



# SPEC® CFP2006 Result

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## Cisco Systems

**SPECfp®2006 = 51.2**

Cisco UCS B420 M3 (Intel Xeon E5-4603, 2.00 GHz)

**SPECfp\_base2006 = 49.2**

CPU2006 license: 9019

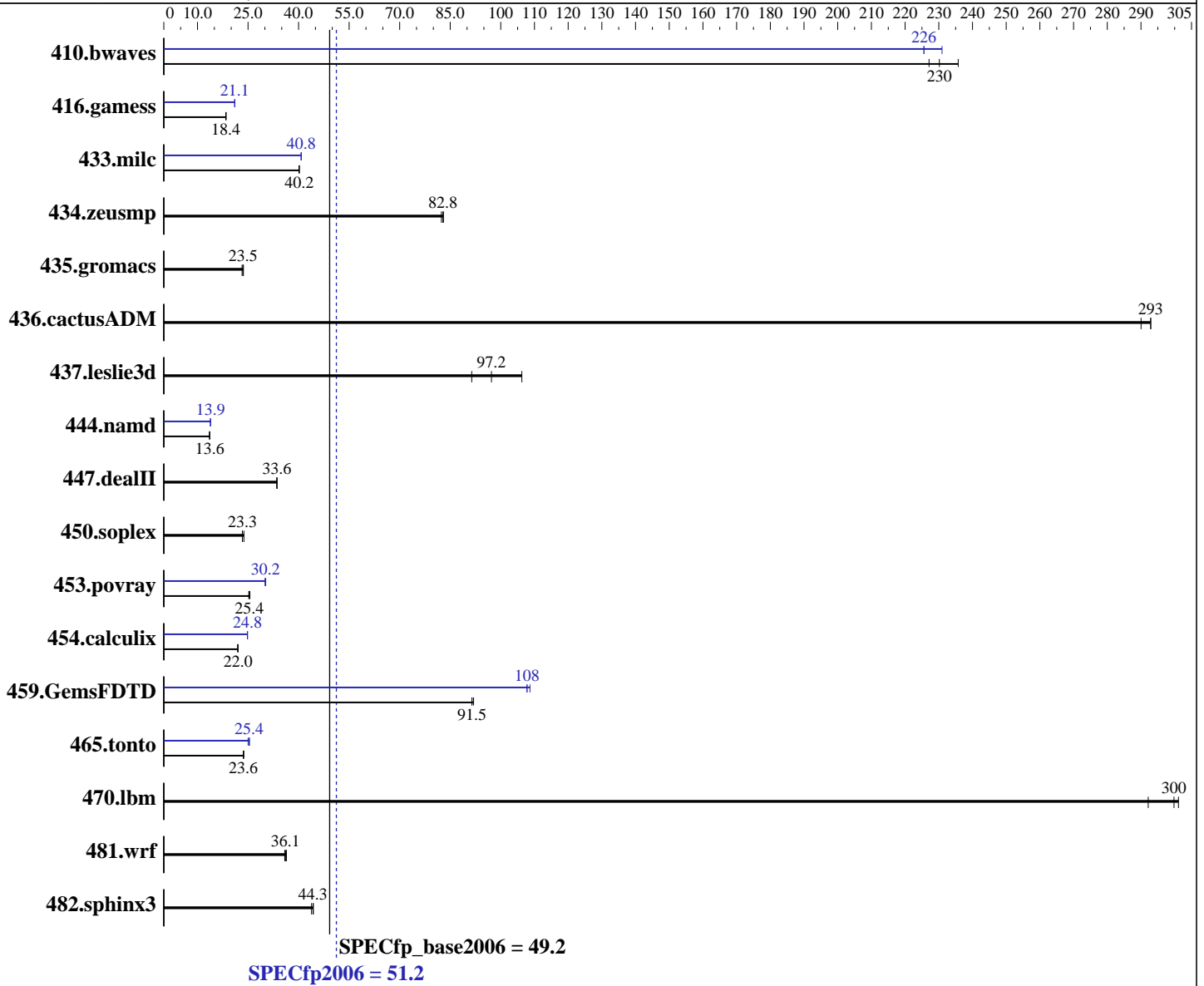
Test date: Dec-2012

Test sponsor: Cisco Systems

Hardware Availability: Sep-2012

Tested by: Cisco Systems

Software Availability: Feb-2012



**Hardware**

CPU Name: Intel Xeon E5-4603  
 CPU Characteristics: 2000  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip  
 CPU(s) orderable: 1,2,3,4 chips  
 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 X 300 Gb 15000 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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	57.6	236	<b>59.0</b>	<b>230</b>	59.8	227	60.2	226	<b>60.2</b>	<b>226</b>	58.8	231
416.gamess	<b>1062</b>	<b>18.4</b>	1063	18.4	1061	18.5	<b>929</b>	<b>21.1</b>	929	21.1	932	21.0
433.milc	228	40.2	<b>228</b>	<b>40.2</b>	229	40.1	225	40.8	225	40.8	<b>225</b>	<b>40.8</b>
434.zeusmp	110	83.0	<b>110</b>	<b>82.8</b>	110	82.4	110	83.0	<b>110</b>	<b>82.8</b>	110	82.4
435.gromacs	<b>304</b>	<b>23.5</b>	302	23.6	307	23.2	<b>304</b>	<b>23.5</b>	302	23.6	307	23.2
436.cactusADM	40.8	293	41.2	290	<b>40.8</b>	<b>293</b>	40.8	293	41.2	290	<b>40.8</b>	<b>293</b>
437.leslie3d	88.5	106	<b>96.7</b>	<b>97.2</b>	103	91.4	88.5	106	<b>96.7</b>	<b>97.2</b>	103	91.4
444.namd	589	13.6	<b>589</b>	<b>13.6</b>	592	13.6	578	13.9	578	13.9	<b>578</b>	<b>13.9</b>
447.dealII	<b>341</b>	<b>33.6</b>	341	33.6	340	33.6	<b>341</b>	<b>33.6</b>	341	33.6	340	33.6
450.soplex	351	23.8	358	23.3	<b>357</b>	<b>23.3</b>	351	23.8	358	23.3	<b>357</b>	<b>23.3</b>
453.povray	208	25.5	<b>210</b>	<b>25.4</b>	211	25.2	176	30.3	177	30.0	<b>176</b>	<b>30.2</b>
454.calculix	375	22.0	<b>375</b>	<b>22.0</b>	376	21.9	332	24.8	<b>332</b>	<b>24.8</b>	333	24.8
459.GemsFDTD	<b>116</b>	<b>91.5</b>	116	91.5	115	91.9	98.4	108	<b>98.4</b>	<b>108</b>	97.6	109
