## Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2680 v4, 2.40 GHz)

### SPECfp₂₀₀₆ = 123

<table>
<thead>
<tr>
<th>Software</th>
<th>SPECfp_base₂₀₀₆ = 117</th>
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<tbody>
<tr>
<td>410.bwaves</td>
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<td>482.sphinx3</td>
<td>899</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2680 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz
- **CPU MHz:** 2400
- **FPU:** Integrated
- **CPU(s) enabled:** 28 cores, 2 chips, 14 cores/chip
- **CPU(s) orderable:** 1.2 chips
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default
- **Compiler:** C/C++; Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran; Version 16.0.0.101 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
SPEC CFP2006 Result

Cisco Systems
Cisco UCS B200 M4 (Intel Xeon E5-2680 v4, 2.40 GHz)

SPECfp2006 = 123
SPECfp_base2006 = 117

CPU2006 license: 9019
Test date: Apr-2016
Hardware Availability: Apr-2016
Test sponsor: Cisco Systems
Software Availability: Dec-2015
Tested by: Cisco Systems

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 400 GB SSD SAS
Other Hardware: None
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Base</th>
<th>Ratio</th>
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</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 Hyper-Threading Technology option set to Disabled
CPU performance set to Enterprise
Power Technology set to Energy Efficient
Energy Performance BIAS setting set to Balanced Performance
Memory RAS configuration set to Maximum Performance
Memory Power Saving Mode set to Disabled
QPI Snoop Mode set to Home Directory Snoop with OSB

Sysinfo program /opt/CISCO_Benchmarks/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
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Cisco Systems
Cisco UCS B200 M4 (Intel Xeon E5-2680 v4, 2.40 GHz)

**SPECfp2006 =** 123
**SPECfp_base2006 =** 117

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**Platform Notes (Continued)**

running on linux-nsg9 Sun Apr 10 11:33:46 2016

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) CPU E5-2680 v4@ 2.40GHz
- 2 "physical id"s (chips)
- 28 "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 : 14
  - siblings : 14
  - physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  - physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
- cache size: 35840 KB

From /proc/meminfo

- MemTotal: 264368364 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1

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

SuSE-release:
- NAME="SLES"
- VERSION="12-SP1"
- VERSION_ID="12.1"
- PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
- ID="sles"
- ANSI_COLOR="0;32"
- CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
Linux linux-nsg9 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015 (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 10 06:26

SPEC is set to: /opt/CISCO_Benchmarks/cpu2006

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<tr>
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<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
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Cisco Systems
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CPU2006 license: 9019
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Platform Notes (Continued)
/dev/sdal xfs 325G 15G 311G 5% /
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. B200M4.3.1.1.11.110420151758 11/04/2015
Memory:
16x 0xCE00 M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz
8x NO DIMM NO DIMM

(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/CISCO_Benchmarks/cpu2006/1ibs/32:/opt/CISCO_Benchmarks/cpu2006/1ibs/64:/opt/CISCO_Benchmarks/cpu2006/sh"
OMP_NUM_THREADS = "28"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
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

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

Base Portability Flags (Continued)

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
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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
465.tonto: -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 -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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

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

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

Test date: Apr-2016
Hardware Availability: Apr-2016
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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: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: basepeak = yes
- 453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -ansi-alias

**Fortran benchmarks:**
- 410.bwaves: basepeak = yes
- 416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes
- 459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel
- 465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

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**Peak Optimization Flags (Continued)**

465.tonto (continued):
-`-opt-malloc-options=3 -auto -unroll4`

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 -ansi-alias`
- 481.wrf: basepeak = yes

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:


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

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