SPEC® CFP2006 Result

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Cisco Systems

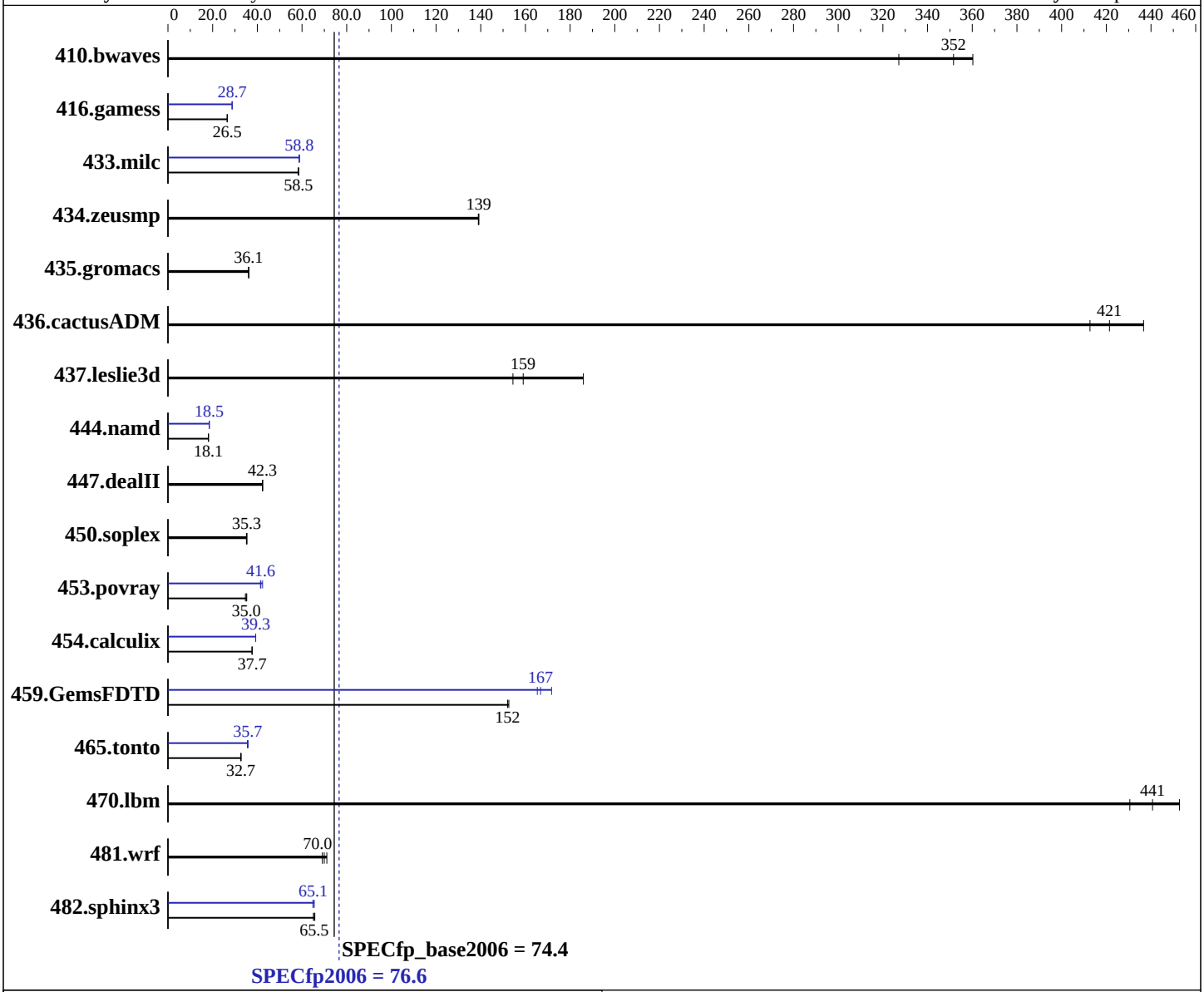
Cisco UCS C240 M3 (Intel Xeon E5-2630L v2, 2.40 GHz)

