



# SPEC<sup>®</sup> CFP2006 Result

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## Cisco Systems

**SPECfp<sup>®</sup>2006 = 83.9**

Cisco UCS C220 M3 (Intel Xeon E5-2643, 3.30 GHz)

**SPECfp\_base2006 = 81.2**

CPU2006 license: 9019

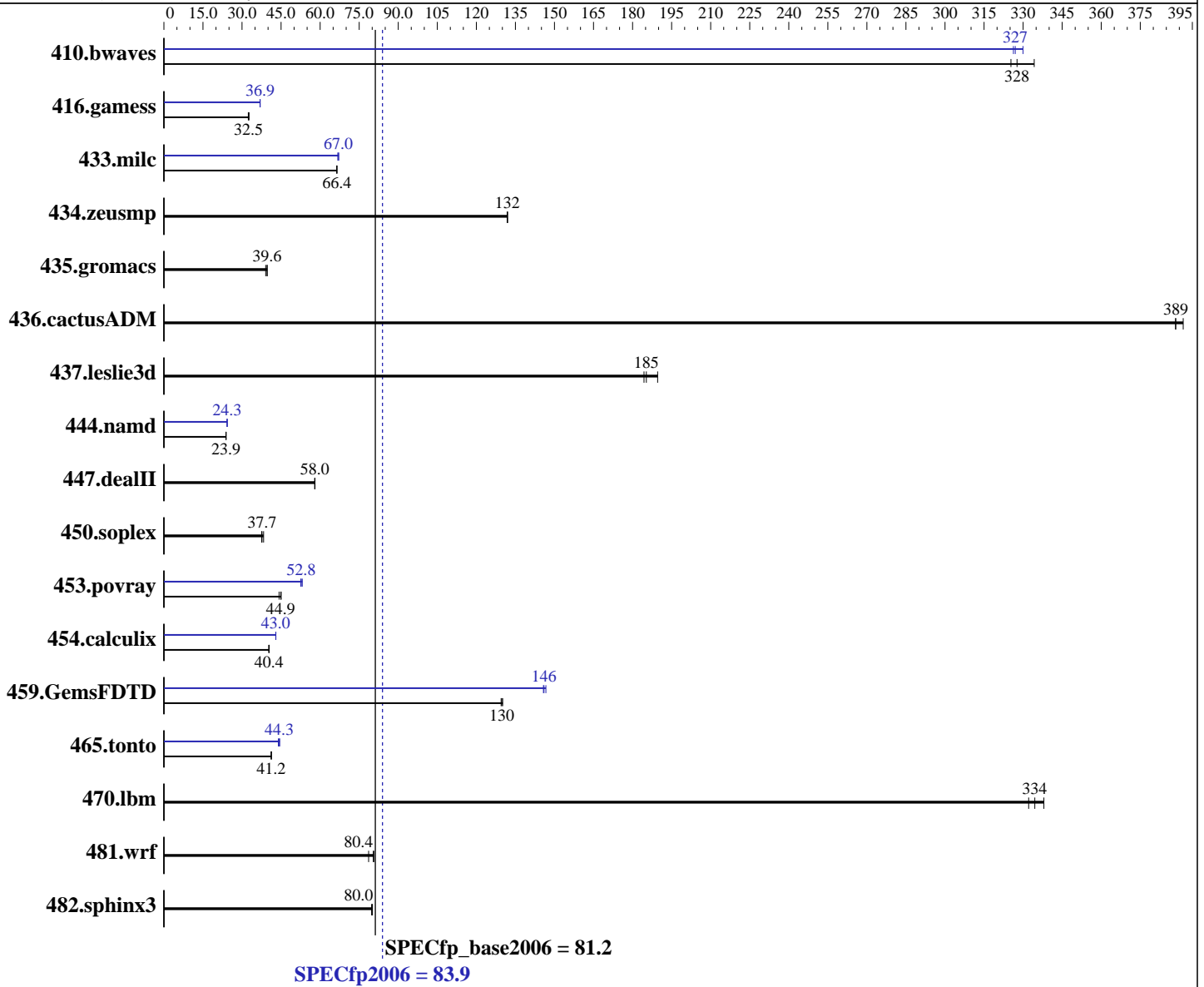
Test date: Apr-2012

Test sponsor: Cisco Systems

Hardware Availability: Jun-2012

Tested by: Cisco Systems

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2643  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3300  
 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

