SPEC® CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

$SPECfp^{®}\_rate2006 =$ 927
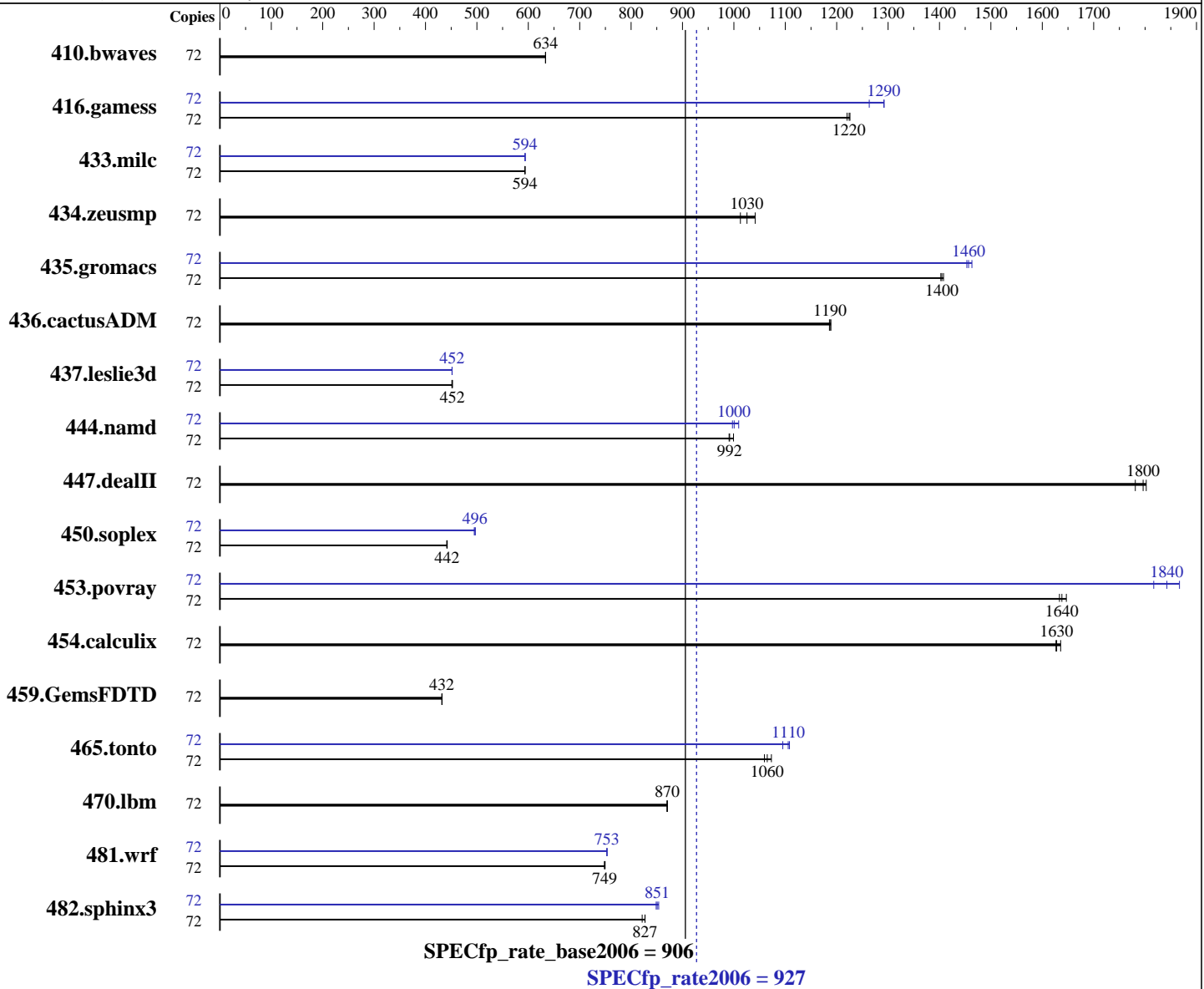
$SPECfp\_rate\_base2006 =$ 906

Copies

Benchmark	Copies	Result
410.bwaves	72	634
416.gamess	72 / 72	1290 / 1220
433.milc	72 / 72	594 / 594
434.zeusmp	72	1030
435.gromacs	72 / 72	1460 / 1400
436.cactusADM	72	1190
437.leslie3d	72 / 72	452 / 452
444.namd	72 / 72	1000 / 992
447.dealII	72	1800
450.soplex	72 / 72	496 / 442
453.povray	72 / 72	1840 / 1640
454.calculix	72	1630
459.GemsFDTD	72	432
465.tonto	72 / 72	1110 / 1060
470.lbm	72	870
481.wrf	72 / 72	753 / 749
482.sphinx3	72 / 72	851 / 827

