SPEC® CFP2006 Result

Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

$SPECfp^®\_rate2006 =$ 832

SPECfp_rate_base2006 = 810

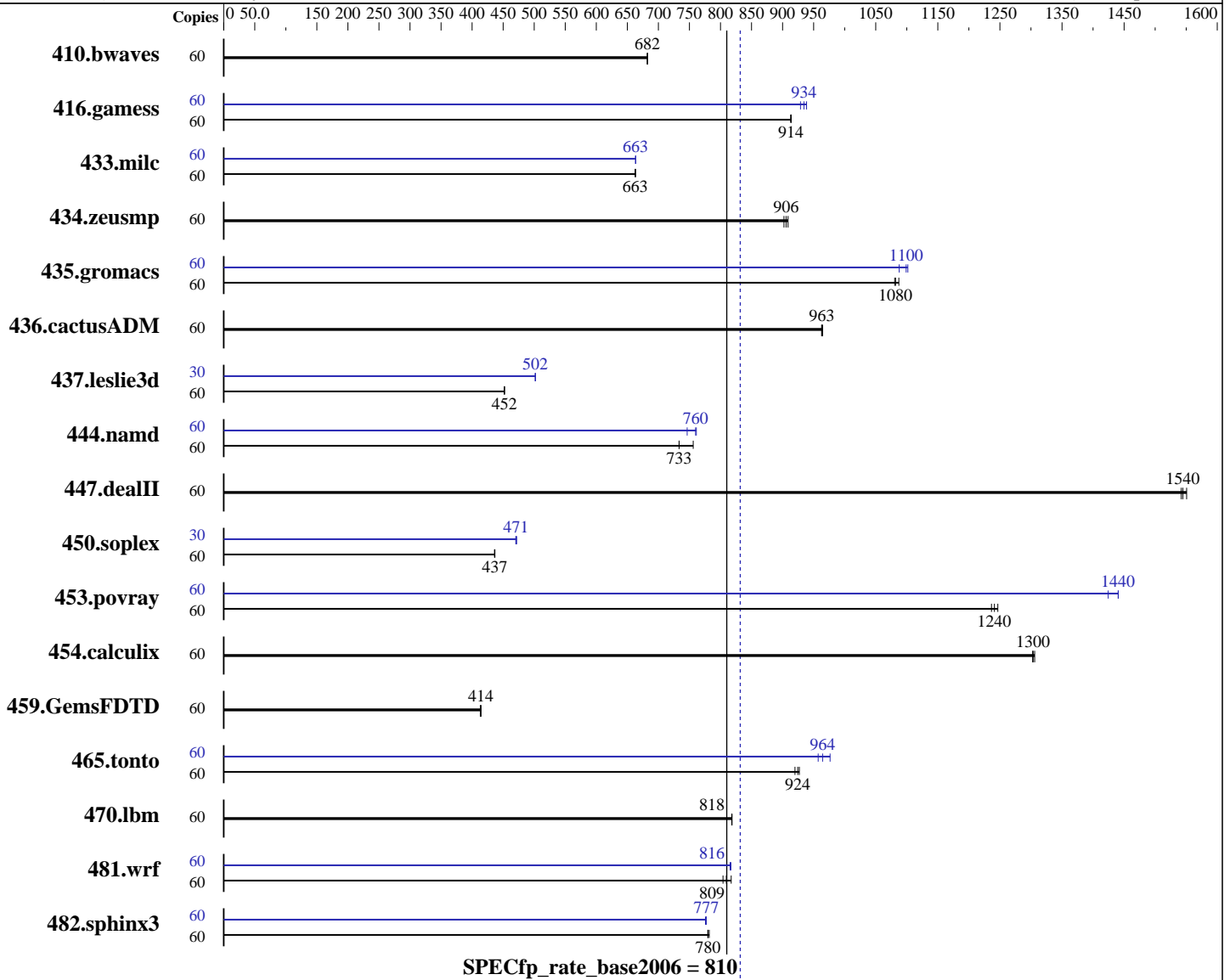| Copies		
410.bwaves	60	682
416.gamess	60	934
	60	914
433.milc	60	663
	60	663
434.zeusmp	60	906
435.gromacs	60	1100
	60	1080
436.cactusADM	60	963
437.leslie3d	30	502
	60	452
444.namd	60	760
	60	733
447.dealII	60	1540
450.soplex	30	471
	60	437
453.povray	60	1440
	60	1240
454.calculix	60	1300
459.GemsFDTD	60	414
465.tonto	60	964
	60	924
470.lbm	60	818
481.wrf	60	816
	60	809
482.sphinx3	60	777
	60	780

SPECfp_rate_base2006 = 810

SPECfp_rate2006 = 832

Hardware

CPU Name: Intel Xeon E7-4880 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 30 cores, 2 chips, 15 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 6.4 (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: No
File System: ext4
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$SPECfp\_rate2006 =$ 832

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CPU2006 license: 9019	**Test date:** Mar-2014
Test sponsor: Cisco Systems	**Hardware Availability:** May-2014
Tested by: Cisco Systems	**Software Availability:** Sep-2013

