



# SPEC® CFP2006 Result

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## Cisco Systems

**SPECfp®2006 = 60.3**

Cisco UCS B22 M3 (Intel Xeon E5-2407 v2, 2.40 GHz)

**SPECfp\_base2006 = 58.5**

CPU2006 license: 9019

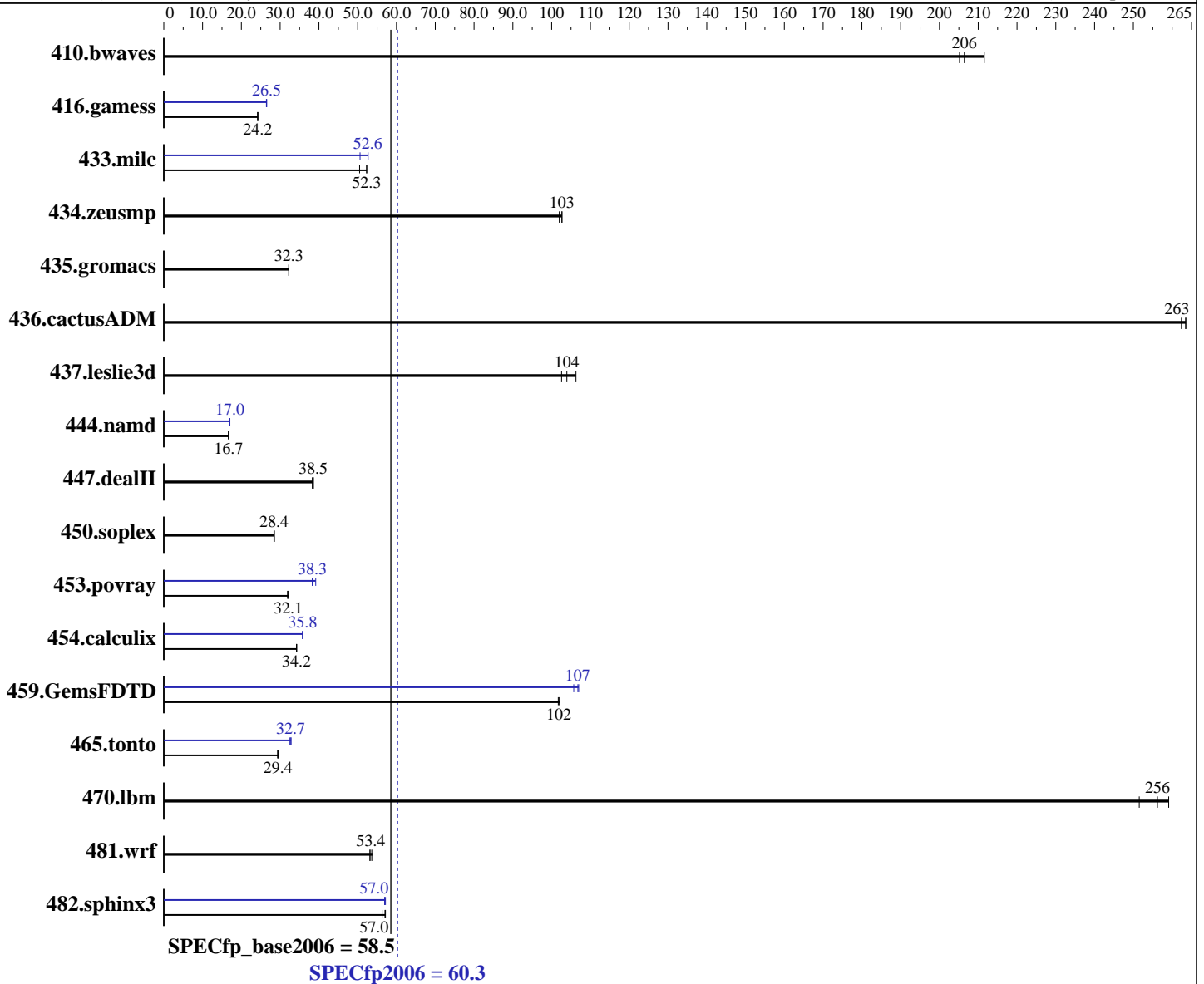
Test date: Jul-2014

Test sponsor: Cisco Systems

Hardware Availability: Jun-2014

Tested by: Cisco Systems

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2407 v2  
 CPU Characteristics:  
 CPU MHz: 2400  
 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 6.5 (Santiago)  
 2.6.32-431.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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3L-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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	66.2	205	<b>65.8</b>	<b>206</b>	64.2	212	66.2	205	<b>65.8</b>	<b>206</b>	64.2	212
416.gamess	808	24.2	809	24.2	<b>808</b>	<b>24.2</b>	<b>739</b>	<b>26.5</b>	740	26.5	738	26.5
433.milc	175	52.3	182	50.5	<b>176</b>	<b>52.3</b>	<b>174</b>	<b>52.6</b>	181	50.6	174	52.7
434.zeusmp	<b>88.6</b>	<b>103</b>	89.2	102	88.6	103	<b>88.6</b>	<b>103</b>	89.2	102	88.6	103
435.gromacs	221	32.3	222	32.2	<b>221</b>	<b>32.3</b>	221	32.3	222	32.2	<b>221</b>	<b>32.3</b>
436.cactusADM	45.5	262	<b>45.4</b>	<b>263</b>	45.3	264	45.5	262	<b>45.4</b>	<b>263</b>	45.3	264
437.leslie3d	91.7	103	88.4	106	<b>90.4</b>	<b>104</b>	91.7	103	88.4	106	<b>90.4</b>	<b>104</b>
444.namd	<b>480</b>	<b>16.7</b>	480	16.7	480	16.7	470	17.0	<b>470</b>	<b>17.0</b>	471	17.0
447.dealII	299	38.3	297	38.6	<b>297</b>	<b>38.5</b>	299	38.3	297	38.6	<b>297</b>	<b>38.5</b>
450.soplex	293	28.5	294	28.4	<b>293</b>	<b>28.4</b>	293	28.5	294	28.4	<b>293</b>	<b>28.4</b>
453.povray	165	32.2	167	31.9	<b>166</b>	<b>32.1</b>	136	39.2	<b>139</b>	<b>38.3</b>	139	38.3
454.calculix	241	34.3	<b>241</b>	<b>34.2</b>	241	34.2	230	35.8	230	35.8	<b>230</b>	<b>35.8</b>
459.GemsFDTD	104	102	<b>104</b>	<b>102</b>	104	102	<b>99.4</b>	<b>107</b>	100	106	99.2	107
465.tonto	<b>334</b>	<b>29.4</b>	333	29.5	335	29.3	303	32.5	<b>300</b>	<b>32.7</b>	300	32.8
470.lbm	54.6	252	<b>53.6</b>	<b>256</b>	53.0	259	54.6	252	<b>53.6</b>	<b>256</b>	53.0	259
481.wrf	<b>209</b>	<b>53.4</b>	208	53.8	210	53.1	<b>209</b>	<b>53.4</b>	208	53.8	210	53.1
482.sphinx3	<b>342</b>	<b>57.0</b>	341	57.2	346	56.3	342	57.0	341	57.2	<b>342</b>	<b>57.0</b>

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

