



SPEC[®] CFP2006 Result

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Cisco Systems

Cisco UCS C240 M3 M3 (Intel Xeon E5-2643 v2, 3.50 GHz)

SPECfp[®]2006 = 101

SPECfp_base2006 = 98.5

CPU2006 license: 9019

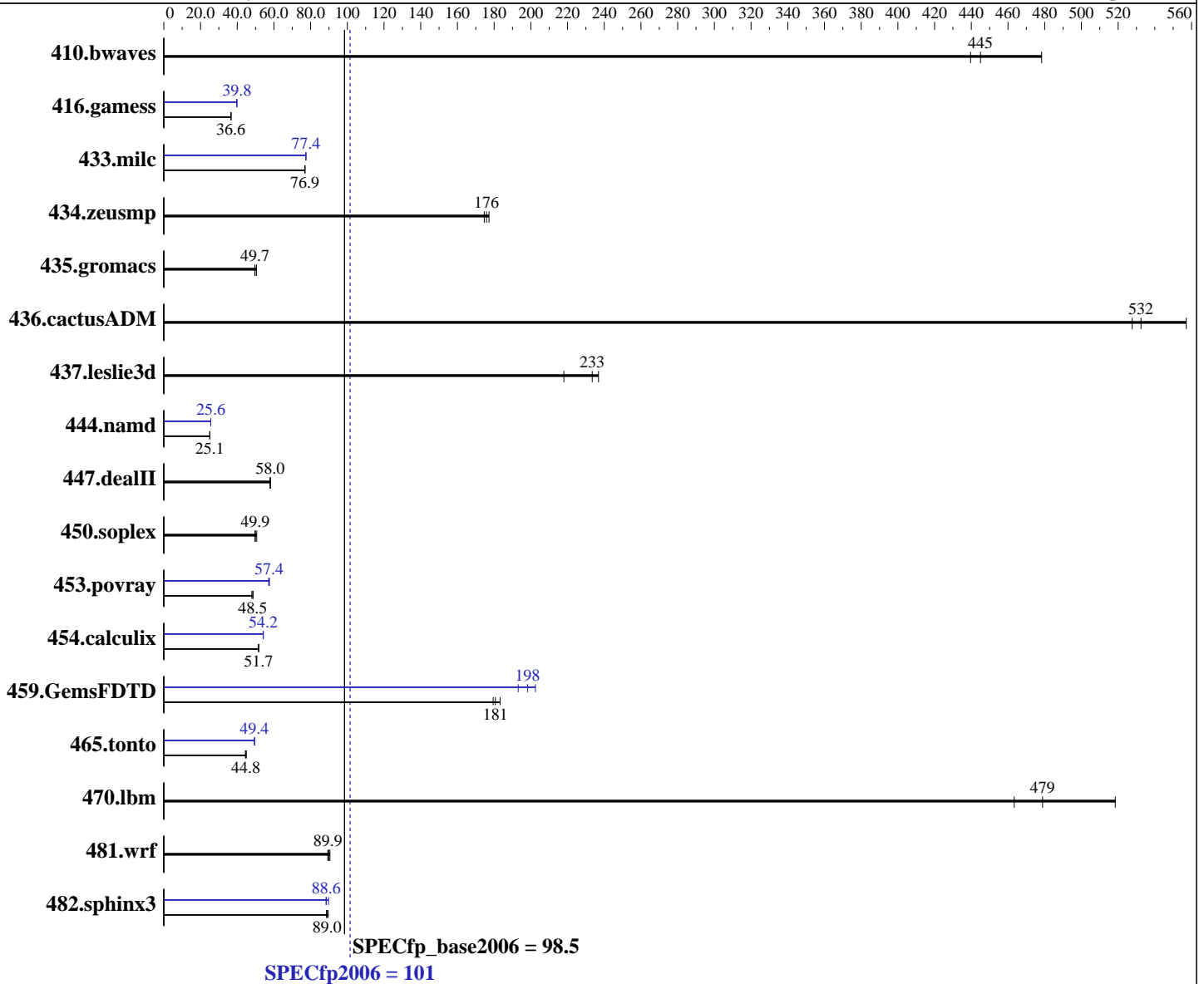
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2013

