## SPEC CPU®2017 Integer Speed Result

**Cisco Systems**  
Cisco UCS C220 M6 (Intel Xeon Platinum 8352V, 2.10GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 11.7</th>
<th>SPECspeed®2017_int_peak = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU2017 License:</strong> 9019</td>
<td><strong>Test Date:</strong> Sep-2021</td>
</tr>
<tr>
<td><strong>Test Sponsor:</strong> Cisco Systems</td>
<td><strong>Hardware Availability:</strong> Apr-2021</td>
</tr>
<tr>
<td><strong>Tested by:</strong> Cisco Systems</td>
<td><strong>Software Availability:</strong> Dec-2020</td>
</tr>
</tbody>
</table>

### Threads

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base (11.7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threads</td>
</tr>
<tr>
<td>600.perlbench_s</td>
</tr>
<tr>
<td>602.gcc_s</td>
</tr>
<tr>
<td>605.mcf_s</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
</tr>
<tr>
<td>625.x264_s</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
</tr>
<tr>
<td>641.leela_s</td>
</tr>
<tr>
<td>648.exchange2_s</td>
</tr>
<tr>
<td>657.xz_s</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th><strong>CPU Name:</strong> Intel Xeon Platinum 8352V</th>
<th><strong>OS:</strong> SUSE Linux Enterprise Server 15 SP2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max MHz:</strong> 3500</td>
<td><strong>5.3.18-22-default</strong></td>
</tr>
<tr>
<td><strong>Nominal:</strong> 2100</td>
<td><strong>Compiler:</strong> C/C++ Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux; Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux</td>
</tr>
<tr>
<td><strong>Enabled:</strong> 72 cores, 2 chips</td>
<td><strong>Parallel:</strong> Yes</td>
</tr>
<tr>
<td><strong>Orderable:</strong> 1.2 Chips</td>
<td><strong>Firmware:</strong> Version 4.2.1d released Jul-2021</td>
</tr>
<tr>
<td><strong>Cache L1:</strong> 32 KB I + 48 KB D on chip per core</td>
<td><strong>File System:</strong> btrfs</td>
</tr>
<tr>
<td><strong>Cache L2:</strong> 1.25 MB I+D on chip per core</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>Cache L3:</strong> 54 MB I+D on chip per chip</td>
<td><strong>Base Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Peak Pointers:</strong> Not Applicable</td>
</tr>
<tr>
<td><strong>Memory:</strong> 1 TB (32 x 32 GB 2Rx4 PC4-3200V-R, running at 2933)</td>
<td><strong>Other:</strong> jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td><strong>Storage:</strong> 1 x 960 GB M.2 SSD SATA</td>
<td><strong>Power Management:</strong> BIOS and OS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

### Software

| **Other:** None                        | **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage |
**SPEC CPU®2017 Integer Speed Result**

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>72</td>
<td>253</td>
<td>7.02</td>
<td>249</td>
<td>7.13</td>
<td>251</td>
<td>7.08</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>72</td>
<td>372</td>
<td>10.7</td>
<td>371</td>
<td>10.7</td>
<td>372</td>
<td>10.7</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>72</td>
<td>243</td>
<td>19.4</td>
<td>241</td>
<td>19.6</td>
<td>245</td>
<td>19.2</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>72</td>
<td>152</td>
<td>10.8</td>
<td>148</td>
<td>11.0</td>
<td>151</td>
<td>10.8</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>72</td>
<td>106</td>
<td>13.4</td>
<td>106</td>
<td>13.4</td>
<td>106</td>
<td>13.4</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>72</td>
<td>103</td>
<td>17.1</td>
<td>104</td>
<td>17.0</td>
<td>103</td>
<td>17.1</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>72</td>
<td>243</td>
<td>5.89</td>
<td>243</td>
<td>5.89</td>
<td>243</td>
<td>5.90</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>72</td>
<td>350</td>
<td>4.88</td>
<td>349</td>
<td>4.88</td>
<td>349</td>
<td>4.88</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>72</td>
<td>152</td>
<td>19.4</td>
<td>152</td>
<td>19.4</td>
<td>152</td>
<td>19.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>72</td>
<td>260</td>
<td>23.8</td>
<td>261</td>
<td>23.7</td>
<td>262</td>
<td>23.6</td>
</tr>
</tbody>
</table>

**Results Table**

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"
cpupower frequency-set -g performance run as root to set the scaling governor to performance.

**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 1x Intel Core i9-7980XE CPU + 64GB 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.

