Cisco Systems
Cisco UCS C240 M3 (Intel Xeon E5-2680 v2, 2.80 GHz)

- **SPECfp®2006 = 93.9**
- **SPECfp_base2006 = 91.0**

| Test date: | Nov-2013 |
| Hardware Availability: | Sep-2013 |
| Software Availability: | Sep-2013 |

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong></td>
<td>Intel Xeon E5-2680 v2</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong></td>
<td>Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td>2800</td>
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<tr>
<td><strong>FPU:</strong></td>
<td>Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td>20 cores, 2 chips, 10 cores/chip</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong></td>
<td>1.2 chip</td>
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<tr>
<td><strong>Primary Cache:</strong></td>
<td>32 KB I + 32 KB D on chip per core</td>
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<tr>
<td><strong>Secondary Cache:</strong></td>
<td>256 KB I+D on chip per core</td>
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</table>

<table>
<thead>
<tr>
<th>Software</th>
<th>Value</th>
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<tbody>
<tr>
<td><strong>Operating System:</strong></td>
<td>Red Hat Enterprise Linux Server release 6.4 (Santiago)</td>
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<tr>
<td><strong>Compiler:</strong></td>
<td>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</td>
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<tr>
<td><strong>Auto Parallel:</strong></td>
<td>Yes</td>
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<tr>
<td><strong>File System:</strong></td>
<td>ext4</td>
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**Continued on next page**
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SPECfp2006 = 93.9
SPECfp_base2006 = 91.0

CPU2006 license: 9019
Test date: Nov-2013
Test sponsor: Cisco Systems
Hardware Availability: Sep-2013
Tested by: Cisco Systems
Software Availability: Sep-2013
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 X 300 GB 15000 RPM SAS
Other Hardware: None

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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>76.7</td>
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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
Intel HT Technology = Disabled
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
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
LV DDR Mode set to Performance-mode
DRAM Refresh Rate Set to 1x

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Cisco Systems
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SPECfp_base2006 = 91.0

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

Platform Notes (Continued)

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on C240M3 Thu Nov 21 00:41:15 2013

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 v2 @ 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
cautions.)
  cpu cores : 10
  siblings : 10
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 25600 KB

From /proc/meminfo
MemTotal: 132125764 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
Linux C240M3 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
  x86_64 x86_64 GNU/Linux

run-level 3 Nov 20 18:43

SPEC is set to: /opt/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 275G 50G 211G 19% /

Additional information from dmidecode:
BIOS Cisco Systems, Inc. C240M3.1.5.3b.0.082020130616 08/20/2013
Memory:
16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1866 MHz 2 rank
8x NO DIMM NO DIMM

(End of data from sysinfo program)
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---

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---

**General Notes**

Environment variables set by runspec before the start of the run:

```
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 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
```

runcspec command invoked through numactl i.e.:

```
umactl --interleave=all runspec <etc>
```

---

**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`
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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(pas 2) -prof-gen(pas 1) -ipo(pas 2) -O3(pas 2)
  -no-prec-div(pas 2) -prof-use(pas 2) -auto-ilp32
  -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
  -parallel

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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: 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

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-V1.2.20130717.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-V1.2.20130717.xml
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For other inquiries, please contact webmaster@spec.org.

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