SPEC® CFP2006 Result

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Cisco Systems

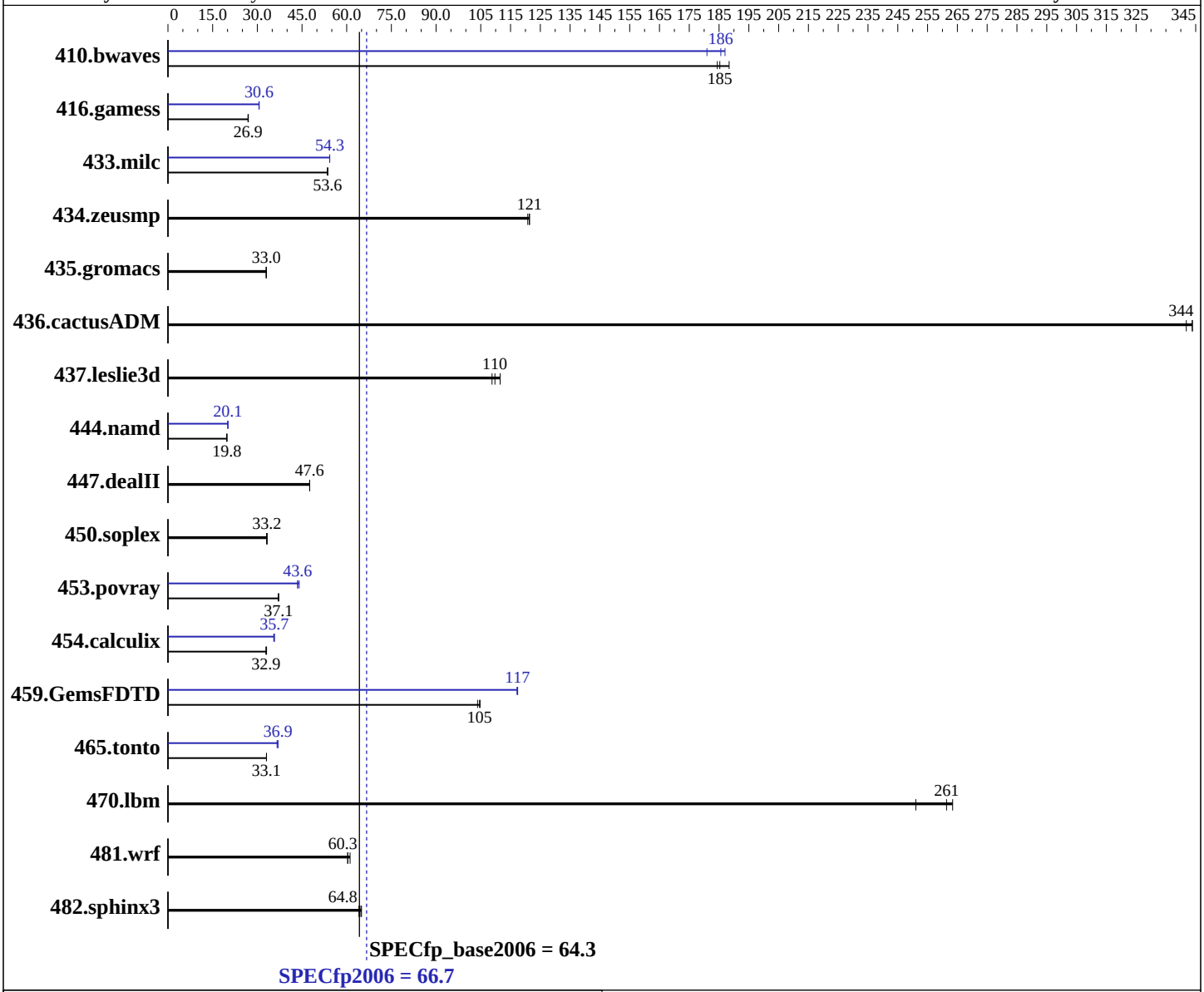
Cisco UCS C24 M3 (Intel Xeon E5-2440, 2.40 GHz)

SPECfp®2006 = 66.7

SPECfp_base2006 = 64.3

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

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



Hardware

CPU Name:	Intel Xeon E5-2440
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2400
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 CL9)
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	72.1	188	73.7	184	**73.4**	**185**	**73.2**	**186**	75.1	181	72.7	187
416.gamess	728	26.9	726	27.0	**728**	**26.9**	640	30.6	641	30.5	**640**	**30.6**
433.milc	171	53.6	**171**	**53.6**	172	53.5	169	54.3	**169**	**54.3**	169	54.3
434.zeusmp	**75.0**	**121**	75.0	121	75.3	121	**75.0**	**121**	75.0	121	75.3	121
435.gromacs	216	33.0	217	33.0	**216**	**33.0**	216	33.0	217	33.0	**216**	**33.0**
436.cactusADM	35.0	342	**34.8**	**344**	34.7	344	35.0	342	**34.8**	**344**	34.7	344
437.leslie3d	86.4	109	**85.6**	**110**	84.3	112	86.4	109	**85.6**	**110**	84.3	112
444.namd	406	19.8	**406**	**19.8**	406	19.8	**399**	**20.1**	398	20.1	399	20.1
447.dealII	241	47.6	240	47.6	**240**	**47.6**	241	47.6	240	47.6	**240**	**47.6**
450.soplex	252	33.1	**251**	**33.2**	251	33.3	252	33.1	**251**	**33.2**	251	33.3
453.povray	143	37.1	**143**	**37.1**	143	37.1	122	43.5	121	44.1	**122**	**43.6**
454.calculix	249	33.1	251	32.9	**250**	**32.9**	**231**	**35.7**	231	35.7	232	35.5
459.GemsFDTD	101	105	**101**	**105**	102	104	90.4	117	**90.4**	**117**	90.6	117
465.tonto	**298**	**33.1**	297	33.1	298	33.1	269	36.6	**267**	**36.9**	266	37.0
470.lbm	52.2	263	54.7	251	**52.6**	**261**	52.2	263	54.7	251	**52.6**	**261**
481.wrf	183	61.1	**185**	**60.3**	185	60.3	183	61.1	**185**	**60.3**	185	60.3
482.sphinx3	**301**	**64.8**	300	65.0	304	64.1	**301**	**64.8**	300	65.0	304	64.1

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

```
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon Jun  4 07:13:22 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
```

Continued on next page

Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E5-2440 0 @ 2.40GHz
         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:       99042484 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 4 05:55

   SPEC is set to: /opt/cpu2006-1.2
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/sda1      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,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
```

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General Notes (Continued)

```
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
```

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 other inquiries, please contact webmaster@spec.org.

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