465.tonto	417	23.6	414	23.8	<b>417</b>	<b>23.6</b>	387	25.4	393	25.0	<b>388</b>	<b>25.4</b>
470.lbm	45.6	301	<b>45.8</b>	<b>300</b>	47.0	292	45.6	301	<b>45.8</b>	<b>300</b>	47.0	292
481.wrf	307	36.4	311	35.9	<b>309</b>	<b>36.1</b>	307	36.4	311	35.9	<b>309</b>	<b>36.1</b>
482.sphinx3	445	43.8	439	44.4	<b>440</b>	<b>44.3</b>	445	43.8	439	44.4	<b>440</b>	<b>44.3</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

BIOS Configuration : Intel HT Technology = Disabled  
 Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on SPEC CPU-M3 Tue Dec 4 16:40:41 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>

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### Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-4603 0 @ 2.00GHz
 4 "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 : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
  physical 2: cores 0 1 2 3
  physical 3: cores 0 1 2 3
cache size : 10240 KB

```

```

From /proc/meminfo
MemTotal:      264507724 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 SPEC CPU-M3 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 Dec 4 10:52

```

SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/sda2       ext4      1.1T  7.7G  1.1T   1% /

```

```

Additional information from dmidecode:
Memory:
 32x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 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,scatter"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "16"

```

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## General Notes (Continued)

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

## 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 -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

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.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: -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-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.xml>



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

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