SPECfp_rate_base2006 = 906

SPECfp_rate2006 = 927

Hardware

CPU Name:	Intel Xeon E5-2699 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
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 6.5 (Santiago) 2.6.32-431.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

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

$SPECfp\_rate2006 =$ 927

$SPECfp\_rate\_base2006 =$ 906

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

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 600GB SAS, 10K RPM
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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	72	1544	634	1544	634	**1544**	**634**	72	1544	634	1544	634	**1544**	**634**
416.gamess	72	1150	1230	1155	1220	**1152**	**1220**	72	1116	1260	1091	1290	**1091**	**1290**
433.milc	72	1114	593	**1114**	**594**	1113	594	72	1113	594	1113	594	**1113**	**594**
434.zeusmp	72	629	1040	647	1010	**639**	**1030**	72	629	1040	647	1010	**639**	**1030**
435.gromacs	72	**366**	**1400**	367	1400	365	1410	72	354	1450	351	1460	**353**	**1460**
436.cactusADM	72	**725**	**1190**	724	1190	726	1190	72	**725**	**1190**	724	1190	726	1190
437.leslie3d	72	1496	452	**1496**	**452**	1500	451	72	**1498**	**452**	1498	452	1499	452
444.namd	72	578	999	**582**	**992**	583	991	72	579	997	572	1010	**577**	**1000**
447.dealII	72	462	1780	**459**	**1800**	457	1800	72	462	1780	**459**	**1800**	457	1800
450.soplex	72	**1358**	**442**	1358	442	1361	441	72	1208	497	1213	495	**1210**	**496**
453.povray	72	235	1630	233	1650	**234**	**1640**	72	205	1870	**208**	**1840**	211	1820
454.calculix	72	363	1640	**365**	**1630**	365	1630	72	363	1640	**365**	**1630**	365	1630
459.GemsFDTD	72	1768	432	1768	432	**1768**	**432**	72	1768	432	1768	432	**1768**	**432**
465.tonto	72	660	1070	**665**	**1060**	669	1060	72	**641**	**1110**	647	1100	639	1110
470.lbm	72	**1137**	**870**	1137	870	1136	871	72	**1137**	**870**	1137	870	1136	871
481.wrf	72	1075	748	**1074**	**749**	1073	749	72	1068	753	1068	753	**1068**	**753**
482.sphinx3	72	1696	827	**1697**	**827**	1708	822	72	1644	854	1653	849	**1649**	**851**

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

CPU performance set to HPC
Power Technology set to Custom
Processor Power State C6 set to Disabled

Continued on next page

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

SPECfp_rate2006 =   927

SPECfp_rate_base2006 =   906

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

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

Platform Notes (Continued)

```
  Energy Performance BIAS setting set to Balanced Performance
  Memory RAS configuration set to Maximum Performance
   Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
   $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
   running on rhel65 Tue Nov 18 04:05:26 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 E5-2699 v3 @ 2.30GHz
         2 "physical id"s (chips)
         72 "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 : 18
         siblings  : 36
         physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      cache size : 23040 KB

   From /proc/meminfo
      MemTotal:       264253464 kB
      HugePages_Total:        0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.5 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux rhel65 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
      x86_64 x86_64 GNU/Linux

   run-level 3 Nov 17 15:43

   SPEC is set to: /opt/cpu2006-1.2
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      ext4  500G   74G  402G  16% /

   Additional information from dmidecode:
     BIOS Cisco Systems, Inc. B200M4.2.2.3c.0.101420141352 10/14/2014
     Memory:
     16x 0xCE00 M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank
     8x NO DIMM NO DIMM
```

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

SPECfp_rate2006 =   927

SPECfp_rate_base2006 =   906

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

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

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"

 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
  454.calculix: -DSPEC_CPU_LP64 -nofor_main
 459.GemsFDTD: -DSPEC_CPU_LP64
    465.tonto: -DSPEC_CPU_LP64
```

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

SPECfp_rate2006 =   927

SPECfp_rate_base2006 =   906

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Nov-2013

Base Portability Flags (Continued)

```
    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:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
    -xCORE-AVX2 -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
```

Peak Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
```

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

SPECfp_rate2006 =   927

SPECfp_rate_base2006 =   906

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

Peak Portability Flags (Continued)

```
     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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
               -unroll2
```

C++ benchmarks:

```
     444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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
```

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

SPECfp_rate2006 = 927

SPECfp_rate_base2006 = 906

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

Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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-revC.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-revC.xml

Cisco Systems

Cisco UCS B200 M4 (Intel Xeon E5-2699 v3 @ 2.30GHz)

$SPECfp\_rate2006 =$ 927

$SPECfp\_rate\_base2006 =$ 906

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

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Nov-2013

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 Tue Dec 16 13:11:49 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 16 December 2014.