SPECfp®2006 = 76.6

SPECfp_base2006 = 74.4

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

Test date: Dec-2013
Hardware Availability: Dec-2013
Software Availability: Sep-2013



Hardware

CPU Name:	Intel Xeon E5-2630L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 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

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 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 PC3-14900R-13, ECC, running at 1600 MHz and CL11)
Disk Subsystem: 1 X 300 GB 15000 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	37.7	360	**38.6**	**352**	41.5	327	37.7	360	**38.6**	**352**	41.5	327
416.gamess	737	26.5	**738**	**26.5**	738	26.5	**681**	**28.7**	681	28.7	682	28.7
433.milc	**157**	**58.5**	157	58.3	157	58.5	156	58.9	156	58.7	**156**	**58.8**
434.zeusmp	65.4	139	**65.4**	**139**	65.5	139	65.4	139	**65.4**	**139**	65.5	139
435.gromacs	198	36.1	197	36.2	**198**	**36.1**	198	36.1	197	36.2	**198**	**36.1**
436.cactusADM	29.0	413	**28.4**	**421**	27.4	437	29.0	413	**28.4**	**421**	27.4	437
437.leslie3d	60.9	154	50.6	186	**59.1**	**159**	60.9	154	50.6	186	**59.1**	**159**
444.namd	443	18.1	**443**	**18.1**	443	18.1	434	18.5	434	18.5	**434**	**18.5**
447.dealII	270	42.3	270	42.3	**270**	**42.3**	270	42.3	270	42.3	**270**	**42.3**
450.soplex	237	35.1	236	35.3	**236**	**35.3**	237	35.1	236	35.3	**236**	**35.3**
453.povray	154	34.7	**152**	**35.0**	151	35.3	126	42.4	128	41.4	**128**	**41.6**
454.calculix	**219**	**37.7**	219	37.6	219	37.7	**210**	**39.3**	210	39.3	210	39.3
459.GemsFDTD	**69.8**	**152**	69.5	153	69.8	152	**63.6**	**167**	61.8	172	64.2	165
465.tonto	302	32.5	301	32.7	**301**	**32.7**	274	35.8	**276**	**35.7**	277	35.5
470.lbm	30.3	453	**31.2**	**441**	31.9	431	30.3	453	**31.2**	**441**	31.9	431
481.wrf	157	71.1	162	69.1	**160**	**70.0**	157	71.1	162	69.1	**160**	**70.0**
482.sphinx3	**298**	**65.5**	296	65.7	299	65.1	**300**	**65.1**	300	64.9	298	65.5

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 Settings:
Intel HT Technology = Disabled
CPU performance set to HPC
Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State C1 Enhanced set to Disabled
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
```

Continued on next page

Platform Notes (Continued)

```
 LV DDR Mode set to Performance-mode
 DRAM Refresh Rate Set to 1x
  Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
  $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
  running on C240M3 Fri Dec 20 10:10:09 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
     model name : Intel(R) Xeon(R) CPU E5-2630L v2 @ 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:       132126788 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.4 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux C240M3 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
     x86_64 x86_64 GNU/Linux

  run-level 3 Dec 20 03:00

  SPEC is set to: /opt/cpu2006-1.2
     Filesystem     Type    Size  Used Avail Use% Mounted on
     /dev/sda1      ext4    275G   36G  225G  14% /

  Additional information from dmidecode:
    BIOS Cisco Systems, Inc. C240M3.1.5.3b.0.082020130616 08/20/2013
    Memory:
     16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1600 MHz 2 rank
     8x NO DIMM NO DIMM
```

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Platform Notes (Continued)

```
(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"
OMP_NUM_THREADS = "12"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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
```

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Base Portability Flags (Continued)

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 -parallel -opt-prefetch -ansi-alias`

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

Fortran benchmarks:
`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xAVX -ipo -O3 -no-prec-div -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) `-auto-ilp32` `-ansi-alias`

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Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

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: basepeak = yes

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-

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 21:19:16 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 January 2014.