SPEC® CFP2006 Result

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

$SPECfp^{®}\_rate2006 =$ 1800

$SPECfp\_rate\_base2006 =$ 1770
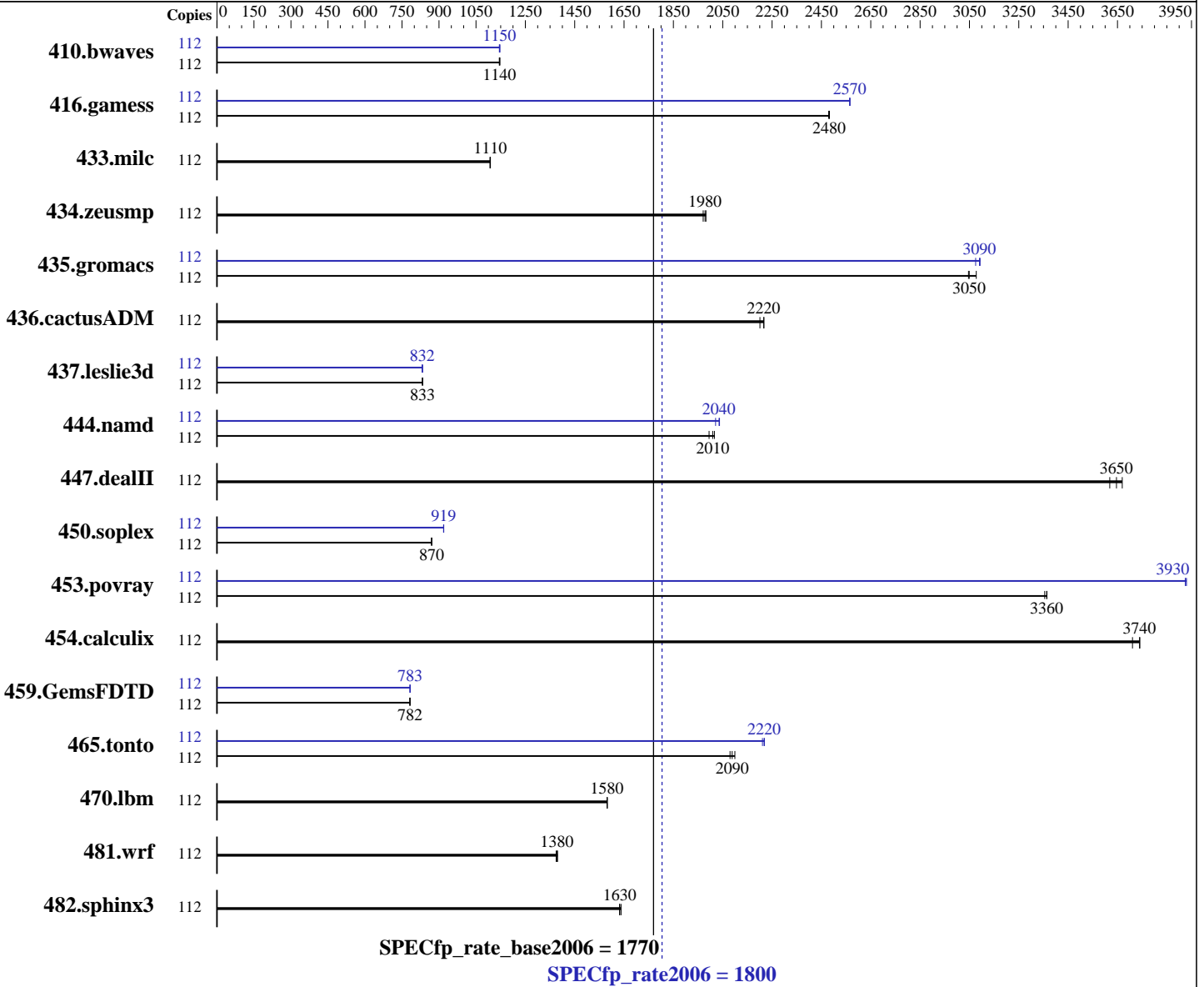
CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Nov-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Benchmark	Copies	Base	Peak
410.bwaves	112	1140	1150
416.gamess	112	2480	2570
433.milc	112	1110	
434.zeusmp	112	1980	
435.gromacs	112	3050	3090
436.cactusADM	112	2220	
437.leslie3d	112	833	832
444.namd	112	2010	2040
447.dealII	112	3650	
450.soplex	112	870	919
453.povray	112	3360	3930
454.calculix	112	3740	
459.GemsFDTD	112	782	783
465.tonto	112	2090	2220
470.lbm	112	1580	
481.wrf	112	1380	
482.sphinx3	112	1630	

SPECfp_rate_base2006 = 1770
SPECfp_rate2006 = 1800

Hardware

CPU Name:	Intel Xeon Platinum 8180M
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	56 cores, 2 chips, 28 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:	1 MB I+D on chip per core

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 =   1800

SPECfp_rate_base2006 = 1770

CPU2006 license: 9019	**Test date:** Nov-2017
Test sponsor: Cisco Systems	**Hardware Availability:** Aug-2017
Tested by: Cisco Systems	**Software Availability:** Apr-2017

