Cisco Systems

Cisco UCS C22 M3 (Intel Xeon E5-2430, 2.20 GHz)

| SPECfp®2006 | 62.0 |
| SPECfp_base2006 | 59.7 |

CPU2006 license: 9019
Test date: Dec-2012
Test sponsor: Cisco Systems
Hardware Availability: Sep-2012
Tested by: Cisco Systems
Software Availability: Feb-2012

Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E5-2430</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.70 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chip</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>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

Software

| Operating System: | Red Hat Enterprise Linux Server release 6.2 (Santiago) 2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |

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**SPEC CFP2006 Result**

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**L3 Cache:** 15 MB I+D on chip per chip

**Other Cache:** None

**Memory:** 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)

**Disk Subsystem:** 1 X 146 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 Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>82.4</td>
<td>165</td>
<td>80.6</td>
<td>169</td>
</tr>
<tr>
<td>416.gamess</td>
<td>779</td>
<td>25.1</td>
<td>782</td>
<td>25.0</td>
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<tr>
<td>433.mile</td>
<td>177</td>
<td>51.8</td>
<td>177</td>
<td>51.8</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>8.0</td>
<td>112</td>
<td>80.4</td>
<td>113</td>
</tr>
<tr>
<td>435.lemacs</td>
<td>234</td>
<td>30.5</td>
<td>236</td>
<td>30.3</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>38.5</td>
<td>310</td>
<td>38.3</td>
<td>312</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>92.7</td>
<td>101</td>
<td>91.9</td>
<td>102</td>
</tr>
<tr>
<td>444.namd</td>
<td>436</td>
<td>18.4</td>
<td>436</td>
<td>18.4</td>
</tr>
<tr>
<td>447.dealII</td>
<td>256</td>
<td>44.6</td>
<td>256</td>
<td>44.6</td>
</tr>
<tr>
<td>450.soplex</td>
<td>256</td>
<td>32.5</td>
<td>257</td>
<td>32.4</td>
</tr>
<tr>
<td>453.povray</td>
<td>155</td>
<td>34.3</td>
<td>154</td>
<td>34.5</td>
</tr>
<tr>
<td>454.calculix</td>
<td>268</td>
<td>30.8</td>
<td>268</td>
<td>30.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>109</td>
<td>97.1</td>
<td>109</td>
<td>97.1</td>
</tr>
<tr>
<td>465.tonto</td>
<td>320</td>
<td>30.7</td>
<td>320</td>
<td>30.8</td>
</tr>
<tr>
<td>470.lbm</td>
<td>58.2</td>
<td>236</td>
<td>58.8</td>
<td>234</td>
</tr>
<tr>
<td>481.wrf</td>
<td>198</td>
<td>56.4</td>
<td>200</td>
<td>55.9</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>326</td>
<td>59.8</td>
<td>325</td>
<td>59.9</td>
</tr>
</tbody>
</table>

**Results**

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**

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800

$Rev: 6800 $ $Date:: 2011-10-11 #$ $Id:: 6f2ebdf5032aaa42e583f96b07f99d3$

running on localhost.localdomain Mon Dec 17 21:36:26 2012

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

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Platform Notes (Continued)

model name : Intel(R) Xeon(R) CPU E5-2430 0 @ 2.20GHz
2 "physical id"s (chips)
12 "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 : 6
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

From /proc/meminfo
MemTotal: 99042396 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:
  Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
  EST 2011 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Dec 17 21:35

SPEC is set to: /opt/cpu2006-1.2

Additional information from dmidecode:
Memory:
  12x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "12"
Intel HT Technology=disable
Binaries compiled on a system with 2 X Intel Xeon E5-2690 CPU + 128 GB memory using RHEL 6.2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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General Notes (Continued)

Filesystem page cache cleared with:

```bash
echo 1>/proc/sys/vm/drop_caches
```

Submitted_by: "Sheshgiri I (shei)" <shei@cisco.com>
Submitted: Wed Dec 19 08:56:51 EST 2012
Submission: cpu2006-20121219-25315.sub

Base Compiler Invocation

C benchmarks:

```bash
icc -m64
```

C++ benchmarks:

```bash
icpc -m64
```

Fortran benchmarks:

```bash
ifort -m64
```

Benchmarks using both Fortran and C:

```bash
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
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

```bash
-xAIX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
- xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
- xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
- xAVX -ipo -O3 -no-prec-div -static -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(pw 2) -prof-gen(pass 1) -ipo(pw 2) -O3(pw 2)
  -no-prec-div(pw 2) -prof-use(pw 2) -static -auto-ilp32
  -ansi-alias
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(pw 2) -prof-gen(pass 1) -ipo(pw 2) -O3(pw 2)
  -no-prec-div(pw 2) -prof-use(pw 2) -fno-alias
  -auto-ilp32

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Peak Optimization Flags (Continued)

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
            -static
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- -static
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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.xml
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For other inquiries, please contact webmaster@spec.org.

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