Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)

<table>
<thead>
<tr>
<th>Specspeed®2017_fp_base = 137</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specspeed®2017_fp_peak = Not Run</td>
</tr>
</tbody>
</table>

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

### Threads

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base (137)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_fp_peak</th>
<th>SPECspeed®2017_fp_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>32</td>
<td></td>
<td>182</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>32</td>
<td></td>
<td>78.1</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>32</td>
<td></td>
<td>155</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>32</td>
<td></td>
<td>91.0</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>32</td>
<td></td>
<td>94.2</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>32</td>
<td></td>
<td>139</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>32</td>
<td></td>
<td>232</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>32</td>
<td></td>
<td>67.5</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>32</td>
<td></td>
<td>145</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Xeon Gold 6314U</th>
</tr>
</thead>
</table>
| Max MHz: 3400  
| Nominal: 2300  
| Enabled: 32 cores, 1 chip  
| Orderable: 1 Chip  
| Cache L1: 32 KB I + 48 KB D on chip per core  
| L2: 1.25 MB I+D on chip per core  
| L3: 48 MB I+D on chip per chip  
| Other: None  
| Memory: 512 GB (8 x 64 GB 2Rx4 PC4-3200V-R)  
| Storage: 1 x 240 GB M.2 SSD SATA  
| Other: None |

### Software

| OS: SUSE Linux Enterprise Server 15 SP2 5.3.18-22-default  
| Compiler: Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux; C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux  
| Parallel: Yes  
| Firmware: Version 4.2.1d released Jul-2021  
| File System: btrfs  
| System State: Run level 3 (multi-user)  
| Base Pointers: 64-bit  
| Peak Pointers: Not Applicable  
| Other: jemalloc memory allocator V5.0.1  
| Power Management: BIOS and OS set to prefer performance at the cost of additional power usage |
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)

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

Test Date: Sep-2021
Hardware Availability: Apr-2021
Software Availability: Dec-2020

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>32</td>
<td>153</td>
<td>385</td>
<td>154</td>
<td>382</td>
<td>154</td>
<td>384</td>
<td></td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>32</td>
<td>91.4</td>
<td>182</td>
<td>91.2</td>
<td>183</td>
<td>91.4</td>
<td>182</td>
<td></td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>32</td>
<td>67.5</td>
<td>77.6</td>
<td>67.1</td>
<td>78.1</td>
<td>66.4</td>
<td>78.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>32</td>
<td>85.0</td>
<td>156</td>
<td>85.2</td>
<td>155</td>
<td>85.2</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>32</td>
<td>97.6</td>
<td>90.8</td>
<td>97.4</td>
<td>91.0</td>
<td>97.4</td>
<td>91.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>32</td>
<td>126</td>
<td>94.2</td>
<td>126</td>
<td>94.2</td>
<td>126</td>
<td>93.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>32</td>
<td>104</td>
<td>139</td>
<td>104</td>
<td>139</td>
<td>105</td>
<td>138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>32</td>
<td>75.2</td>
<td>232</td>
<td>75.2</td>
<td>232</td>
<td>75.3</td>
<td>232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>32</td>
<td>135</td>
<td>67.5</td>
<td>135</td>
<td>67.6</td>
<td>135</td>
<td>67.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>32</td>
<td>109</td>
<td>145</td>
<td>109</td>
<td>145</td>
<td>109</td>
<td>145</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed®2017_fp_base = 137
SPECspeed®2017_fp_peak = Not Run

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,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 1x Intel Core i9-7940X CPU + 64GB RAM memory using openSUSE Leap 15.2
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.:
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)

SPECspeed®2017_fp_base = 137
SPECspeed®2017_fp_peak = Not Run

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

General Notes (Continued)

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.
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.

