SPEC CPU®2017 Integer Speed Result

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Cisco Systems

Cisco UCS C220 M7 (Intel Xeon Silver 4516Y+, 2.20GHz)

$SPECspeed^{®}2017\_int\_base = 13.4$

$SPECspeed^{®}2017\_int\_peak = 13.7$

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jul-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

Threads	0													

600.perlbench_s 48 — 9.31 / 10.3

602.gcc_s 48 — 11.6 / 12.3

605.mcf_s 48 — 21.5

620.omnetpp_s 48 — 12.1

623.xalancbmk_s 48 — 13.1

625.x264_s 48 — 21.6 / 22.5

631.deepsjeng_s 48 — 6.86

641.leela_s 48 — 5.58

648.exchange2_s 48 — 25.1

657.xz_s 48 — 24.8

SPECspeed®2017_int_base (13.4)   SPECspeed®2017_int_peak (13.7)

Hardware

CPU Name: Intel Xeon Silver 4516Y+
 Max MHz: 3700
 Nominal: 2200
Enabled: 48 cores, 2 chips
Orderable: 1,2 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: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 4400)
Storage: 1 x 960 GB M.2 SSD SATA
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP4
 5.14.21-150400.22-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 4.3.3a released Jan-2024
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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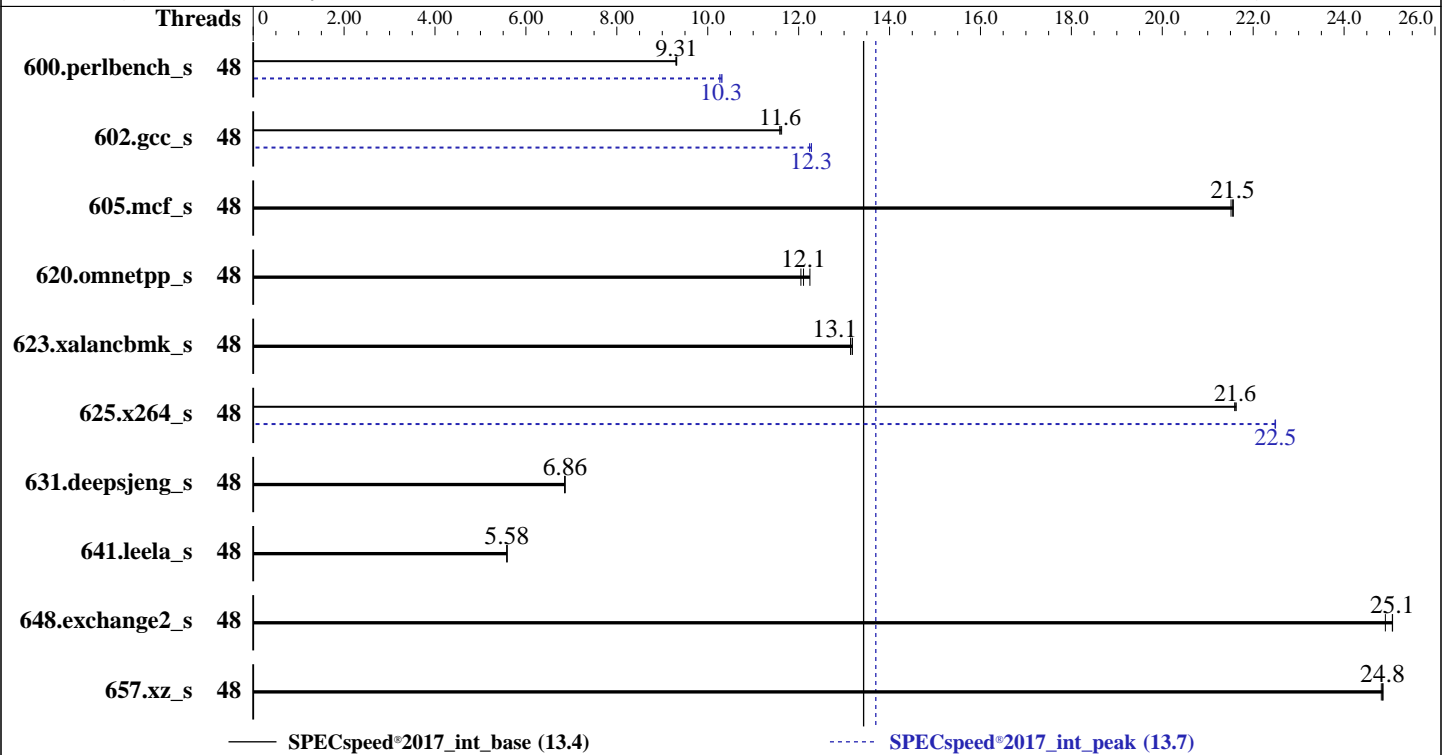
CPU2017 License: 9019
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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	48	190	9.32	191	9.30	**191**	**9.31**	48	**172**	**10.3**	172	10.3	173	10.3
602.gcc_s	48	**344**	**11.6**	343	11.6	344	11.6	48	324	12.3	**324**	**12.3**	325	12.2
605.mcf_s	48	219	21.6	219	21.5	**219**	**21.5**	48	219	21.6	219	21.5	**219**	**21.5**
620.omnetpp_s	48	**135**	**12.1**	133	12.2	135	12.0	48	**135**	**12.1**	133	12.2	135	12.0
623.xalancbmk_s	48	108	13.1	**108**	**13.1**	107	13.2	48	108	13.1	**108**	**13.1**	107	13.2
625.x264_s	48	81.7	21.6	81.6	21.6	**81.7**	**21.6**	48	**78.4**	**22.5**	78.4	22.5	78.5	22.5
631.deepsjeng_s	48	**209**	**6.86**	209	6.85	209	6.86	48	**209**	**6.86**	209	6.85	209	6.86
641.leela_s	48	**306**	**5.58**	306	5.58	306	5.58	48	**306**	**5.58**	306	5.58	306	5.58
648.exchange2_s	48	**117**	**25.1**	117	25.1	118	24.9	48	**117**	**25.1**	117	25.1	118	24.9
657.xz_s	48	**249**	**24.8**	249	24.8	249	24.9	48	**249**	**24.8**	249	24.8	249	24.9
SPECspeed®2017_int_base =		**13.4**												
SPECspeed®2017_int_peak =		**13.7**												

