Cisco Systems

Cisco UCS B200 M5 (Intel Xeon Platinum 8158, 3.00GHz)

SPECfp®2006 = 156
SPECfp_base2006 = 150

Hardware

| CPU Name: | Intel Xeon Platinum 8158 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 24 cores, 2 chips, 12 cores/chip |
| CPU(s) orderable: | 1.2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 1 MB I4D on chip per core |

Software

| Operating System: | SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default |
| Compiler: | C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux |
| Auto Parallel: | Yes |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |

```latex
\begin{table}
\centering
\begin{tabular}{|l|c|}
\hline
410.bwaves & 51.7 \\
416.gamess & 49.1 \\
433.milc & 78.6 \\
434.zeusmp & 267 \\
435.gromacs & 64.0 \\
436.cactusADM & \textbf{1410} \\
437.leslie3d & 552 \\
444.namd & 36.5 \\
447.dealII & 51.2 \\
450.soplex & 78.8 \\
453.povray & 69.6 \\
454.calculix & 51.2 \\
459.GemsFDTD & 75.7 \\
465.tonto & 67.7 \\
470.lbm & 53.2 \\
481.wrf & 145 \\
482.sphinx3 & 81.1 \\
\hline
\end{tabular}
\end{table}
```
### SPEC CFP2006 Result

**Cisco Systems**
Cisco UCS B200 M5 (Intel Xeon Platinum 8158, 3.00GHz)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
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<tbody>
<tr>
<td>SPECfp_base2006</td>
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**CPU2006 license:** 9019  
**Test sponsor:** Cisco Systems  
**Tested by:** Cisco Systems  
**Test date:** Oct-2017  
**Hardware Availability:** Aug-2017  
**Software Availability:** Sep-2017

| L3 Cache: | 24.75 MB I+D on chip per chip  
| Other Cache: | None  
| Memory: | 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)  
| Disk Subsystem: | 1 x 1 TB SAS HDD, 7.2K RPM  
| Other Hardware: | None  
| Base Pointers: | 64-bit  
| Peak Pointers: | 32/64-bit  
| Other Software: | None

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>239</td>
<td>81.5</td>
</tr>
</tbody>
</table>

**Operating System Notes**

Stack size set to unlimited using "ulimit -s unlimited"

**Platform Notes**

**BIOS Settings:**
- Intel HyperThreading Technology set to Disabled
- CPU performance set to Enterprise
- Power Performance Tuning set to OS
- SNC set to Disabled
- IMC Interleaving set to Auto
- Patrol Scrub set to Disabled

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
runtime on linux-uezu Sun Oct 15 22:57:12 2017
Continued on next page
Cisco Systems
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SPECfp2006 = 156
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
- model name: Intel(R) Xeon(R) Platinum 8158 CPU @ 3.00GHz
- 2 "physical id"s (chips)
- 24 "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: 12
  - siblings: 12
  - physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
  - physical 1: cores 0 1 3 9 10 16 18 19 24 25 26 27
- cache size: 25344 KB

From /proc/meminfo
- MemTotal: 395606588 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 2
  - # This file is deprecated and will be removed in a future service pack or release.
  - # Please check /etc/os-release for details about this release.
- os-release:
  - NAME="SLES"
  - VERSION="12-SP2"
  - VERSION_ID="12.2"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
  (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 12 04:04

SPEC is set to: /opt/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 xfs 894G 130G 764G 15% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program continued on next page
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Software Availability: Sep-2017

Platform Notes (Continued)
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.

BIOS Cisco Systems, Inc. B200M5.3.2.1d.5.0.0727171353 07/27/2017
Memory:
24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz
(End of data from sysinfo program)

General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/opt/intel/compilers_and_libraries_2018.0.128/linux/compiler/lib/ia32:/opt/intel/compilers_and_libraries_2018.0.128/linux/compiler/lib/intel64:/opt/cpu2006-1.2/sh10.2"
OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Base Compiler Invocation
C benchmarks:
icc -m64
C++ benchmarks:
icpc -m64
Fortran benchmarks:
ifort -m64
Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Base Portability Flags
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64

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CiscoSystems
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Base Portability Flags (Continued)

447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks: 
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags
Cisco Systems
Cisco UCS B200 M5 (Intel Xeon Platinum 8158, 3.00GHz)

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Hardware Availability: Aug-2017
Software Availability: Sep-2017

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: --prof-gen(pass 1) --prof-use(pass 2) -xCORE-AVX2(pass 2)
          -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: --prof-gen(pass 1) --prof-use(pass 2) -xCORE-AVX2(pass 2)
           -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: --prof-gen(pass 1) --prof-use(pass 2) -xCORE-AVX2(pass 2)
          -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: --prof-gen(pass 1) --prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -unroll2 -inline-level=0
             -qopt-prefetch -parallel

465.tonto: --prof-gen(pass 1) --prof-use(pass 2) -xCORE-AVX2(pass 2)
           -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -inline-calloc -qopt-malloc-options=3
           -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes

Continued on next page
### Cisco Systems

CPU2006 license: 9019  
Test sponsor: Cisco Systems  
Tested by: Cisco Systems

**SPECfp2006 = 156**  
**SPECfp_base2006 = 150**

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<th>Software Availability</th>
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</thead>
<tbody>
<tr>
<td>Cisco Systems</td>
<td>Sep-2017</td>
</tr>
</tbody>
</table>

#### Peak Optimization Flags (Continued)

- 454.calculix: `-xCORE-AVX2 -ipo -o3 -no-prec-div -auto-llp32`
- 481.wrf: `basepeak = yes`

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

- [http://www.spec.org/cpu2006/flags/Intel-ic18.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic18.0-official-linux64.html)

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

- [http://www.spec.org/cpu2006/flags/Intel-ic18.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic18.0-official-linux64.xml)

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For other inquiries, please contact webmaster@spec.org.

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