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
ADDDC 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 Wed Sep  8 18:36:03 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) Gold 6314U CPU @ 2.30GHz
  1 "physical id"s (chips)
  32 "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 : 32
siblings : 32
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

From lscpu from util-linux 2.33.1:
  Architecture: x86_64
  CPU op-mode(s): 32-bit, 64-bit
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)

 SPECspeed®2017_fp_base = 137
SPECspeed®2017_fp_peak = Not Run

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

Test Date: Sep-2021
Hardware Availability: Apr-2021
Software Availability: Dec-2020

Platform Notes (Continued)

Byte Order: Little Endian
Address sizes: 46 bits physical, 57 bits virtual
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6314U CPU @ 2.30GHz
Stepping: 6
CPU MHz: 2574.500
CPU max MHz: 3400.0000
CPU min MHz: 800.0000
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 49152K
NUMA node0 CPU(s): 0-31
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
aperfmrperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtrm pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid_single ssbd
mba ibrs ibpb ibrs_enhanced tpr_shadow vmni 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 cmq_llc cmq OCCUP LLC cmq mbm_total
cmq mbm local wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
avx512_bitalg tme avx512 vpovcntdq 1a57 rdpid md_clear pconfig flush_lld
arch_capabilities

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
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
node 0 size: 515105 MB

(Continued on next page)
Platform Notes (Continued)

node 0 free: 507365 MB
node distances:
node 0
  0:  10

From /proc/meminfo
  MemTotal:       527468196 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): Mitigation: Speculative Store
CVE-2018-3639 (Speculative Store Bypass): Bypass disabled via prctl and
CVE-2017-5753 (Spectre variant 1): seccomp
CVE-2017-5715 (Spectre variant 2): Mitigation: usercopy/swaps
CVE-2020-0543 (Special Register Buffer Data Sampling): barriers and __user pointer
CVE-2019-11135 (TSX Asynchronous Abort): sanitation

run-level 3 Sep 8 14:24

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

SPEC is set to: /home/cpu2017

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>btrfs</td>
<td>222G</td>
<td>15G</td>
<td>206G</td>
<td>7%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

- **Vendor:** Cisco Systems Inc
- **Product:** UCSB-B200-M6
- **Serial:** FCH24097576

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:**
- 8x 0xCE00 M393A8G40AB2-CWE 64 GB 2 rank 3200
- 24x NO DIMM NO DIMM

**BIOS:**
- **BIOS Vendor:** Cisco Systems, Inc.
- **BIOS Version:** B200M6.4.2.1d.0.0730210924
- **BIOS Date:** 07/30/2021
- **BIOS Revision:** 5.22

(End of data from sysinfo program)

### Compiler Version Notes

```
<table>
<thead>
<tr>
<th>Language</th>
<th>Version Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)</td>
</tr>
</tbody>
</table>
```

Intel(R) C 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.

```
<table>
<thead>
<tr>
<th>Language</th>
<th>Version Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>C++, C, Fortran</td>
<td>607.cactuBSSN_s(base)</td>
</tr>
</tbody>
</table>
```

Intel(R) C++ 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.

(Continued on next page)
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_peak</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_fp_base</td>
<td>137</td>
</tr>
</tbody>
</table>

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

Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
Fortran | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_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.

==============================================================================
Fortran, C | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_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:
icc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG

(Continued on next page)
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)  

SPECspeed®2017_fp_base = 137
SPECspeed®2017_fp_peak = Not Run

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

Base Portability Flags (Continued)

628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian 
-assume byterecl
638.imagick_s: -DSPEC_LP64  
644.nab_s: -DSPEC_LP64  
649.fotonik3d_s: -DSPEC_LP64  
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -std=c11 -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch 
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP 
-mbranches-within-32B-boundaries

Fortran benchmarks:
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div 
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp 
-nostandard-realloc-lhs -mbranches-within-32B-boundaries 
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using both Fortran and C:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div 
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp 
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs 
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div 
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp 
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs 
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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 
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6314U, 2.30GHz)  

<table>
<thead>
<tr>
<th>CPU2017 License: 9019</th>
<th>Test Date: Sep-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Cisco Systems</td>
<td>Hardware Availability: Apr-2021</td>
</tr>
<tr>
<td>Tested by: Cisco Systems</td>
<td>Software Availability: Dec-2020</td>
</tr>
</tbody>
</table>

| SPECspeed\textsuperscript{2017}_fp_base = 137 |
| SPECspeed\textsuperscript{2017}_fp_peak = Not Run |

---

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU\textsuperscript{2017} v1.1.8 on 2021-09-08 21:36:03-0400.
Report generated on 2021-09-29 12:25:56 by CPU2017 PDF formatter v6442.
Originally published on 2021-09-28.