Cisco UCS C220 M3 (Intel Xeon E5-2630L, 2.00 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
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<tr>
<td>410.bwaves</td>
<td>26.4</td>
<td></td>
</tr>
<tr>
<td>416.game7</td>
<td>23.3</td>
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<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<td>436.cactusADM</td>
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<td>437.leslie3d</td>
<td>141</td>
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<tr>
<td>444.namd</td>
<td>17.0</td>
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<tr>
<td>447.dealII</td>
<td>41.8</td>
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<tr>
<td>450.soplex</td>
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<td>453.povray</td>
<td>37.6</td>
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<tr>
<td>454.calculix</td>
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<td>459.GemsFDTD</td>
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<td>465.tonto</td>
<td>31.9</td>
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<td>470.lbm</td>
<td>28.4</td>
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<tr>
<td>481.wrf</td>
<td>61.5</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>56.1</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E5-2630L
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.50 GHz
- **CPU MHz:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 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 6.2 (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

**Test Details**

- **CPU2006 license:** 9019
- **Test sponsor:** Cisco Systems
- **Test date:** Apr-2012
- **Hardware Availability:** Jun-2012
- **Tested by:** Cisco Systems
- **Software Availability:** Dec-2011

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**Continued on next page**
SPEC CFP2006 Result

Cisco Systems

Cisco UCS C220 M3 (Intel Xeon E5-2630L, 2.00 GHz)

SPECfp2006 = 66.7
SPECfp_base2006 = 64.1

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: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL7)
Disk Subsystem: 1 x 300 GB 10000 RPM SAS
Other Hardware: None
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

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Other Software: None

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Configuration:
Intel(R) Hyper-Threading Technology set to Disabled
Processor Power State C6 set to Disabled
Processor Power State C1 Enhanced set to Disabled
Power Technology set to Custom
Energy Performance set to Performance
DRAM Clock Throttling set to Performance
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
Continued on next page

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
## Platform Notes (Continued)

running on localhost.localdomain Sun Apr  1 06:34:36 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
- model name : Intel(R) Xeon(R) CPU E5-2630L 0 @ 2.00GHz
- 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: 132103048 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 Apr 1 06:32

SPEC is set to: /opt/cpu2006-1.2

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda1</td>
<td>ext4</td>
<td>275G</td>
<td>9.9G</td>
<td>251G</td>
<td>4%</td>
<td>/</td>
</tr>
</tbody>
</table>

Additional information from dmidecode:
- Memory:
  - 16x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 1 rank

(End of data from sysinfo program)
Cisco Systems
Cisco UCS C220 M3 (Intel Xeon E5-2630L, 2.00 GHz)

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**CPU2006 license:** 9019
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**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"

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
```

Filesystem page cache cleared with:

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

---

**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
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 482.sphinx3: -DSPEC_CPU_LP64
Cisco Systems
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CPU2006 license: 9019  Test date: Apr-2012
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Base Optimization Flags

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

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(pass 2)  -prof-gen(pass 1)  -ipo(pass 2)  -O3(pass 2)
              -no-prec-div(pass 2)  -prof-use(pass 2)  -static  -auto-ilp32
              -ansi-alias
  470.lbm:  basepeak = yes
  482.sphinx3:  basepeak = yes

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Cisco Systems
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Software Availability: Dec-2011

Peak Optimization Flags (Continued)

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: -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-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.html
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You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml

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

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