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

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
 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
```

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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 Power Management 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 Tue Jul 23 23:23:17 2024

 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
   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
   23:23:17 up 20 min,  1 user,  load average: 0.08, 0.03, 0.05
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                23:23    5.00s  1.21s  0.16s -bash


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


 -----------------------------------------------------------
 4. ulimit -a
```

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Platform Notes (Continued)

```
   core file size          (blocks, -c) unlimited
   data seg size           (kbytes, -d) unlimited
   scheduling priority             (-e) 0
   file size               (blocks, -f) unlimited
   pending signals                 (-i) 4126994
   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) 4126994
   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 ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=48
   --tune all -o all --define drop_caches intspeed
 runcpu --define default-platform-flags --configfile ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define
   cores=48 --tune all --output_format all --define drop_caches --nopower --runmode speed --tune base:peak
   --size refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.125/templogs/preenv.intspeed.125.0.log --lognum 125.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

   ------------------------------------------------------------
6. /proc/cpuinfo
   model name      : INTEL(R) XEON(R) SILVER 4516Y+
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 207
   stepping        : 2
   microcode       : 0x21000200
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores       : 24
   siblings        : 24
   2 physical ids (chips)
   48 processors (hardware threads)
   physical id 0: core ids 0-23
   physical id 1: core ids 0-23
   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
   physical id 1: apicids
   128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174
  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
```

(Continued on next page)

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Test Date: Jul-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

