



# SPEC® CFP2006 Result

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## Cisco Systems

SPECfp®2006 = **76.2**

Cisco UCS C240 M3 (Intel Xeon E5-2640, 2.50 GHz)

SPECfp\_base2006 = **73.3**

CPU2006 license: 9019

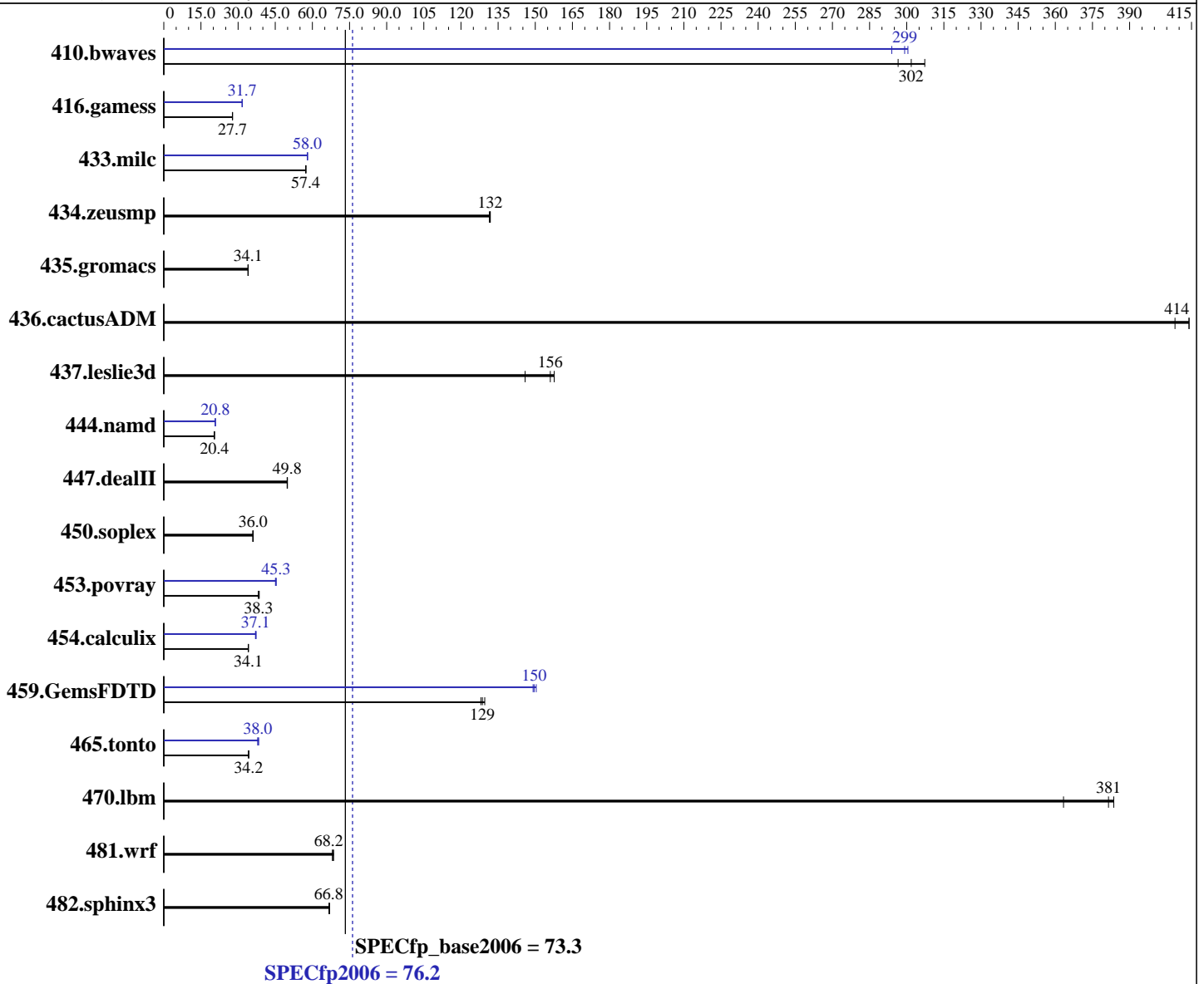
Test date: Apr-2012

Test sponsor: Cisco Systems

Hardware Availability: Jun-2012

Tested by: Cisco Systems

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2640  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 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 600 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	44.2	307	<b>45.0</b>	<b>302</b>	46.2	294	<b>45.4</b>	<b>299</b>	45.2	300
416.gamess	707	27.7	<b>706</b>	<b>27.7</b>	704	27.8	618	31.7	<b>618</b>	<b>31.7</b>	619	31.6
433.milc	<b>160</b>	<b>57.4</b>	160	57.3	160	57.4	<b>158</b>	<b>58.0</b>	158	58.0	158	58.0
434.zeusmp	69.0	132	69.2	131	<b>69.0</b>	<b>132</b>	69.0	132	69.2	131	<b>69.0</b>	<b>132</b>
435.gromacs	209	34.1	210	33.9	<b>210</b>	<b>34.1</b>	209	34.1	210	33.9	<b>210</b>	<b>34.1</b>
436.cactusADM	29.3	408	<b>28.9</b>	<b>414</b>	28.9	414	29.3	408	<b>28.9</b>	<b>414</b>	28.9	414
437.leslie3d	64.4	146	59.6	158	<b>60.2</b>	<b>156</b>	64.4	146	59.6	158	<b>60.2</b>	<b>156</b>
444.namd	392	20.4	<b>393</b>	<b>20.4</b>	393	20.4	<b>385</b>	<b>20.8</b>	386	20.8	385	20.8
447.dealII	229	49.9	<b>230</b>	<b>49.8</b>	230	49.8	229	49.9	<b>230</b>	<b>49.8</b>	230	49.8
450.soplex	231	36.1	<b>232</b>	<b>36.0</b>	232	35.9	231	36.1	<b>232</b>	<b>36.0</b>	232	35.9
453.povray	<b>139</b>	<b>38.3</b>	138	38.5	139	38.2	118	45.1	117	45.4	<b>117</b>	<b>45.3</b>
454.calculix	<b>242</b>	<b>34.1</b>	242	34.1	242	34.2	<b>223</b>	<b>37.1</b>	221	37.3	223	37.0
459.GemsFDTD	82.9	128	<b>82.5</b>	<b>129</b>	81.9	130	70.5	150	71.1	149	<b>70.9</b>	<b>150</b>
465.tonto	<b>287</b>	<b>34.2</b>	287	34.3	288	34.2	<b>259</b>	<b>38.0</b>	257	38.3	259	38.0
470.lbm	35.8	384	<b>36.0</b>	<b>381</b>	37.8	363	35.8	384	<b>36.0</b>	<b>381</b>	37.8	363
481.wrf	<b>164</b>	<b>68.2</b>	164	68.1	163	68.6	<b>164</b>	<b>68.2</b>	164	68.1	163	68.6
482.sphinx3	<b>292</b>	<b>66.8</b>	292	66.7	291	67.0	<b>292</b>	<b>66.8</b>	292	66.7	291	67.0

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 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 localhost.localdomain Mon Apr 30 10:11:53 2012

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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 : Genuine Intel(R) CPU @ 2.50GHz
 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 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      132103092 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 localhost.localdomain 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 30 10:07

```

SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      550G  9.9G  512G   2% /

```

```

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"

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



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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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