



SPEC[®] CFP2006 Result

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Cisco Systems

SPECfp[®]2006 = 79.6

Cisco UCS C22 M3 (Intel Xeon E5-2470, 2.30 GHz)

SPECfp_base2006 = 76.4

CPU2006 license: 9019

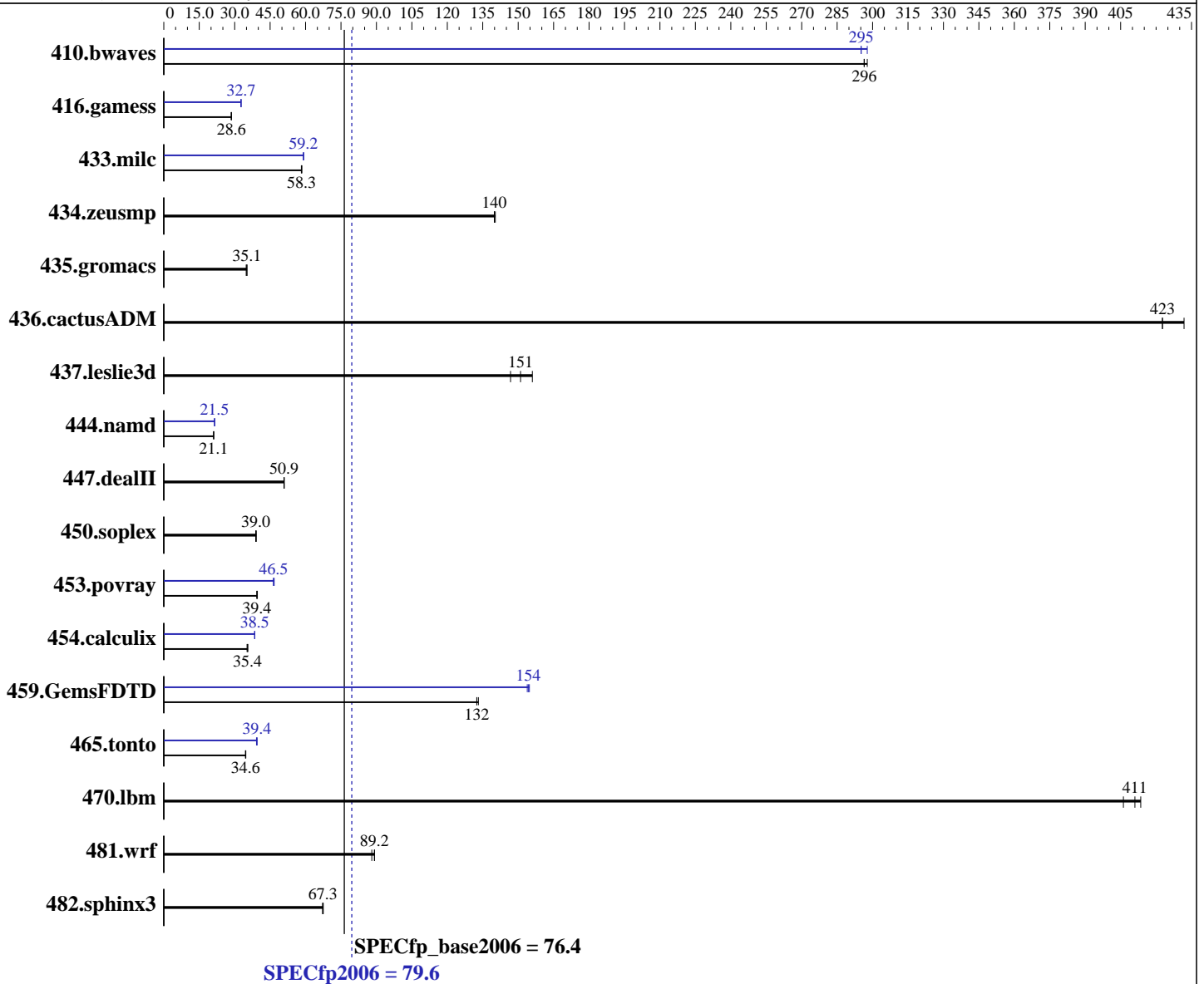
Test date: Jun-2012

Test sponsor: Cisco Systems

Hardware Availability: Aug-2012

Tested by: Cisco Systems

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 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: 20 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 146 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 | 45.8 | 296 | 45.8 | 296 | 45.6 | 298 | 45.6 | 298 | 46.0 | 295 | 46.0 | 295 |
| 416.gamess | 684 | 28.6 | 686 | 28.5 | 684 | 28.6 | 599 | 32.7 | 598 | 32.7 | 600 | 32.7 |
| 433.milc | 158 | 58.2 | 157 | 58.4 | 157 | 58.3 | 155 | 59.1 | 155 | 59.2 | 155 | 59.2 |
| 434.zeusmp | 65.0 | 140 | 64.8 | 140 | 65.0 | 140 | 65.0 | 140 | 64.8 | 140 | 65.0 | 140 |
| 435.gromacs | 203 | 35.2 | 205 | 34.9 | 203 | 35.1 | 203 | 35.2 | 205 | 34.9 | 203 | 35.1 |
| 436.cactusADM | 28.3 | 423 | 28.3 | 423 | 27.7 | 432 | 28.3 | 423 | 28.3 | 423 | 27.7 | 432 |
| 437.leslie3d | 60.3 | 156 | 62.3 | 151 | 64.0 | 147 | 60.3 | 156 | 62.3 | 151 | 64.0 | 147 |
| 444.namd | 380 | 21.1 | 380 | 21.1 | 380 | 21.1 | 373 | 21.5 | 373 | 21.5 | 373 | 21.5 |
| 447.dealII | 225 | 50.9 | 225 | 50.9 | 225 | 50.9 | 225 | 50.9 | 225 | 50.9 | 225 | 50.9 |
| 450.soplex | 214 | 38.9 | 213 | 39.1 | 214 | 39.0 | 214 | 38.9 | 213 | 39.1 | 214 | 39.0 |
| 453.povray | 135 | 39.4 | 135 | 39.4 | 134 | 39.6 | 115 | 46.4 | 114 | 46.5 | 114 | 46.7 |
| 454.calculix | 234 | 35.2 | 232 | 35.6 | 233 | 35.4 | 214 | 38.5 | 214 | 38.5 | 214 | 38.5 |
| 459.GemsFDTD | 80.1 | 132 | 80.1 | 132 | 79.7 | 133 | 68.6 | 155 | 69.0 | 154 | 68.8 | 154 |
| 465.tonto | 283 | 34.7 | 284 | 34.6 | 284 | 34.6 | 249 | 39.4 | 249 | 39.5 | 251 | 39.2 |
| 470.lbm | 33.2 | 414 | 33.8 | 406 | 33.4 | 411 | 33.2 | 414 | 33.8 | 406 | 33.4 | 411 |
| 481.wrf | 127 | 88.0 | 125 | 89.2 | 125 | 89.2 | 127 | 88.0 | 125 | 89.2 | 125 | 89.2 |
| 482.sphinx3 | 290 | 67.3 | 289 | 67.5 | 290 | 67.2 | 290 | 67.3 | 289 | 67.5 | 290 | 67.2 |

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

Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on localhost.localdomain Tue Jun 26 15:32:59 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>

From /proc/cpuinfo
 model name : Intel(R) Xeon(R) CPU E5-2470 0 @ 2.30GHz
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Platform Notes (Continued)

```

2 "physical id"s (chips)
32 "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  : 16
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:      99039988 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 Jun 26 15:27

SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal       ext4      134G  10G  118G   8% /

Additional information from dmidecode:
Memory:
12x 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,compact,1,0"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "16"
Intel HT Technology = enable
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

```



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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.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

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



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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

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

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Peak Optimization Flags (Continued)

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.

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