



# SPEC® CFP2006 Result

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## Cisco Systems

Cisco UCS C240 M3 (Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp®2006 = 95.4

SPECfp\_base2006 = 93.1

CPU2006 license: 9019

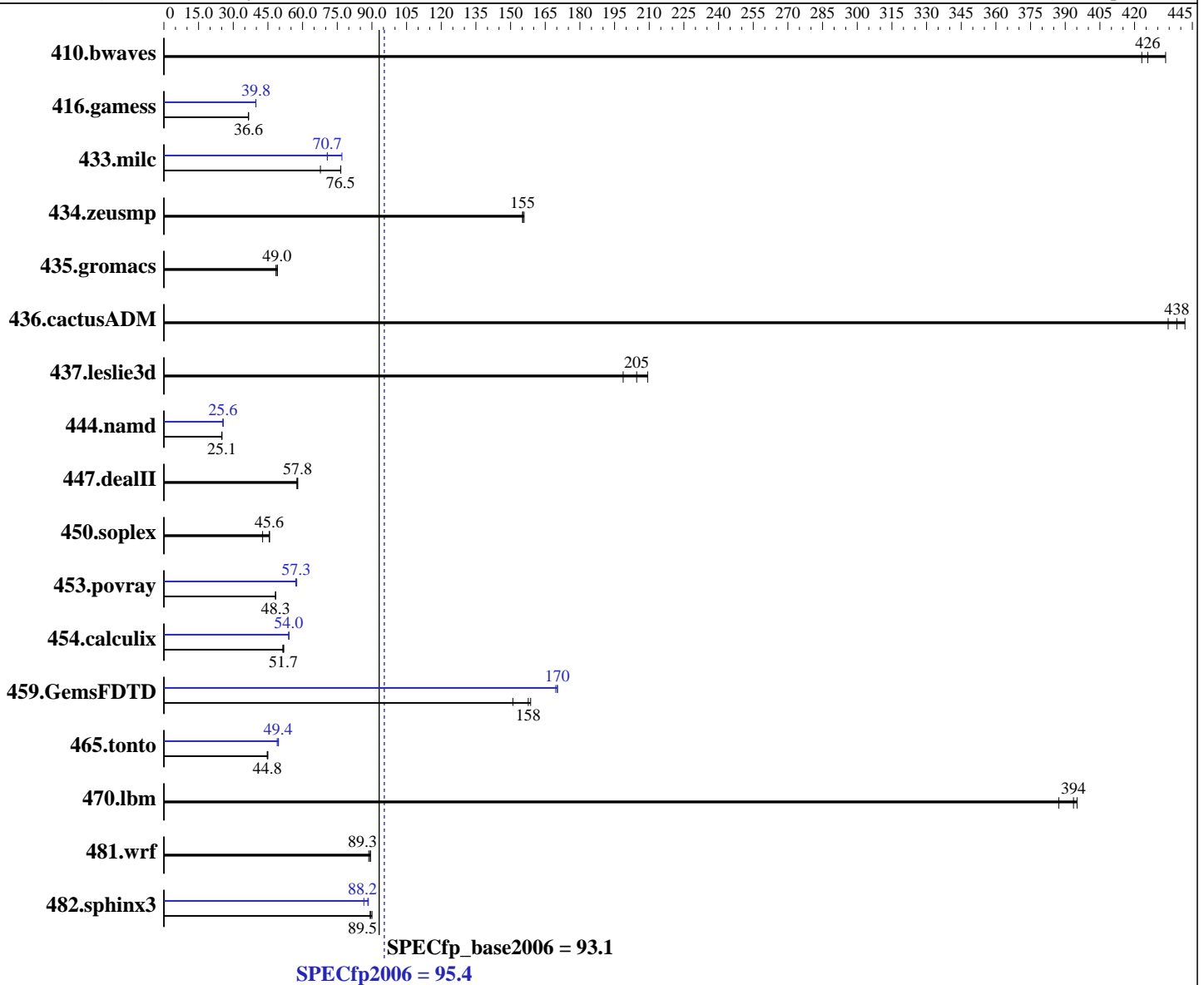
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2637 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3500  
 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

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### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 2.6.32-358.el6.x86\_64  
 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

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L3 Cache: 15 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