Platform Notes (Continued)

```
   Byte Order:                     Little Endian
   CPU(s):                         48
   On-line CPU(s) list:            0-47
   Vendor ID:                      GenuineIntel
   Model name:                     INTEL(R) XEON(R) SILVER 4516Y+
   CPU family:                     6
   Model:                          207
   Thread(s) per core:             1
   Core(s) per socket:             24
   Socket(s):                      2
   Stepping:                       2
   CPU max MHz:                    3700.0000
   CPU min MHz:                    800.0000
   BogoMIPS:                       4400.00
   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 invpcid_single
                                   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 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
   L1d cache:                      2.3 MiB (48 instances)
   L1i cache:                      1.5 MiB (48 instances)
   L2 cache:                       96 MiB (48 instances)
   L3 cache:                       90 MiB (2 instances)
   NUMA node(s):                   2
   NUMA node0 CPU(s):              0-23
   NUMA node1 CPU(s):              24-47
   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/swapgs 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     2.3M   12 Data           1     64      1         64
     L1i     32K     1.5M    8 Instruction    1     64      1         64
     L2       2M      96M   16 Unified        2   2048      1         64
     L3      45M      90M   15 Unified        3  49152      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: 0-23
```

(Continued on next page)

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Platform Notes (Continued)

```
  node 0 size: 515737 MB
  node 0 free: 514164 MB
  node 1 cpus: 24-47
  node 1 size: 516035 MB
  node 1 free: 515453 MB
  node distances:
  node   0   1
    0:  10  21
    1:  21  10


  ------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056535096 kB


  ------------------------------------------------------------
10. who -r
   run-level 3 Jul 23 23:03


  ------------------------------------------------------------
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 iscsi
                    issue-generator kbdsettings klog libvirtd lvm2-monitor nscd postfix purge-kernels rollback
                    rsyslog smartd sshd 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 dnsmasq ebtables exchange-bmc-os-info
                    firewalld gpm grub2-once haveged-switch-root ipmi ipmievd iscsi-init iscsid
                    issue-add-ssh-keys kdump kdump-early kexec-load ksm kvm_stat libvirt-guests lunmask
                    man-db-create multipathd nfs nfs-blkmap nfs-server nfsserver rdisc rpcbind rpmconfigcheck
                    rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter
                    svnserve systemd-boot-check-no-failures systemd-network-generator systemd-nspawn@
                    systemd-sysext systemd-time-wait-sync systemd-timesyncd tcsd udisks2 virtinterfaced
                    virtnetworkd virtnodedevd virtnwfilterd virtproxyd virtqemud virtsecretd virtstoraged
   indirect         pcscd virtlockd virtlogd wickedd

  ------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=2e0ad397-074a-46f8-9f0a-5231b03b9d87
   splash=silent
   mitigations=auto
   quiet
   security=apparmor


  ------------------------------------------------------------
14. cpupower frequency-info
   analyzing CPU 0:
     current policy: frequency should be within 800 MHz and 3.70 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes
```

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Platform Notes (Continued)

```
----------------------------------------------------------
15. 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                     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
  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/sda2      btrfs  445G   22G  423G   5% /home


----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Cisco Systems Inc
    Product:        UCSC-C220-M7S
    Serial:         WZP2702091W


----------------------------------------------------------
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
```

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Platform Notes (Continued)

```
  determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
  "DMTF SMBIOS" standard.
  Memory:
    16x 0xCE00 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600, configured at 4400


  -------------------------------------------------------------
  22. BIOS
  (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:      Cisco Systems, Inc.
    BIOS Version:     C220M7.4.3.3a.0.0118241337
    BIOS Date:        01/18/2024
    BIOS Revision:    5.32
```

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.
------------------------------------------------------------------------------


==============================================================================
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

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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
-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 -xsapphirerapids -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 -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`

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Cisco Systems

Cisco UCS C220 M7 (Intel Xeon Silver 4516Y+, 2.20GHz)

SPECspeed®2017_int_base = 13.4

SPECspeed®2017_int_peak = 13.7

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Jul-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

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
-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:

(Continued on next page)

Cisco Systems

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Peak Optimization Flags (Continued)

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-V1.0-EMR-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-V1.0-EMR-revD.xml`

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

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