Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

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

Test date: May-2014
Hardware Availability: Dec-2013
Software Availability: Mar-2014

SPECfp®2006 = 66.2
SPECfp_base2006 = 64.2

Hardware
CPU Name: Intel Xeon E5-2609 v2
CPU Characteristics:
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
CPU(s) orderable: 1,2 chip
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: Red Hat Enterprise Linux Server release 6.5 (Santiago)
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

Continued on next page
Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

SPEC CFP2006 Result

SPECfp2006 = 66.2
SPECfp_base2006 = 64.2

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

L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz and CL7)
Disk Subsystem: 1 X 300 GB 15000 RPM SAS
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>49.8</td>
<td>273</td>
<td>50.4</td>
<td>269</td>
<td>50.0</td>
<td>272</td>
<td>49.8</td>
<td>273</td>
<td>50.4</td>
<td>269</td>
</tr>
<tr>
<td>416.gamess</td>
<td>774</td>
<td>25.3</td>
<td>775</td>
<td>25.3</td>
<td>776</td>
<td>25.2</td>
<td>709</td>
<td>27.6</td>
<td>709</td>
<td>27.6</td>
</tr>
<tr>
<td>433.milc</td>
<td>169</td>
<td>54.2</td>
<td>169</td>
<td>54.2</td>
<td>169</td>
<td>54.2</td>
<td>168</td>
<td>54.5</td>
<td>168</td>
<td>54.5</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>82.2</td>
<td>111</td>
<td>81.8</td>
<td>111</td>
<td>82.0</td>
<td>111</td>
<td>82.2</td>
<td>111</td>
<td>82.0</td>
<td>111</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>212</td>
<td>33.8</td>
<td>211</td>
<td>33.8</td>
<td>211</td>
<td>33.8</td>
<td>212</td>
<td>33.8</td>
<td>211</td>
<td>33.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>39.3</td>
<td>304</td>
<td>38.7</td>
<td>309</td>
<td>38.7</td>
<td>309</td>
<td>39.3</td>
<td>304</td>
<td>38.7</td>
<td>309</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>72.0</td>
<td>130</td>
<td>71.4</td>
<td>132</td>
<td>63.4</td>
<td>148</td>
<td>72.0</td>
<td>130</td>
<td>71.4</td>
<td>132</td>
</tr>
<tr>
<td>444.namd</td>
<td>461</td>
<td>17.4</td>
<td>461</td>
<td>17.4</td>
<td>461</td>
<td>17.4</td>
<td>452</td>
<td>17.7</td>
<td>452</td>
<td>17.8</td>
</tr>
<tr>
<td>447.dealII</td>
<td>286</td>
<td>40.0</td>
<td>286</td>
<td>40.0</td>
<td>286</td>
<td>40.0</td>
<td>286</td>
<td>40.0</td>
<td>286</td>
<td>40.0</td>
</tr>
<tr>
<td>450.soplex</td>
<td>286</td>
<td>29.2</td>
<td>285</td>
<td>29.3</td>
<td>286</td>
<td>29.2</td>
<td>286</td>
<td>29.2</td>
<td>285</td>
<td>29.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>159</td>
<td>33.5</td>
<td>158</td>
<td>33.6</td>
<td>160</td>
<td>33.3</td>
<td>133</td>
<td>40.0</td>
<td>133</td>
<td>39.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>232</td>
<td>35.6</td>
<td>232</td>
<td>35.6</td>
<td>232</td>
<td>35.5</td>
<td>222</td>
<td>37.2</td>
<td>222</td>
<td>37.2</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>92.7</td>
<td>114</td>
<td>92.9</td>
<td>114</td>
<td>92.5</td>
<td>115</td>
<td>86.2</td>
<td>123</td>
<td>85.8</td>
<td>124</td>
</tr>
<tr>
<td>465.tonto</td>
<td>317</td>
<td>31.0</td>
<td>317</td>
<td>31.0</td>
<td>317</td>
<td>31.0</td>
<td>288</td>
<td>34.1</td>
<td>288</td>
<td>34.1</td>
</tr>
<tr>
<td>470.lbm</td>
<td>45.6</td>
<td>301</td>
<td>46.8</td>
<td>293</td>
<td>44.4</td>
<td>309</td>
<td>45.6</td>
<td>301</td>
<td>46.8</td>
<td>293</td>
</tr>
<tr>
<td>481.wrf</td>
<td>180</td>
<td>62.1</td>
<td>181</td>
<td>61.8</td>
<td>182</td>
<td>61.3</td>
<td>180</td>
<td>62.1</td>
<td>181</td>
<td>61.8</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>327</td>
<td>59.6</td>
<td>328</td>
<td>59.4</td>
<td>330</td>
<td>59.0</td>
<td>338</td>
<td>57.7</td>
<td>327</td>
<td>59.6</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

CPU performance set to HPC
Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State C1 Enhanced set to Disabled
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
Sysinfo program /opt/cpu2006-1.4/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on c240m3 Wed May 28 16:17:45 2014

Continued on next page
Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp2006 = 66.2
SPECfp_base2006 = 64.2

CPU2006 license: 9019
Test sponsor: Cisco Systems
Test date: May-2014
Tested by: Cisco Systems
Hardware Availability: Dec-2013
Software Availability: Mar-2014

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) CPU E5-2609 v2 @ 2.50GHz
  2 "physical id"s (chips)
  8 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo
MemTotal: 132126952 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)

uname -a:
Linux c240m3 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64 x86_64 GNU/Linux
run-level 3 May 28 16:16

SPEC is set to: /opt/cpu2006-1.4
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 275G 19G 242G 8% /

Additional information from dmidecode:
BIOS Cisco Systems, Inc. C240M3.1.5.4h.0.031920140456 03/19/2014
Memory:
16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1333 MHz 2 rank
8x NO DIMM NO DIMM

(End of data from sysinfo program)
Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp2006 = 66.2
SPECfp_base2006 = 64.2

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

Test date: May-2014
Hardware Availability: Dec-2013
Software Availability: Mar-2014

General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/opt/cpu2006-1.4/libs/32:/opt/cpu2006-1.4/libs/64:/opt/cpu2006-1.4/sh"
OMP_NUM_THREADS = "8"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Submitted by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Mon Jun 2 06:41:55 EDT 2014
Submission: cpu2006-20140602-29748.sub

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
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
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp2006 = 66.2
SPECfp_base2006 = 64.2

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

Test date: May-2014
Hardware Availability: Dec-2013
Software Availability: Mar-2014

Base Portability Flags (Continued)
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags
- C benchmarks:
  -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
- C++ benchmarks:
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
- Fortran benchmarks:
  -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch
- Benchmarks using both Fortran and C:
  -xAVX -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

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags
C benchmarks:
- 433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32
  -ansi-alias

Continued on next page
Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

SPECfp2006 = 66.2
SPECfp_base2006 = 64.2

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

Test date: May-2014
Hardware Availability: Dec-2013
Software Availability: Mar-2014

Peak Optimization Flags (Continued)

470.lbm: basepeak = yes
482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32
447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes
## SPEC CFP2006 Result

### Cisco Systems

Cisco UCS C240 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

| SPECfp2006 | 66.2 |
| SPECfp_base2006 | 64.2 |

| CPU2006 license: | 9019 |
| Test sponsor: | Cisco Systems |
| Tested by: | Cisco Systems |
| Test date: | May-2014 |
| Hardware Availability: | Dec-2013 |
| Software Availability: | Mar-2014 |

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

http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html

http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revB.html

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

http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revB.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 18 June 2014.