SPEC® CFP2006 Result
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Cisco Systems

Cisco UCS C22 M3 (Intel Xeon E5-2430, 2.20 GHz)

$SPECfp^{®}2006 =$ 60.0

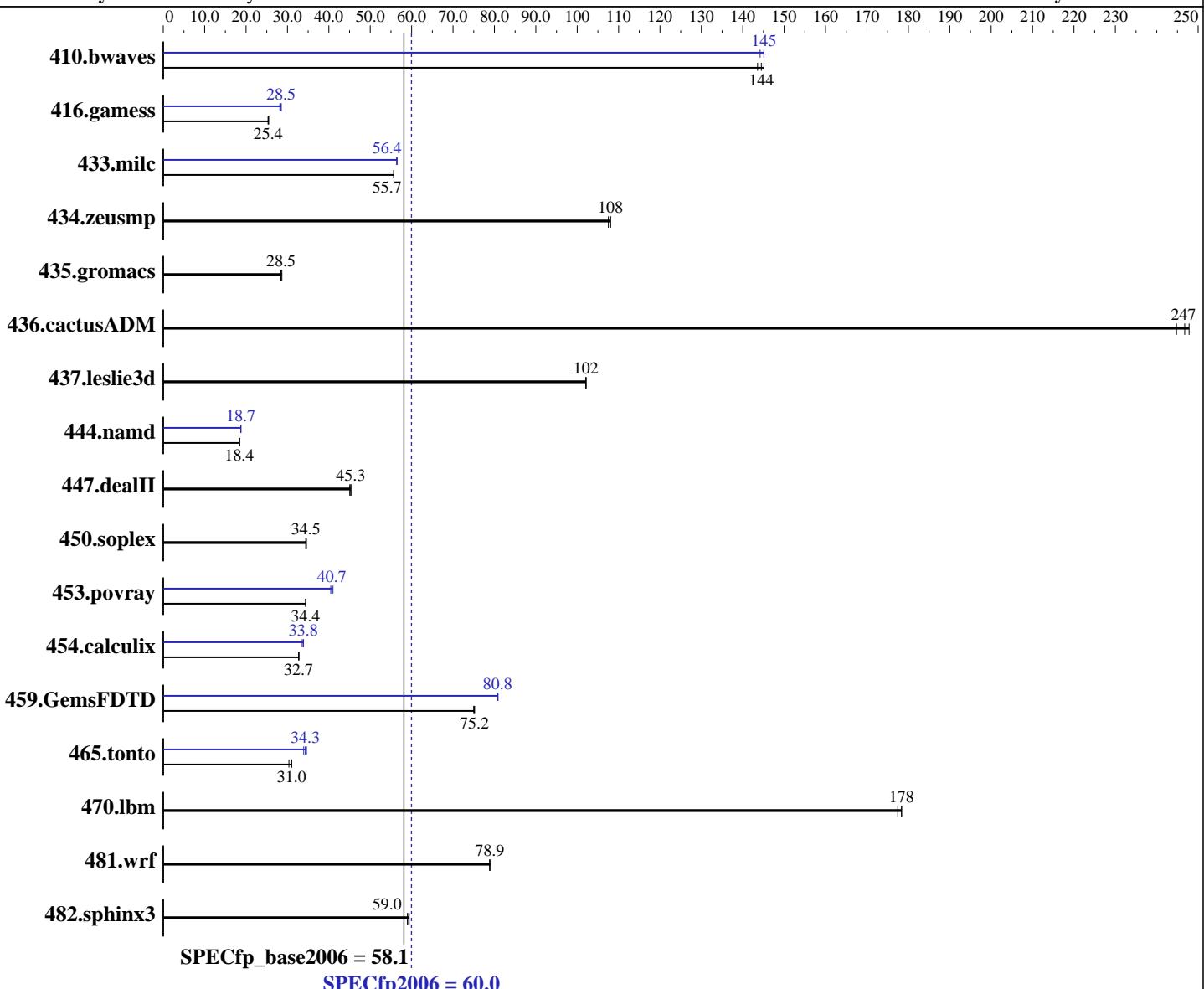$SPECfp\_base2006 =$ 58.1

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

Test date: Jan-2013
Hardware Availability: Sep-2012
Software Availability: Feb-2012

