



# SPEC® CFP2006 Result

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## Cisco Systems

Cisco UCS B200 M3 (Intel Xeon E5-2650 v2 @ 2.60 GHz)

**SPECfp®2006 = 90.1**

**SPECfp\_base2006 = 87.4**

CPU2006 license: 9019

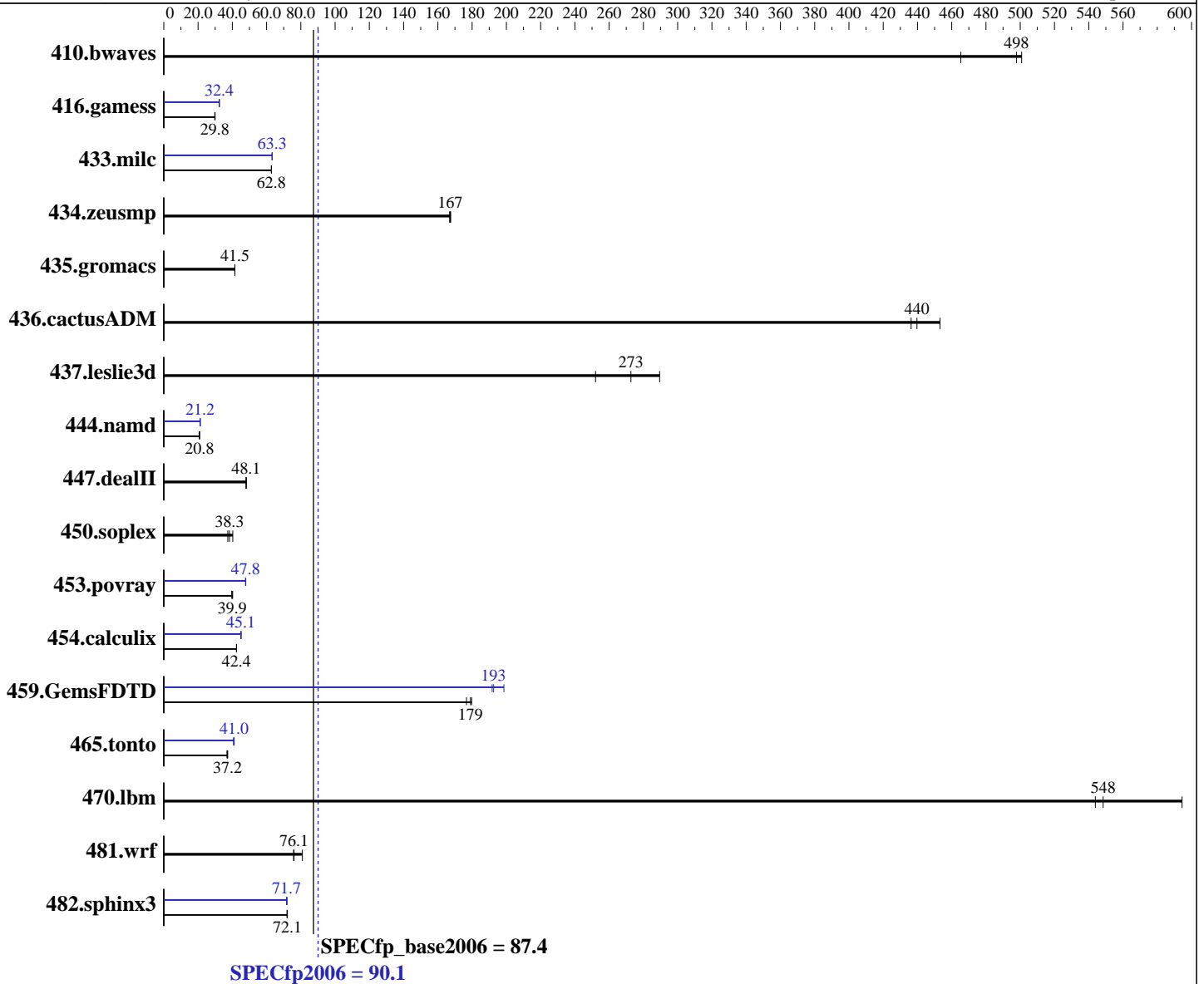
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Oct-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2650 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
 CPU(s) orderable: 1,2 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 6.4 (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: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-11, ECC)  
Disk Subsystem: 1 X 600GB SAS, 15K RPM  
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	27.1	501	<b>27.3</b>	<b>498</b>	29.2	465	27.1	501	<b>27.3</b>	<b>498</b>	29.2	465
416.gamess	<b>657</b>	<b>29.8</b>	653	30.0	657	29.8	<b>604</b>	<b>32.4</b>	604	32.4	605	32.4
433.milc	146	62.8	146	62.8	<b>146</b>	<b>62.8</b>	145	63.2	<b>145</b>	<b>63.3</b>	145	63.3
434.zeusmp	<b>54.4</b>	<b>167</b>	54.5	167	54.3	167	<b>54.4</b>	<b>167</b>	54.5	167	54.3	167
435.gromacs	<b>172</b>	<b>41.5</b>	172	41.5	172	41.5	<b>172</b>	<b>41.5</b>	172	41.5	172	41.5
436.cactusADM	<b>27.2</b>	<b>440</b>	26.4	453	27.4	436	<b>27.2</b>	<b>440</b>	26.4	453	27.4	436
437.leslie3d	37.3	252	32.5	289	<b>34.5</b>	<b>273</b>	37.3	252	32.5	289	<b>34.5</b>	<b>273</b>
444.namd	<b>385</b>	<b>20.8</b>	385	20.8	385	20.8	378	21.2	<b>377</b>	<b>21.2</b>	377	21.3
447.dealII	<b>238</b>	<b>48.1</b>	238	48.0	238	48.2	<b>238</b>	<b>48.1</b>	238	48.0	238	48.2
450.soplex	<b>217</b>	<b>38.3</b>	223	37.4	207	40.3	<b>217</b>	<b>38.3</b>	223	37.4	207	40.3
453.povray	<b>133</b>	<b>39.9</b>	132	40.2	134	39.7	111	47.9	112	47.7	<b>111</b>	<b>47.8</b>
454.calculix	<b>194</b>	<b>42.4</b>	195	42.4	194	42.5	183	45.1	<b>183</b>	<b>45.1</b>	183	45.1
459.GemsFDTD	<b>59.3</b>	<b>179</b>	60.0	177	59.0	180	<b>55.1</b>	<b>193</b>	55.3	192	53.4	199
465.tonto	<b>265</b>	<b>37.2</b>	264	37.3	267	36.9	<b>240</b>	<b>41.0</b>	240	41.1	242	40.7
470.lbm	25.3	544	<b>25.1</b>	<b>548</b>	23.1	594	25.3	544	<b>25.1</b>	<b>548</b>	23.1	594
481.wrf	<b>147</b>	<b>76.1</b>	138	80.9	147	75.7	<b>147</b>	<b>76.1</b>	138	80.9	147	75.7
482.sphinx3	<b>270</b>	<b>72.1</b>	270	72.1	271	71.9	<b>272</b>	<b>71.7</b>	272	71.6	271	72.0

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 = Enabled  
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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### Platform Notes (Continued)

```

DRAM Refresh Rate Set to 1x
Intel HT Technology = Disable
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Tue Oct 8 06:50:49 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 E5-2650 v2 @ 2.60GHz
 2 "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    : 8
  siblings     : 8
  physical 0:  cores 0 1 2 3 4 5 6 7
  physical 1:  cores 0 1 2 3 4 5 6 7
cache size     : 20480 KB

```

```

From /proc/meminfo
MemTotal:      132089408 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 localhost.localdomain 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 Oct 8 06:35

```

SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      550G  26G  496G   5% /

```

```

Additional information from dmidecode:
BIOS Cisco Systems, Inc. B200M3.2.1.3a.0.082320131800 08/23/2013
Memory:
 16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1866 MHz 2 rank
 8x NO DIMM NO DIMM

```

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## Platform Notes (Continued)

(End of data from sysinfo program)

## 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 = "16"
```

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.lelie3d: -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
```

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## Base Portability Flags (Continued)

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

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

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## Peak Optimization Flags (Continued)

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

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: 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



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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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