



# SPEC® CFP2006 Result

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## Cisco Systems

SPECfp®2006 = 66.6

Cisco UCS C220 M3 (Intel Xeon E5-2620, 2.00 GHz)

SPECfp\_base2006 = 63.9

CPU2006 license: 9019

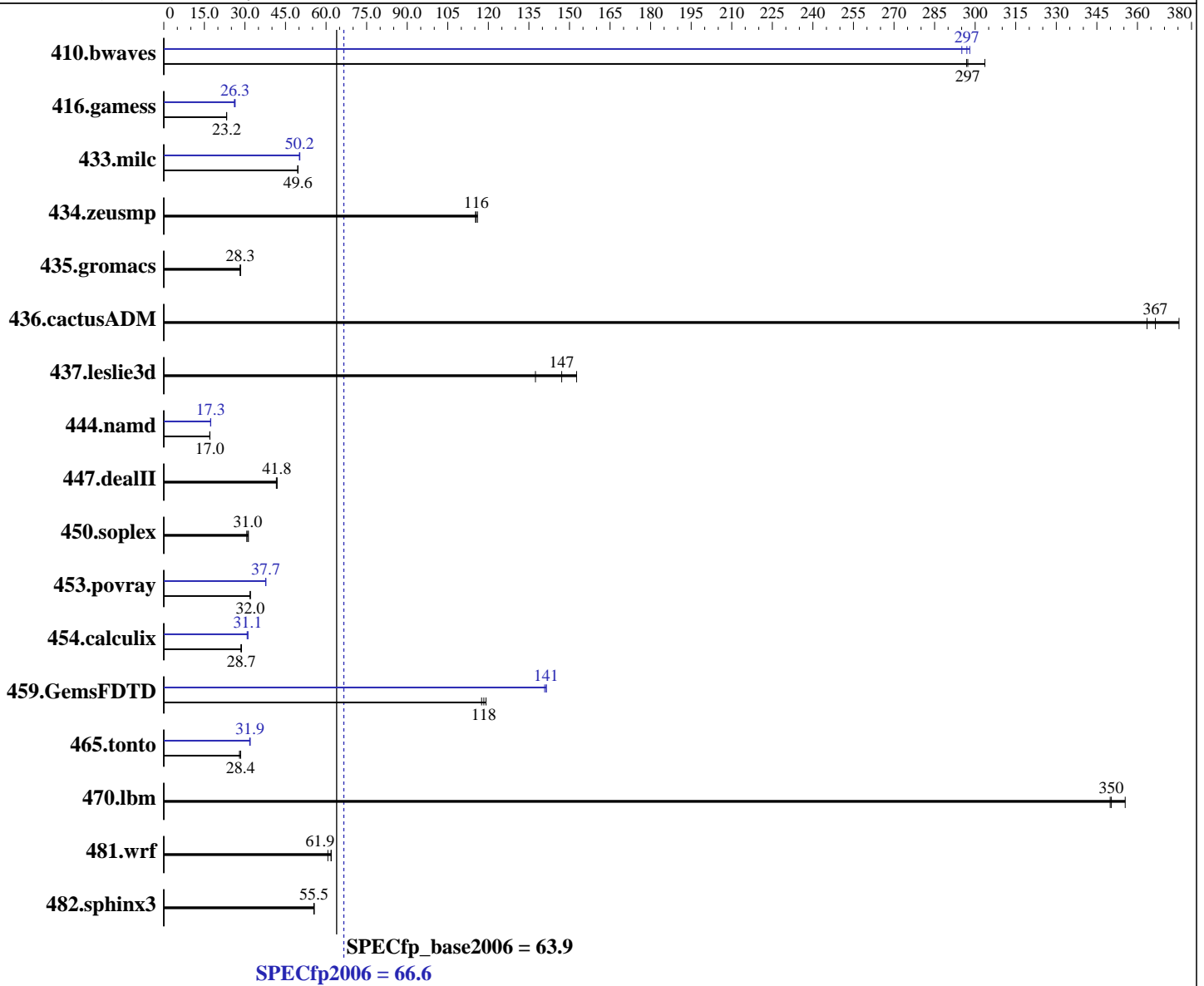
Test date: Apr-2012

Test sponsor: Cisco Systems

Hardware Availability: Jun-2012

Tested by: Cisco Systems

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2620  
 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

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**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

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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 PC3-12800R-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

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	45.8	297	<b>45.7</b>	<b>297</b>	44.8	304	46.1	295	<b>45.8</b>	<b>297</b>	45.6	298
416.gamess	841	23.3	<b>843</b>	<b>23.2</b>	844	23.2	751	26.1	743	26.4	<b>744</b>	<b>26.3</b>
433.milc	185	49.6	<b>185</b>	<b>49.6</b>	185	49.6	182	50.3	<b>183</b>	<b>50.2</b>	183	50.2
434.zeusmp	78.4	116	<b>78.8</b>	<b>116</b>	79.0	115	78.4	116	<b>78.8</b>	<b>116</b>	79.0	115
435.gromacs	<b>252</b>	<b>28.3</b>	252	28.4	253	28.3	<b>252</b>	<b>28.3</b>	252	28.4	253	28.3
436.cactusADM	<b>32.6</b>	<b>367</b>	31.8	375	32.9	364	<b>32.6</b>	<b>367</b>	31.8	375	32.9	364
437.leslie3d	61.6	153	<b>63.9</b>	<b>147</b>	68.4	137	61.6	153	<b>63.9</b>	<b>147</b>	68.4	137
444.namd	471	17.0	471	17.0	<b>471</b>	<b>17.0</b>	<b>463</b>	<b>17.3</b>	463	17.3	463	17.3
447.dealII	<b>274</b>	<b>41.8</b>	273	41.9	275	41.6	<b>274</b>	<b>41.8</b>	273	41.9	275	41.6
450.soplex	272	30.7	266	31.3	<b>269</b>	<b>31.0</b>	272	30.7	266	31.3	<b>269</b>	<b>31.0</b>
453.povray	<b>166</b>	<b>32.0</b>	167	31.9	166	32.0	141	37.6	141	37.8	<b>141</b>	<b>37.7</b>
454.calculix	287	28.7	289	28.5	<b>288</b>	<b>28.7</b>	265	31.1	<b>266</b>	<b>31.1</b>	268	30.8
459.GemsFDTD	<b>89.7</b>	<b>118</b>	90.3	118	89.1	119	<b>75.0</b>	<b>141</b>	75.0	141	75.4	141
465.tonto	347	28.4	352	28.0	<b>347</b>	<b>28.4</b>	308	31.9	<b>309</b>	<b>31.9</b>	310	31.8
470.lbm	<b>39.2</b>	<b>350</b>	38.7	355	39.3	350	<b>39.2</b>	<b>350</b>	38.7	355	39.3	350
481.wrf	184	60.7	<b>181</b>	<b>61.9</b>	181	61.9	184	60.7	<b>181</b>	<b>61.9</b>	181	61.9
482.sphinx3	<b>351</b>	<b>55.5</b>	351	55.5	350	55.7	<b>351</b>	<b>55.5</b>	351	55.5	350	55.7

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:

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

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## Platform Notes (Continued)

running on speccpu-rhel6.2 Mon Apr 2 08:39:09 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 E5-2620 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:      132103120 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)
system-release-cpe: 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 2 08:32

```

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)



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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



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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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## 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: -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](mailto:webmaster@spec.org).

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