



SPEC[®] CFP2006 Result

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Cisco Systems

SPECfp[®]2006 = 53.5

Cisco UCS C420 M3 (Intel Xeon E5-4607, 2.20 GHz)

SPECfp_base2006 = 51.3

CPU2006 license: 9019

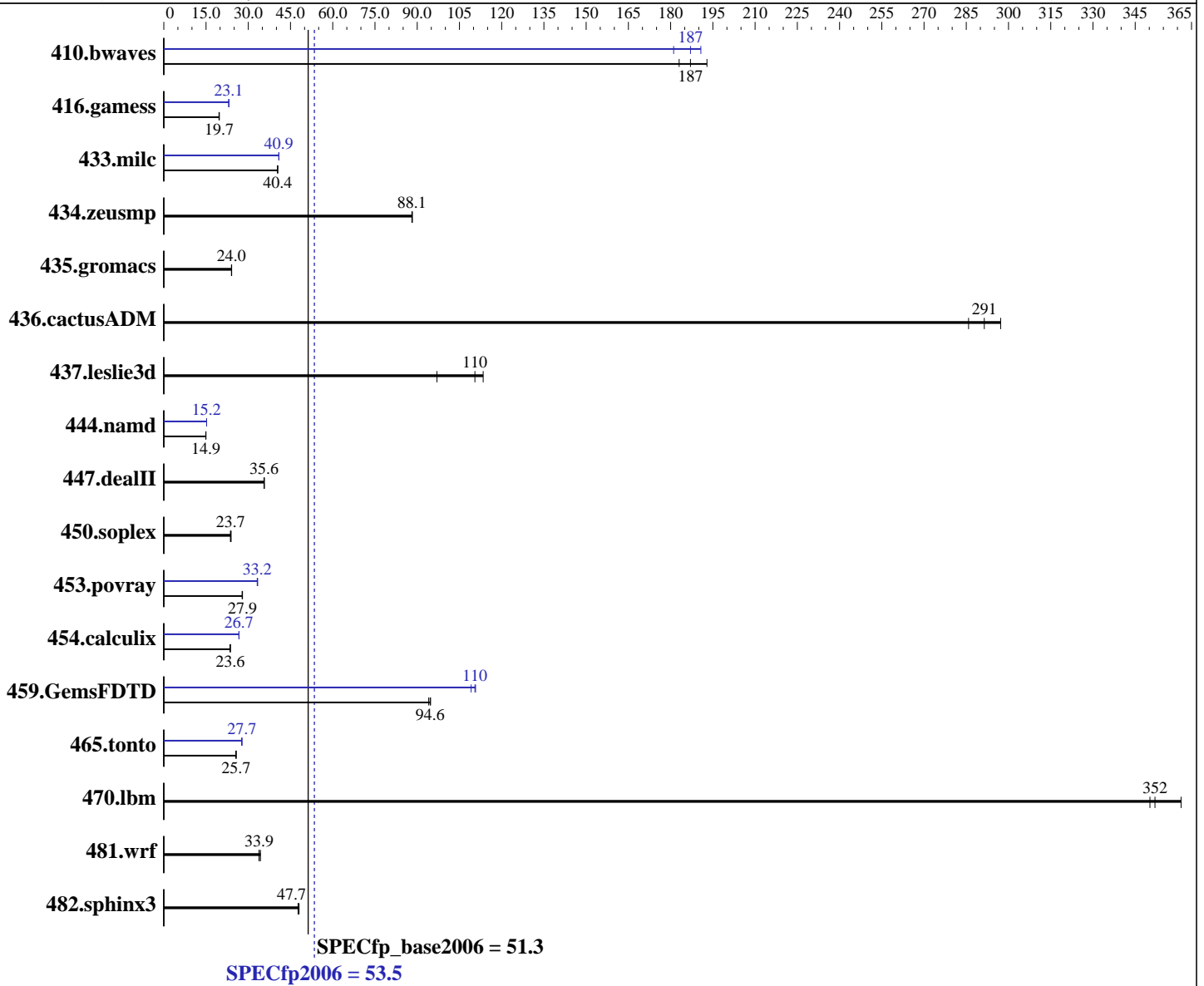
Test date: Feb-2013

Test sponsor: Cisco Systems

Hardware Availability: Nov-2012

Tested by: Cisco Systems

Software Availability: Feb-2012



Hardware	
CPU Name:	Intel Xeon E5-4607
CPU Characteristics:	
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	1,2,3,4 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: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 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	70.5	193	74.3	183	72.7	187	71.3	191	75.1	181	72.7	187
416.gamess	999	19.6	995	19.7	994	19.7	849	23.1	845	23.2	848	23.1
433.milc	227	40.5	227	40.4	227	40.4	225	40.9	225	40.9	225	40.9
434.zeusmp	103	88.1	103	88.3	103	88.1	103	88.1	103	88.3	103	88.1
435.gromacs	297	24.0	297	24.0	296	24.1	297	24.0	297	24.0	296	24.1
436.cactusADM	41.8	286	40.2	297	41.0	291	41.8	286	40.2	297	41.0	291
437.leslie3d	82.9	113	85.1	110	96.9	97.0	82.9	113	85.1	110	96.9	97.0
444.namd	537	14.9	537	14.9	537	14.9	527	15.2	527	15.2	527	15.2
447.dealII	321	35.7	321	35.6	321	35.6	321	35.7	321	35.6	321	35.6
450.soplex	352	23.7	349	23.9	352	23.7	352	23.7	349	23.9	352	23.7
453.povray	190	27.9	191	27.9	191	27.8	160	33.3	160	33.2	160	33.2
454.calculix	349	23.6	350	23.5	349	23.7	309	26.7	309	26.7	309	26.7
459.GemsFDTD	112	94.8	112	94.6	113	94.1	95.8	111	97.2	109	96.0	110
465.tonto	385	25.6	383	25.7	383	25.7	355	27.7	356	27.7	354	27.8
470.lbm	39.0	352	38.0	361	39.2	350	39.0	352	38.0	361	39.2	350
481.wrf	330	33.8	330	33.9	325	34.3	330	33.8	330	33.9	325	34.3
482.sphinx3	406	48.1	409	47.7	408	47.7	406	48.1	409	47.7	408	47.7

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 Thu Feb 28 22:06:55 2013

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info@spec.org

http://www.spec.org/

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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 E5-4607 0 @ 2.20GHz
 4 "physical id"s (chips)
 24 "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
physical 2:    : cores 0 1 2 3 4 5
physical 3:    : cores 0 1 2 3 4 5
```

cache size : 12288 KB

From /proc/meminfo

```
MemTotal:      529256772 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 Feb 28 22:06

SPEC is set to: /opt/cpu2006-1.2

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      458G  10G  425G   3% /
```

Additional information from dmidecode:

Memory:

32x 0xCE00 M393B2G70BH0-YK0 16 GB 1600 MHz 2 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 = "24"

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-ic13-official-linux64.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-ic13-official-linux64.xml>

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

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Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 15:28:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 23 April 2013.