L3 Cache:	38.5 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)	Other Software:	None
Disk Subsystem:	1 x 600 GB SAS HDD, 10K RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	112	**1329**	**1140**	1327	1150	1330	1140	112	1330	1140	**1329**	**1150**	1327	1150
416.gamess	112	883	2480	884	2480	**884**	**2480**	112	**855**	**2570**	855	2560	855	2570
433.milc	112	**928**	**1110**	928	1110	929	1110	112	**928**	**1110**	928	1110	929	1110
434.zeusmp	112	514	1980	517	1970	**515**	**1980**	112	514	1980	517	1970	**515**	**1980**
435.gromacs	112	263	3050	260	3080	**262**	**3050**	112	260	3080	259	3090	**259**	**3090**
436.cactusADM	112	608	2200	**604**	**2220**	604	2220	112	608	2200	**604**	**2220**	604	2220
437.leslie3d	112	1264	833	**1263**	**833**	1263	833	112	1266	832	**1265**	**832**	1263	834
444.namd	112	**447**	**2010**	445	2020	450	1990	112	**441**	**2040**	444	2020	441	2040
447.dealII	112	354	3620	349	3670	**351**	**3650**	112	354	3620	349	3670	**351**	**3650**
450.soplex	112	1074	870	1073	870	**1073**	**870**	112	**1016**	**919**	1016	919	1017	918
453.povray	112	177	3360	178	3360	**177**	**3360**	112	152	3930	**152**	**3930**	152	3930
454.calculix	112	249	3710	**247**	**3740**	247	3740	112	249	3710	**247**	**3740**	247	3740
459.GemsFDTD	112	1520	782	1518	783	**1519**	**782**	112	**1518**	**783**	1519	782	1517	783
465.tonto	112	525	2100	530	2080	**528**	**2090**	112	**497**	**2220**	497	2220	498	2210
470.lbm	112	973	1580	973	1580	**973**	**1580**	112	973	1580	973	1580	**973**	**1580**
481.wrf	112	**907**	**1380**	910	1370	906	1380	112	**907**	**1380**	910	1370	906	1380
482.sphinx3	112	1338	1630	**1337**	**1630**	1333	1640	112	1338	1630	**1337**	**1630**	1333	1640

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

BIOS Settings:
Intel HyperThreading Technology set to Enabled
CPU performance set to Enterprise

Continued on next page

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 =   1800

SPECfp_rate_base2006 = 1770

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

Test date: Nov-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Platform Notes (Continued)

```
Power Performance Tuning set to OS
SNC set to Enabled
IMC Interleaving set to 1-way Interleave
Patrol Scrub set to Disabled
 Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on linux-3joc Wed Nov  8 12:05:54 2017

 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) Platinum 8180M CPU @ 2.50GHz
       2 "physical id"s (chips)
       112 "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 : 28
       siblings  : 56
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
       25 26 27 28 29 30
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
       25 26 27 28 29 30
    cache size : 39424 KB

 From /proc/meminfo
    MemTotal:       394863904 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12 SP2

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 2
       # This file is deprecated and will be removed in a future service pack or
       release.
       # Please check /etc/os-release for details about this release.
    os-release:
       NAME="SLES"
       VERSION="12-SP2"
       VERSION_ID="12.2"
       PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
       ID="sles"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

Continued on next page

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 =   1800

SPECfp_rate_base2006 = 1770

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Platform Notes (Continued)

```
uname -a:
   Linux linux-3joc 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
   (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 8 07:42

SPEC is set to: /home/cpu2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   516G   31G  486G   6% /home
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

  BIOS Cisco Systems, Inc. C220M5.3.1.1d.0.0615170645 06/15/2017
  Memory:
  24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006-1.2/lib/ia32:/home/cpu2006-1.2/lib/intel64:/home/cpu2006-1.2/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
 Filesystem page cache cleared with:
 shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
 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

SPEC CFP2006 Result

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 =   1800

SPECfp_rate_base2006 = 1770

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

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:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

Fortran benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks (except as noted below):

```
icpc -m64
```

```
  450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

SPEC CFP2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 = 1800

SPECfp_rate_base2006 = 1770

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

Test date: Nov-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Peak Compiler Invocation (Continued)

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
      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: -D_FILE_OFFSET_BITS=64
     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
```

Peak Optimization Flags

C benchmarks:

```
    433.milc: basepeak = yes

    470.lbm: basepeak = yes

  482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
    444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
              -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -fno-alias -auto-ilp32
              -qopt-mem-layout-trans=3

    447.dealII: basepeak = yes
```

Continued on next page

SPEC CFP2006 Result

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 =   1800

SPECfp_rate_base2006 = 1770

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Peak Optimization Flags (Continued)

  450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -qopt-malloc-options=3
             -qopt-mem-layout-trans=3

  453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -unroll4 -qopt-mem-layout-trans=3

Fortran benchmarks:

  410.bwaves: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

  416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

  434.zeusmp: basepeak = yes

  437.leslie3d: Same as 410.bwaves

  459.GemsFDTD: Same as 410.bwaves

  465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -unroll4 -auto -inline-calloc
             -qopt-malloc-options=3

Benchmarks using both Fortran and C:

  435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
             -par-num-threads=1(pass 1) -qopt-prefetch -auto-ilp32
             -qopt-mem-layout-trans=3

  436.cactusADM: basepeak = yes

  454.calculix: basepeak = yes

  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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.xml

SPEC CFP2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8180M, 2.50GHz)

SPECfp_rate2006 = 1800

SPECfp_rate_base2006 = 1770

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

Test date: Nov-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

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 Mon Dec 11 11:12:26 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 December 2017.