(Continued on next page)
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Cisco UCS C220 M6 (Intel Xeon Platinum 8352V, 2.10GHz)

General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS Settings:
Intel Hyper-Threading Technology set to Disabled
DCU Streamer Prefetch set to Disabled
LLC Dead Line set to Disabled
Memory Refresh Rate set to 1x Refresh
ADDCDC Sparing set to Disabled
Patrol Scrub set to Disabled
Energy Efficient Turbo set to Enabled
Processor C6 Report set to Enabled
Processor C1E set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost Sat Sep 25 03:30:36 2021

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8352V CPU @ 2.10GHz
  2. "physical id"s (chips)
  72 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 36
siblings : 36
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

From lscpu from util-linux 2.33.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 46 bits physical, 57 bits virtual
CPU(s): 72
On-line CPU(s) list: 0-71
Thread(s) per core: 1

(Continued on next page)
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SPECspeed®2017_int_base = 11.7
SPECspeed®2017_int_peak = Not Run

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Test Date: Sep-2021
Hardware Availability: Apr-2021
Tested by: Cisco Systems
Software Availability: Dec-2020

Platform Notes (Continued)

Core(s) per socket: 36
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Platinum 8352V CPU @ 2.10GHz
Stepping: 6
CPU MHz: 800.488
CPU max MHz: 3500.0000
CPU min MHz: 800.0000
BogoMIPS: 4200.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 55296K
NUMA node0 CPU(s): 0-35
NUMA node1 CPU(s): 36-71

Flags: fpu vme de pse tsc msr pae mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf 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_13 invpcid_single ssbd mba ibrs ibpb stibp lbrs_enhanced tpr_shadow vmmi flexpriority ept vpid ept_ad fsgrbase tsc_adjust bmih ile avx2 smep bmi2 3dnow invpcid rtm cmqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xsaves cqm_llc cqm_occuup llc cqm_mbm_total cqm_mbm_local wbinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512v bmi umip pku ospke avx512_vbmi2 gfnf vaes vpclmulqdq avx512_vnni avx512_vbitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_lld arch_capabilities

/proc/cpuinfo cache data
cache size : 55296 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
node 0 size: 515574 MB
node 0 free: 514664 MB
node 1 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
node 1 size: 515809 MB

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**SPECspeed®2017_int_base** = 11.7
**SPECspeed®2017_int_peak** = Not Run

<table>
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<tr>
<th>Parameter</th>
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<td>Cisco Systems</td>
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<td>Software Availability</td>
<td>Dec-2020</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)

node 1 free: 515410 MB
node distances:
  node  0  1
    0:  10  20
    1:  20  10

From /proc/meminfo
MemTotal: 1056137236 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release* /etc/*version*
  os-release:
    NAME="SLES"
    VERSION="15-SP2"
    VERSION_ID="15.2"
    PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
    ID="sles"
    ID_LIKE="suse"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:15:sp2"

uname -a:
  Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) x86_64
  x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swaps barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Sep 25 03:29

(Continued on next page)
## Platform Notes (Continued)

SPEC is set to: /home/cpu2017  
Filesystem     Type   Size  Used Avail Use% Mounted on  
/dev/sda2      btrfs  222G   33G  188G  15% /home  

From /sys/devices/virtual/dmi/id  
Vendor:         Cisco Systems Inc  
Product:        UCSC-C220-M6S  
Serial:         WZP24430N7F  

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:  
32x 0xCE00 M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2933  

BIOS:  
BIOS Vendor:    Cisco Systems, Inc.  
BIOS Version:   C220M6.4.2.id.0.0730210924  
BIOS Date:      07/30/2021  
BIOS Revision:  5.22  

(End of data from sysinfo program)

## Compiler Version Notes

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

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113  
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---------------------------------------------------------------------  
| C++     | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)  
|         | 641.leela_s(base)  
---------------------------------------------------------------------

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113  
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Compiler Version Notes (Continued)

Fortran | 648.exchange2_s(base)
__________________________________________________________________________
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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:
-DSPEC_OPENMP -std=c11 -m64 -fiopenmp -Wl,-z,muldefs -xCORE-AVX512
-O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-Related:local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
-DSPEC_OPENMP -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math

(Continued on next page)
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Base Optimization Flags (Continued)

C++ benchmarks (continued):
- flto
- mfpmath=sse
- funroll-loops
- qopt-mem-layout-trans=4
- mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/
- lqkmalloc

Fortran benchmarks:
- m64
- xCORE-AVX512
- O3
- ipo
- no-prec-div
- qopt-mem-layout-trans=4
- nostandard-realloc-lhs
- align array32byte
- auto
- mbranches-within-32B-boundaries

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

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

Tested with SPEC CPU®2017 v1.1.8 on 2021-09-25 06:30:35-0400.
Report generated on 2021-10-25 17:04:11 by CPU2017 PDF formatter v6442.
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