Cisco Systems
Cisco UCS B260 M4 (Intel Xeon E7-8891 v4, 2.80 GHz)

<table>
<thead>
<tr>
<th>Test date:</th>
<th>May-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Jul-2016</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2015</td>
</tr>
<tr>
<td>SPECfp_base2006 =</td>
<td>118</td>
</tr>
</tbody>
</table>

| SPECfp®2006 = | Not Run |

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

- **CPU Name:** Intel Xeon E7-8891 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHz:** 2800
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 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

<table>
<thead>
<tr>
<th>Software</th>
<th>Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

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SPEC CFP2006 Result

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SPECfp2006 = Not Run
SPECfp_base2006 = 118

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Test date: May-2016
Hardware Availability: Jul-2016
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L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 1600 MHz)
Disk Subsystem: 1 X 400 GB SAS SSD, 6 Gb/s
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Pointers</th>
<th>Peak Pointers</th>
<th>Other Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>19.9</td>
<td>20.6</td>
<td>20.3</td>
</tr>
<tr>
<td>416.gamess</td>
<td>482</td>
<td>481</td>
<td>482</td>
</tr>
<tr>
<td>433.milc</td>
<td>132</td>
<td>130</td>
<td>133</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>45.8</td>
<td>45.7</td>
<td>46.0</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>125</td>
<td>126</td>
<td>124</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>14.3</td>
<td>14.6</td>
<td>13.8</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>21.8</td>
<td>21.5</td>
<td>21.6</td>
</tr>
<tr>
<td>444.namd</td>
<td>261</td>
<td>261</td>
<td>261</td>
</tr>
<tr>
<td>447.dealII</td>
<td>178</td>
<td>176</td>
<td>176</td>
</tr>
<tr>
<td>450.soplex</td>
<td>177</td>
<td>176</td>
<td>179</td>
</tr>
<tr>
<td>453.povray</td>
<td>84.9</td>
<td>85.2</td>
<td>85.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>142</td>
<td>143</td>
<td>143</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>49.3</td>
<td>50.2</td>
<td>511</td>
</tr>
<tr>
<td>465.tonto</td>
<td>209</td>
<td>211</td>
<td>214</td>
</tr>
<tr>
<td>470.lbm</td>
<td>20.6</td>
<td>20.5</td>
<td>20.2</td>
</tr>
<tr>
<td>481.wrf</td>
<td>92.5</td>
<td>92.5</td>
<td>91.9</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>233</td>
<td>235</td>
<td>236</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 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

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
Continued on next page
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Tested by: Cisco Systems

Test date: May-2016
Hardware Availability: Jul-2016
Software Availability: Dec-2015

Platform Notes (Continued)

running on linux-0vgd Fri Jan 1 16:20:24 2010

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 E7-8891 v4 @ 2.80GHz
2 "physical id"s (chips)
20 "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 : 10
siblings : 10
physical 0: cores 5 9 10 11 13 18 24 26 28 29
physical 1: cores 5 9 10 11 13 18 24 26 28 29
cache size : 61440 KB

From /proc/meminfo
MemTotal: 264383512 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 1
  # 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-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-0vgd 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 Jan 1 16:08

SPEC is set to: /opt/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdal xfs 372G 13G 359G 4% /

Additional information from dmidecode:
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Platform Notes (Continued)

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. EXM4.3.1.1.3.042620161123 04/26/2016
Memory:
16x 0xCE00 M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1600 MHz
32x 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/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"
OMP_NUM_THREADS = "20"

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

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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Base Portability Flags (Continued)

447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
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 -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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.xml

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

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