## SPEC® CFP2006 Result

### Cisco Systems

Cisco UCS C480 M5 (Intel Xeon Platinum 8180M, 2.50 GHz)

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

<table>
<thead>
<tr>
<th>Spec Benchmark</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp&lt;sup&gt;®&lt;/sup&gt;2006</td>
<td>150</td>
</tr>
<tr>
<td>SPECfp&lt;sub&gt;base2006&lt;/sub&gt;</td>
<td>144</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon Platinum 8180M</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.80 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2500</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>112 cores, 4 chips, 28 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>2,4 chips</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>1 MB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Hardware

- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 5 (multi-user)

### Software

- **Operating System:** SUSE Linux Enterprise Server 12 SP2 (x86_64), 4.4.21-69-default
- **Compiler:** C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux

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http://www.spec.org/
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</table>

| L3 Cache:  | 38.5 MB I+D on chip per chip |
| Other Cache: | None |
| Memory:    | 768 GB (48 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 |

**SPECfp2006 =** 150  
**SPECfp_base2006 =** 144

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Pointers</th>
<th>Peak Pointers</th>
<th>Other Software</th>
<th>Operating System Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>398</td>
<td>398</td>
<td>None</td>
<td>Stack size set to unlimited using &quot;ulimit -s unlimited&quot;</td>
</tr>
<tr>
<td>416.gamess</td>
<td>115</td>
<td>115</td>
<td>None</td>
<td>BIOS Settings:</td>
</tr>
<tr>
<td>433.milc</td>
<td>50.0</td>
<td>50.0</td>
<td>None</td>
<td>Intel HyperThreading Technology set to Disabled</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>148</td>
<td>148</td>
<td>None</td>
<td>CPU performance set to Enterprise</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>8.30</td>
<td>8.30</td>
<td>None</td>
<td>Power Performance Tuning set to OS</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>23.7</td>
<td>23.7</td>
<td>None</td>
<td>SNC set to Disabled</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>219</td>
<td>219</td>
<td>None</td>
<td>IMC Interleaving set to Auto</td>
</tr>
<tr>
<td>444.namd</td>
<td>153</td>
<td>153</td>
<td>None</td>
<td>Patrol Scrub set to Disabled</td>
</tr>
<tr>
<td>447.dealII</td>
<td>54.5</td>
<td>54.5</td>
<td>None</td>
<td>Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993</td>
</tr>
<tr>
<td>450.soplex</td>
<td>74.1</td>
<td>74.1</td>
<td>None</td>
<td>Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)</td>
</tr>
<tr>
<td>453.povray</td>
<td>412</td>
<td>412</td>
<td>None</td>
<td>running on linux-g4f1 Sat Dec 9 22:23:28 2017</td>
</tr>
<tr>
<td>454.calculix</td>
<td>3.67</td>
<td>3.67</td>
<td>None</td>
<td>Continued on next page</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>82.8</td>
<td>82.8</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>3.67</td>
<td>3.67</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>82.8</td>
<td>82.8</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>275</td>
<td>275</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</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"

**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 /home/cpu2006-1.2/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-g4f1 Sat Dec 9 22:23:28 2017  
Continued on next page

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Cisco UCS C480 M5 (Intel Xeon Platinum 8180M, 2.50 GHz)

**SPECfp2006 = 150**
**SPECfp_base2006 = 144**

**CPU2006 license:** 9019  
**Test sponsor:** Cisco Systems  
**Test date:** Dec-2017  
**Tested by:** Cisco Systems  
**Hardware Availability:** Aug-2017  
**Software Availability:** Apr-2017

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**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](http://www.spec.org/cpu2006/Docs/config.html#sysinfo)

From `/proc/cpuinfo`

```
model name : Intel(R) Xeon(R) Platinum 8180M CPU @ 2.50GHz
4 "physical id"s (chips)
112 "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 : 28
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
cache size : 39424 KB
```

From `/proc/meminfo`

```
MemTotal:       790968340 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2
```

```
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.
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:
Linux linux-g4f1 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
```
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Platform Notes (Continued)

run-level 5 Jan 8 18:45
SPEC is set to: /home/cpu2006-1.2
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda6 xfs 871G 253G 618G 30% /home
Additional information from dmidecode:
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.

BIOS Cisco Systems, Inc. C480M5.3.1.0.248.0518171057 05/18/2017
Memory:
   48x 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 = "/home/cpu2006-1.2/lib/ia32:/home/cpu2006-1.2/lib/intel64:/home/cpu2006-1.2/sh10.2"
   OMP_NUM_THREADS = "112"

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
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### Base Portability Flags

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<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>470.lbm</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
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### 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
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## Peak Portability Flags

Same as Base Portability Flags

## 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) -fn=alias -auto-ipl32
- 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-call -qopt-malloc-options=3 -auto -unroll4

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32
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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.xml

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