L3 Cache:	37.5 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (32 x 8 GB 2Rx4 PC3L-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 X 300 GB 15000 RPM SAS	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	60	**1195**	**682**	1195	683	1196	682	60	**1195**	**682**	1195	683	1196	682
416.gamess	60	**1286**	**914**	1287	913	1286	914	60	**1257**	**934**	1265	929	1252	939
433.milc	60	**831**	**663**	831	663	831	663	60	830	663	**830**	**663**	830	663
434.zeusmp	60	605	902	**603**	**906**	601	909	60	605	902	**603**	**906**	601	909
435.gromacs	60	394	1090	396	1080	**396**	**1080**	60	394	1090	**390**	**1100**	389	1100
436.cactusADM	60	743	965	**745**	**963**	745	963	60	743	965	**745**	**963**	745	963
437.leslie3d	60	1248	452	1248	452	**1248**	**452**	30	562	502	**562**	**502**	562	502
444.namd	60	**656**	**733**	636	756	656	733	60	632	761	645	746	**633**	**760**
447.dealII	60	445	1540	**444**	**1540**	443	1550	60	445	1540	**444**	**1540**	443	1550
450.soplex	60	1148	436	**1146**	**437**	1146	437	30	530	472	532	471	**532**	**471**
453.povray	60	258	1240	256	1250	**257**	**1240**	60	**222**	**1440**	222	1440	224	1420
454.calculix	60	379	1310	380	1300	**380**	**1300**	60	379	1310	380	1300	**380**	**1300**
459.GemsFDTD	60	1541	413	**1537**	**414**	1537	414	60	1541	413	**1537**	**414**	1537	414
465.tonto	60	**639**	**924**	637	927	642	920	60	**612**	**964**	617	957	605	977
470.lbm	60	1008	818	**1008**	**818**	1007	819	60	1008	818	**1008**	**818**	1007	819
481.wrf	60	**828**	**809**	820	817	834	804	60	821	817	822	816	**821**	**816**
482.sphinx3	60	1496	782	1500	780	**1500**	**780**	60	1507	776	1505	777	**1505**	**777**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl commands to bind each copy to a specific processor.
    For details, please see the config file.

Operating System Notes

    Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

    Intel HT Technology = Enabled
    CPU performance set to HPC
    Power Technology set to Custom

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Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

SPECfp_rate2006 = 832

SPECfp_rate_base2006 = 810

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

Test date: Mar-2014
Hardware Availability: May-2014
Software Availability: Sep-2013

Platform Notes (Continued)

```
CPU Power State C6 set to Disabled
CPU Power State C1 Enhanced set to Disabled
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
 Sysinfo program /opt/cpu2006-1.4/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on specompcpu Fri Mar  7 09:58:09 2014

 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 E7-4880 v2 @ 2.50GHz
       2 "physical id"s (chips)
       60 "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 : 15
       siblings  : 30
       physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
       physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
    cache size : 38400 KB

 From /proc/meminfo
    MemTotal:       264101816 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 specompcpu 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 Feb 21 14:48

 SPEC is set to: /opt/cpu2006-1.4
    Filesystem     Type    Size  Used Avail Use% Mounted on
    /dev/sda1      ext4    275G   29G  232G  12% /

 Additional information from dmidecode:
   BIOS Cisco Systems, Inc. EXM4-1.2.2.1.12.012920142034 01/29/2014
   Memory:
    32x   8 GB
```

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Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

$SPECfp_rate2006 = $ 832

$SPECfp_rate_base2006 = $ 810

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

Test date: Mar-2014
Hardware Availability: May-2014
Software Availability: Sep-2013

Platform Notes (Continued)

```
       32x 0xCE00 M393B1K70QB0-YK0 8 GB 1333 MHz 2 rank
       16x NO DIMM NO DIMM

    (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/opt/cpu2006-1.4/libs/32:/opt/cpu2006-1.4/libs/64:/opt/cpu2006-1.4/sh"

  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
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
  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
```

SPEC CFP2006 Result
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Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

SPECfp_rate2006 =   832

SPECfp_rate_base2006 =   810

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

Test date: Mar-2014
Hardware Availability: May-2014
Software Availability: Sep-2013

Base Portability Flags (Continued)

```
      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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

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

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

```
      482.sphinx3: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```

```
       450.soplex: icpc -m32
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

SPEC CFP2006 Result

Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

$SPECfp\_rate2006 =$ 832

$SPECfp\_rate\_base2006 =$ 810

CPU2006 license:	9019	**Test date:**	Mar-2014
Test sponsor:	Cisco Systems	**Hardware Availability:**	May-2014
Tested by:	Cisco Systems	**Software Availability:**	Sep-2013

Peak 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
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
```

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) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -auto-ilp32

   470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
            -unroll2
```

C++ benchmarks:

```
  444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -fno-alias -auto-ilp32

 447.dealII: basepeak = yes

 450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -opt-malloc-options=3

 453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
            -prof-use(pass 2) -unroll4 -ansi-alias
```

Fortran benchmarks:

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Cisco Systems

Cisco UCS B260 M4 (Intel Xeon E7-2880 v2, 2.50 GHz)

SPECfp_rate2006 =   832

SPECfp_rate_base2006 =   810

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

Test date: Mar-2014
Hardware Availability: May-2014
Software Availability: Sep-2013

Peak Optimization Flags (Continued)

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
 -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
 -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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-V1.2.20140311.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-V1.2.20140311.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 22:21:09 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 May 2014.