SPEC® CFP2006 Result

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Cisco Systems

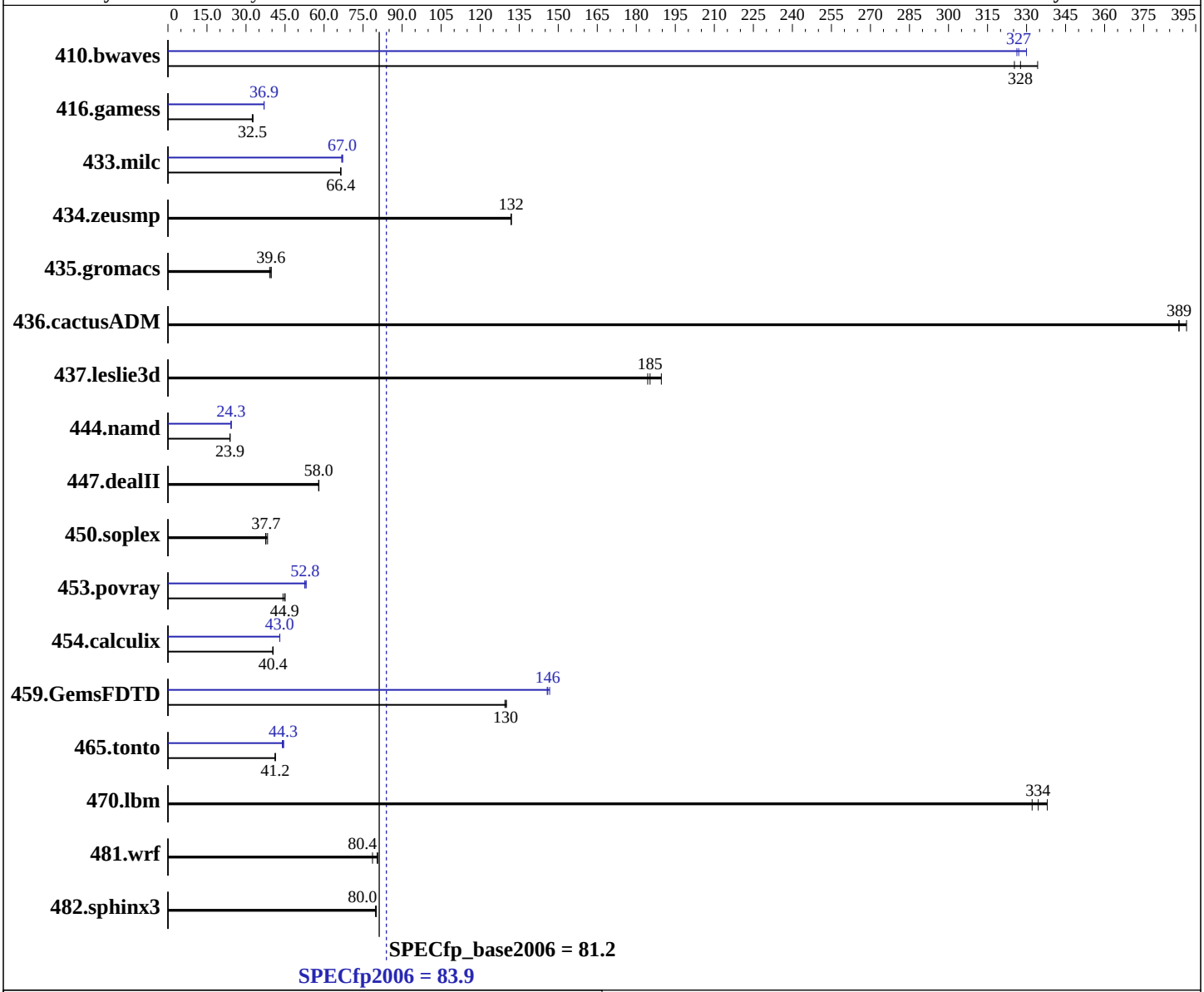
Cisco UCS C220 M3 (Intel Xeon E5-2643, 3.30 GHz)

SPECfp®2006 = 83.9

SPECfp_base2006 = 81.2

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Apr-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011



Hardware

CPU Name:	Intel Xeon E5-2643
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3300
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	10 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 300 GB 10000 RPM SAS
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	32/64-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	41.8	325	**41.5**	**328**	40.7	334	41.7	326	**41.6**	**327**	41.2	330
416.gamess	604	32.4	**602**	**32.5**	599	32.7	531	36.9	530	37.0	**530**	**36.9**
433.milc	**138**	**66.4**	138	66.4	138	66.4	**137**	**67.0**	137	67.1	137	66.8
434.zeusmp	69.0	132	69.0	132	**69.0**	**132**	69.0	132	69.0	132	**69.0**	**132**
435.gromacs	180	39.6	**180**	**39.6**	183	39.1	180	39.6	**180**	**39.6**	183	39.1
436.cactusADM	30.5	391	**30.7**	**389**	30.8	389	30.5	391	**30.7**	**389**	30.8	389
437.leslie3d	51.0	184	49.6	190	**50.7**	**185**	51.0	184	49.6	190	**50.7**	**185**
444.namd	336	23.9	**336**	**23.9**	336	23.9	330	24.3	330	24.3	**330**	**24.3**
447.dealII	198	57.9	**197**	**58.0**	197	58.0	198	57.9	**197**	**58.0**	197	58.0
450.soplex	**221**	**37.7**	218	38.3	222	37.6	**221**	**37.7**	218	38.3	222	37.6
453.povray	**119**	**44.9**	118	45.0	120	44.2	101	52.6	**101**	**52.8**	100	53.1
454.calculix	204	40.4	205	40.3	**204**	**40.4**	192	43.0	192	43.0	**192**	**43.0**
459.GemsFDTD	**81.7**	**130**	81.5	130	81.9	130	72.8	146	**72.7**	**146**	72.3	147
465.tonto	239	41.2	**239**	**41.2**	238	41.3	**222**	**44.3**	224	43.9	221	44.5
470.lbm	40.7	338	41.4	332	**41.1**	**334**	40.7	338	41.4	332	**41.1**	**334**
481.wrf	142	78.6	**139**	**80.4**	139	80.6	142	78.6	**139**	**80.4**	139	80.6
482.sphinx3	**244**	**80.0**	244	79.8	243	80.1	**244**	**80.0**	244	79.8	243	80.1

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 speccpu-rhel6.2 Thu Apr 19 10:58:54 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 : Intel(R) Xeon(R) CPU E5-2643 0 @ 3.30GHz
      2 "physical id"s (chips)
      8 "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 : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       132103616 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 speccpu-rhel6.2 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 19 10:50

SPEC is set to: /opt/cpu2006-1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda2      ext4    274G   10G  250G   4% /

Additional information from dmidecode:
  Memory:
   16x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 1 rank

(End of data from sysinfo program)
```

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"
```

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General Notes (Continued)

```
OMP_NUM_THREADS = "8"
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

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

Continued on next page

Base Optimization Flags (Continued)

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`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

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

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.

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