.mcf\_s: basepeak = yes

625.x264\_s: -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -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-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-SPR-revM.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-SPR-revM.xml>

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