Cisco Systems

Cisco UCS C220 M3 (Intel Xeon E5-2650, 2.0 GHz)

**SPECfp®2006** = 75.4

**SPECfp_base2006** = 71.8

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**Hardware**

- **CPU Name:** Intel Xeon E5-2650
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.80 GHz
- **CPU MHZ:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 2 chips, 8 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)
- **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
SPECFP2006 Result

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SPECfp_base2006 = 71.8

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

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 X 300 GB 10000 RPM SAS
Other Hardware: None

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<tr>
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<td>334</td>
<td>58.3</td>
<td>333</td>
<td>58.6</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

BIOS Configuration:
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 $ $Date:: 2011-10-11 #$ 6f2ebdfff5032a4a42e583f96b07f99d3
running on speccpu-rhel6.2 Wed Apr 11 16:15:57 2012

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info@spec.org
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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 E5-2650 @ 2.00GHz  
2 "physical id"s (chips)  
16 "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 : 8  
siblings : 8  
physical 0: cores 0 1 2 3 4 5 6 7  
physical 1: cores 0 1 2 3 4 5 6 7  
cache size : 20480 KB

From /proc/meminfo

MemTotal: 132102624 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)  

cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:

Linux speccpu-rhel6.2 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 11 16:10

SPEC is set to: /opt/cpu2006-1.2  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 ext4 274G 10G 250G 4% /

Additional information from dmidecode:

Memory:

16x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 1 rank

(End of data from sysinfo program)

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"

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General Notes (Continued)

OMP_NUM_THREADS = "16"
Intel HT Technology = Disable
Binaries compiled on a system with 2 x Xeon E5-2690 CPU + 128GB 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
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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:
   -xAVX -ipo -03 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
   -xAVX -ipo -03 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
   -xAVX -ipo -03 -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)  
   -03(pass 2)
   -no-prec-div(pass 2)  
   -prof-use(pass 2)  
   -static  
   -auto-ilp32
   -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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---

**Peak Optimization Flags (Continued)**

```
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(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) -03(pass 2)  
          -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
```

**Fortran benchmarks:**

```
410.bwaves: -xAVX -ipo -03 -no-prec-div -opt-prefetch -parallel  
          -static
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(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) -03(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) -03(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 -03 -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/Cisco-Platform-Settings-V1.2.20130607.html](http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.html)

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

- [http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml](http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml)
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