CPU performance set to HPC  
 Power Technology set to Custom  
 CPU Power State C6 set to Disabled  
 CPU Power State C1 Enhanced set to Disabled  
 Memory RAS configuration set to Maximum Performance  
 DRAM Clock Throttling Set to Performance  
 Sysinfo program /opt/cpu2006-1.4/config/sysinfo.rev6818  
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
 running on B22M3 Fri Jul 4 22:17:40 2014

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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 E5-2407 v2 @ 2.40GHz

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 0 1 2 3

physical 1: cores 0 1 2 3

cache size : 10240 KB

From /proc/meminfo

MemTotal: 99008224 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/\*release\* /etc/\*version\*

redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)

system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)

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

uname -a:

Linux B22M3 2.6.32-431.el6.x86\_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86\_64

x86\_64 x86\_64 GNU/Linux

run-level 3 Jul 4 22:17

SPEC is set to: /opt/cpu2006-1.4

Filesystem Type Size Used Avail Use% Mounted on

/dev/sdal ext4 134G 19G 109G 15% /

Additional information from dmidecode:

BIOS Cisco Systems, Inc. B22M3.2.2.1.8.042120141915 04/21/2014

Memory:

12x 0xCE00 M393B1K70DH0-YK0 8 GB 1333 MHz 2 rank

(End of data from sysinfo program)

### General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/opt/cpu2006-1.4/libs/32:/opt/cpu2006-1.4/libs/64:/opt/cpu2006-1.4/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>

Submitted\_by: "Sheshgiri I (shei)" <shei@cisco.com>

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## General Notes (Continued)

Submitted: Wed Sep 17 01:52:38 EDT 2014  
Submission: cpu2006-20140903-31186.sub

## 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.deallI: -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:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

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

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

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## Peak Optimization Flags (Continued)

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-revB.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-revB.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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