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

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32.1	423	<b><u>31.9</u></b>	<b><u>426</u></b>	31.4	433	32.1	423	<b><u>31.9</u></b>	<b><u>426</u></b>	31.4	433
416.gamess	<b><u>535</u></b>	<b><u>36.6</u></b>	535	36.6	535	36.6	<b><u>492</u></b>	<b><u>39.8</u></b>	492	39.8	492	39.8
433.milc	<b><u>120</u></b>	<b><u>76.5</u></b>	120	76.5	136	67.7	130	70.7	<b><u>130</u></b>	<b><u>70.7</u></b>	119	77.0
434.zeusmp	<b><u>58.6</u></b>	<b><u>155</u></b>	58.6	155	58.4	156	<b><u>58.6</u></b>	<b><u>155</u></b>	58.6	155	58.4	156
435.gromacs	<b><u>146</u></b>	<b><u>49.0</u></b>	145	49.1	147	48.5	<b><u>146</u></b>	<b><u>49.0</u></b>	145	49.1	147	48.5
436.cactusADM	27.5	435	<b><u>27.3</u></b>	<b><u>438</u></b>	27.0	442	27.5	435	<b><u>27.3</u></b>	<b><u>438</u></b>	27.0	442
437.leslie3d	44.9	209	47.3	199	<b><u>46.0</u></b>	<b><u>205</u></b>	44.9	209	47.3	199	<b><u>46.0</u></b>	<b><u>205</u></b>
444.namd	<b><u>320</u></b>	<b><u>25.1</u></b>	320	25.1	320	25.1	<b><u>313</u></b>	<b><u>25.6</u></b>	313	25.6	313	25.6
447.dealII	199	57.5	198	57.9	<b><u>198</u></b>	<b><u>57.8</u></b>	199	57.5	198	57.9	<b><u>198</u></b>	<b><u>57.8</u></b>
450.soplex	195	42.7	<b><u>183</u></b>	<b><u>45.6</u></b>	183	45.7	195	42.7	<b><u>183</u></b>	<b><u>45.6</u></b>	183	45.7
453.povray	110	48.4	<b><u>110</u></b>	<b><u>48.3</u></b>	110	48.3	93.2	57.1	<b><u>92.9</u></b>	<b><u>57.3</u></b>	92.6	57.5
454.calculix	<b><u>160</u></b>	<b><u>51.7</u></b>	159	51.9	160	51.4	153	54.0	<b><u>153</u></b>	<b><u>54.0</u></b>	152	54.1
459.GemsFDTD	70.3	151	66.9	159	<b><u>67.3</u></b>	<b><u>158</u></b>	<b><u>62.3</u></b>	<b><u>170</u></b>	62.3	170	62.6	170
465.tonto	<b><u>220</u></b>	<b><u>44.8</u></b>	219	45.0	220	44.7	<b><u>199</u></b>	<b><u>49.4</u></b>	201	49.0	198	49.6
470.lbm	34.8	395	35.5	387	<b><u>34.9</u></b>	<b><u>394</u></b>	34.8	395	35.5	387	<b><u>34.9</u></b>	<b><u>394</u></b>
481.wrf	126	88.6	<b><u>125</u></b>	<b><u>89.3</u></b>	125	89.4	126	88.6	<b><u>125</u></b>	<b><u>89.3</u></b>	125	89.4
482.sphinx3	216	90.1	<b><u>218</u></b>	<b><u>89.5</u></b>	218	89.2	<b><u>221</u></b>	<b><u>88.2</u></b>	225	86.5	220	88.5

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 Settings:  
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

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**CPU2006 license:** 9019

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**Test date:** Nov-2013

**Hardware Availability:** Sep-2013

**Software Availability:** Sep-2013

### Platform Notes (Continued)

DRAM Refresh Rate Set to 1x

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191

running on C240M3 Sun Nov 10 21:31:52 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 E5-2637 v2 @ 3.50GHz

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 1 2 3 4

physical 1: cores 1 2 3 4

cache size : 15360 KB

From /proc/meminfo

MemTotal: 132127340 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)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

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 10 16:01

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/sdal ext4 275G 29G 233G 11% /

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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## 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 = "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>
```

## 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(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`

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.dealIII: 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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