Continued on next page

**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

Continued on next page



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L3 Cache: 10 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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	41.8	325	<b><u>41.5</u></b>	<b><u>328</u></b>	40.7	334	41.7	326	<b><u>41.6</u></b>	<b><u>327</u></b>	41.2	330
416.gamess	604	32.4	<b><u>602</u></b>	<b><u>32.5</u></b>	599	32.7	531	36.9	530	37.0	<b><u>530</u></b>	<b><u>36.9</u></b>
433.milc	<b><u>138</u></b>	<b><u>66.4</u></b>	138	66.4	138	66.4	<b><u>137</u></b>	<b><u>67.0</u></b>	137	67.1	137	66.8
434.zeusmp	69.0	132	69.0	132	<b><u>69.0</u></b>	<b><u>132</u></b>	69.0	132	69.0	132	<b><u>69.0</u></b>	<b><u>132</u></b>
435.gromacs	180	39.6	<b><u>180</u></b>	<b><u>39.6</u></b>	183	39.1	180	39.6	<b><u>180</u></b>	<b><u>39.6</u></b>	183	39.1
436.cactusADM	30.5	391	<b><u>30.7</u></b>	<b><u>389</u></b>	30.8	389	30.5	391	<b><u>30.7</u></b>	<b><u>389</u></b>	30.8	389
437.leslie3d	51.0	184	49.6	190	<b><u>50.7</u></b>	<b><u>185</u></b>	51.0	184	49.6	190	<b><u>50.7</u></b>	<b><u>185</u></b>
444.namd	336	23.9	<b><u>336</u></b>	<b><u>23.9</u></b>	336	23.9	330	24.3	330	24.3	<b><u>330</u></b>	<b><u>24.3</u></b>
447.dealII	198	57.9	<b><u>197</u></b>	<b><u>58.0</u></b>	197	58.0	198	57.9	<b><u>197</u></b>	<b><u>58.0</u></b>	197	58.0
450.soplex	<b><u>221</u></b>	<b><u>37.7</u></b>	218	38.3	222	37.6	<b><u>221</u></b>	<b><u>37.7</u></b>	218	38.3	222	37.6
453.povray	<b><u>119</u></b>	<b><u>44.9</u></b>	118	45.0	120	44.2	101	52.6	<b><u>101</u></b>	<b><u>52.8</u></b>	100	53.1
454.calculix	204	40.4	205	40.3	<b><u>204</u></b>	<b><u>40.4</u></b>	192	43.0	192	43.0	<b><u>192</u></b>	<b><u>43.0</u></b>
459.GemsFDTD	<b><u>81.7</u></b>	<b><u>130</u></b>	81.5	130	81.9	130	72.8	146	<b><u>72.7</u></b>	<b><u>146</u></b>	72.3	147
465.tonto	239	41.2	<b><u>239</u></b>	<b><u>41.2</u></b>	238	41.3	<b><u>222</u></b>	<b><u>44.3</u></b>	224	43.9	221	44.5
470.lbm	40.7	338	41.4	332	<b><u>41.1</u></b>	<b><u>334</u></b>	40.7	338	41.4	332	<b><u>41.1</u></b>	<b><u>334</u></b>
481.wrf	142	78.6	<b><u>139</u></b>	<b><u>80.4</u></b>	139	80.6	142	78.6	<b><u>139</u></b>	<b><u>80.4</u></b>	139	80.6
482.sphinx3	<b><u>244</u></b>	<b><u>80.0</u></b>	244	79.8	243	80.1	<b><u>244</u></b>	<b><u>80.0</u></b>	244	79.8	243	80.1

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 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on speccpu-rhel6.2 Thu Apr 19 10:58:54 2012

Continued on next page



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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 E5-2643 0 @ 3.30GHz
 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:      132103616 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 19 10:50

```

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"

Continued on next page



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## General Notes (Continued)

```
OMP_NUM_THREADS = "8"
Intel HT Technology = Disable
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
```

## 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:

Continued on next page



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## Peak Optimization Flags (Continued)

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.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-linux64.20111122.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/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml>



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