Benchmark	Result
410.bwaves	145 / 144
416.gamess	28.5 / 25.4
433.milc	56.4 / 55.7
434.zeusmp	108
435.gromacs	28.5
436.cactusADM	247
437.leslie3d	102
444.namd	18.7 / 18.4
447.dealII	45.3
450.soplex	34.5
453.povray	40.7 / 34.4
454.calculix	33.8 / 32.7
459.GemsFDTD	80.8 / 75.2
465.tonto	34.3 / 31.0
470.lbm	178
481.wrf	78.9
482.sphinx3	59.0

SPECfp_base2006 = 58.1
SPECfp2006 = 60.0

Hardware

CPU Name:	Intel Xeon E5-2430
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	6 cores, 1 chip, 6 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

Continued on next page

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

Continued on next page

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L3 Cache:	15 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 X 146 GB 15000 RAPM SAS		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	94.7	144	93.7	145	**94.1**	**144**	93.7	145	94.3	144	**93.7**	**145**
416.gamess	768	25.5	**772**	**25.4**	773	25.3	688	28.5	695	28.2	**688**	**28.5**
433.milc	165	55.7	165	55.7	**165**	**55.7**	163	56.4	**163**	**56.4**	163	56.4
434.zeusmp	84.2	108	84.6	108	**84.2**	**108**	84.2	108	84.6	108	**84.2**	**108**
435.gromacs	249	28.7	251	28.4	**251**	**28.5**	249	28.7	251	28.4	**251**	**28.5**
436.cactusADM	48.2	248	**48.4**	**247**	48.8	245	48.2	248	**48.4**	**247**	48.8	245
437.leslie3d	92.1	102	92.0	102	**92.1**	**102**	92.1	102	92.0	102	**92.1**	**102**
444.namd	**435**	**18.4**	436	18.4	435	18.4	**428**	**18.7**	428	18.8	428	18.7
447.dealII	254	45.0	**253**	**45.3**	252	45.3	254	45.0	**253**	**45.3**	252	45.3
450.soplex	241	34.6	**242**	**34.5**	242	34.4	241	34.6	**242**	**34.5**	242	34.4
453.povray	155	34.4	154	34.5	**155**	**34.4**	**131**	**40.7**	131	40.5	130	41.0
454.calculix	252	32.8	**252**	**32.7**	252	32.7	244	33.8	246	33.6	**244**	**33.8**
459.GemsFDTD	**141**	**75.2**	142	75.0	141	75.2	131	80.8	131	80.9	**131**	**80.8**
465.tonto	317	31.0	324	30.4	**317**	**31.0**	284	34.6	290	33.9	**287**	**34.3**
470.lbm	**77.0**	**178**	77.4	177	77.0	178	**77.0**	**178**	77.4	177	77.0	178
481.wrf	141	79.1	**142**	**78.9**	142	78.9	141	79.1	**142**	**78.9**	142	78.9
482.sphinx3	328	59.4	330	59.0	**330**	**59.0**	328	59.4	330	59.0	**330**	**59.0**

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

    Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
    $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
    running on localhost.localdomain Wed Jan 16 00:42:36 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

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Platform Notes (Continued)

```
   model name : Intel(R) Xeon(R) CPU E5-2430 0 @ 2.20GHz
      1 "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  : 12
      physical 0: cores 0 1 2 3 4 5
   cache size : 15360 KB

 From /proc/meminfo
   MemTotal:       49402300 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 Jan 16 00:38

 SPEC is set to: /opt/cpu2006-1.2
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda1      ext4    134G   25G  103G  20% /

 Additional information from dmidecode:
   Memory:
     6x 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,scatter"
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "6"
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
 Filesystem page cache cleared with:
```

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General Notes (Continued)

```
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
```

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

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Base Optimization Flags (Continued)

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:

> 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`

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Peak Optimization Flags (Continued)

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-linux64.20120425.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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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