Hardware Availability: Dec-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2643 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
 CPU MHz: 3500
 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 6.4 (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: 25 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 X 300 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	<u>30.5</u>	<u>445</u>	28.4	478	30.9	440	<u>30.5</u>	<u>445</u>	28.4	478	30.9	440
416.gamess	535	36.6	535	36.6	<u>535</u>	<u>36.6</u>	492	39.8	<u>492</u>	<u>39.8</u>	492	39.8
433.milc	119	77.0	<u>119</u>	<u>76.9</u>	120	76.8	119	77.4	119	77.5	<u>119</u>	<u>77.4</u>
434.zeusmp	51.4	177	<u>51.7</u>	<u>176</u>	52.1	175	51.4	177	<u>51.7</u>	<u>176</u>	52.1	175
435.gromacs	<u>144</u>	<u>49.7</u>	144	49.6	141	50.6	<u>144</u>	<u>49.7</u>	144	49.6	141	50.6
436.cactusADM	22.6	528	21.4	557	<u>22.4</u>	<u>532</u>	22.6	528	21.4	557	<u>22.4</u>	<u>532</u>
437.leslie3d	39.7	237	43.1	218	<u>40.3</u>	<u>233</u>	39.7	237	43.1	218	<u>40.3</u>	<u>233</u>
444.namd	<u>320</u>	<u>25.1</u>	319	25.1	320	25.1	313	25.6	<u>313</u>	<u>25.6</u>	313	25.6
447.dealII	<u>197</u>	<u>58.0</u>	197	58.0	197	58.0	<u>197</u>	<u>58.0</u>	197	58.0	197	58.0
450.soplex	168	49.7	<u>167</u>	<u>49.9</u>	165	50.6	168	49.7	<u>167</u>	<u>49.9</u>	165	50.6
453.povray	<u>110</u>	<u>48.5</u>	109	48.6	111	47.9	93.1	57.1	<u>92.7</u>	<u>57.4</u>	92.5	57.5
454.calculix	159	51.7	<u>160</u>	<u>51.7</u>	160	51.5	152	54.2	<u>152</u>	<u>54.2</u>	152	54.2
459.GemsFDTD	<u>58.7</u>	<u>181</u>	59.1	179	57.9	183	<u>53.5</u>	<u>198</u>	52.4	203	54.9	193
465.tonto	219	44.9	<u>220</u>	<u>44.8</u>	221	44.5	<u>199</u>	<u>49.4</u>	199	49.6	199	49.4
470.lbm	26.5	518	29.7	463	<u>28.7</u>	<u>479</u>	26.5	518	29.7	463	<u>28.7</u>	<u>479</u>
481.wrf	123	90.5	125	89.4	<u>124</u>	<u>89.9</u>	123	90.5	125	89.4	<u>124</u>	<u>89.9</u>
482.sphinx3	217	89.6	<u>219</u>	<u>89.0</u>	220	88.6	<u>220</u>	<u>88.6</u>	220	88.4	217	89.8

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 = Disabled
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

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191

running on C240M3-ivb Mon Dec 9 14:59:16 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 E5-2643 v2 @ 3.50GHz

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 2 3 4 8 9 10

physical 1: cores 2 3 4 8 9 10

cache size : 25600 KB

From /proc/meminfo

MemTotal: 132126748 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 C240M3-ivb 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 Dec 9 14:58

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/sdal ext4 275G 35G 226G 14% /

Additional information from dmidecode:

BIOS Cisco Systems, Inc. C240M3.1.5.3b.0.082020130616 08/20/2013

Memory:

16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1866 MHz 2 rank

8x NO DIMM NO DIMM

(End of data from sysinfo program)



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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 = "12"
```

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.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 -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`

470.lbm: `basepeak = yes`

482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

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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: 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-V1.2.20130717.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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