Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6336Y, 2.40GHz)

SPECSpeed®2017_fp_base = 187
SPECSpeed®2017_fp_peak = Not Run

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

Threads

<table>
<thead>
<tr>
<th>603.bwaves_s</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>607.cactuBSSN_s</td>
<td>48</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>48</td>
</tr>
<tr>
<td>621.wrf_s</td>
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</tr>
<tr>
<td>638.imagick_s</td>
<td>48</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>48</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>48</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>48</td>
</tr>
</tbody>
</table>

| SPECspeed®2017_fp_base (187) |

Hardware

CPU Name: Intel Xeon Gold 6336Y
Max MHz: 3600
Nominal: 2400
Enabled: 48 cores, 2 chips
Orderable: 1.2 Chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
L3: 36 MB I+D on chip per chip
Other: None
Memory: 2 TB (32 x 64 GB 2Rx4 PC4-3200V-R)
Storage: 1 x 480 GB SATA SSD
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 4.2.1c released Jul-2021
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage
Other: jemalloc memory allocator V5.0.1
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6336Y, 2.40GHz)

SPECspeed®2017_fp_base = 187
SPECspeed®2017_fp_peak = Not Run

Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Threads</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>603.bwaves_s</td>
<td>48</td>
<td>86.9</td>
<td>679</td>
<td>87.7</td>
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<td>71.5</td>
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<td>654.roms_s</td>
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<td>226</td>
<td>69.1</td>
<td>228</td>
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</tr>
</tbody>
</table>

SPECspeed®2017_fp_base = 187
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 6336Y, 2.40GHz)

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**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
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**Test Date:** Jul-2021  
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---

### 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
- 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 982a61ec0915b5589ef0e16acaf64d  
running on install Mon Aug 16 01:26:46 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 6336Y CPU @ 2.40GHz  
- 2 "physical id"s (chips)  
- 48 "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 : 24  
- siblings : 24
- 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
- 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

From lscpu from util-linux 2.33.1:
- Architecture: x86_64  
- CPU op-mode(s): 32-bit, 64-bit  
- Byte Order: Little Endian

(Continued on next page)
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6336Y, 2.40GHz)

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---

**Platform Notes (Continued)**

Address sizes: 46 bits physical, 57 bits virtual
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 1
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6336Y CPU @ 2.40GHz
Stepping: 6
CPU MHz: 938.147
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
BogoMIPS: 4800.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 36864K
NUMA node0 CPU(s): 0-23
NUMA node1 CPU(s): 24-47
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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfmpref pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtrr 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 ibpb ibrs ibrs enhances tpr_shadow vmi flexpriority ept vpid ept_ad
fsfgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f
avx512dq rdrseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni
avx512bw avx512vl xsaveopt xsavevc xgetbv1 xsaves cqm_llc cqm_occput llc cqm_mbm_total
avx512q Capability
arch_capabilities

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
node 0 size: 1031620 MB
node 0 free: 1030786 MB

(Continued on next page)
Cisco Systems
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---

**Platform Notes (Continued)**

```
node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
node 1 size: 1032148 MB
node 1 free: 1027931 MB
node distances:
node  0  1
  0: 10 20
  1: 20 10

From /proc/meminfo
MemTotal:       2113300048 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

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

From /etc/*release* /etc/*version*
```

```
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 install 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

(Continued on next page)
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Platform Notes (Continued)

run-level 3 Aug 15 23:17
SPEC is set to: /home/cpu2017
Files System   Type Size Used Avail Use% Mounted on
/dev/sda4     btrfs 445G 19G 425G 5% /home

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:
32x 0xCE00 M393A8G40AB2-CWE 64 GB 2 rank 3200

BIOS:
BIOS Vendor: Cisco Systems, Inc.
BIOS Version: B200M6.4.2.1c.10.0723211453
BIOS Date: 07/23/2021
BIOS Revision: 5.22

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------------------------
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.
------------------------------------------------------------------------------

C++, C, Fortran | 607.cactuBSSN_s(base)
*******************************************************************************
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.
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)
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Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
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
```

(Continued on next page)
Cisco Systems
Cisco UCS B200 M6 (Intel Xeon Gold 6336Y, 2.40GHz)

SPEC CPU®2017 Floating Point Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_fp_base = 187
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Base Portability Flags (Continued)

- 621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
- 627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
- 628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
- 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
## SPEC CPU®2017 Floating Point Speed Result

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