SPEC® CFP2006 Result

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Cisco Systems

Cisco UCS C480 M5 (Intel Xeon Platinum 8180, 2.50GHz)

$SPECfp^®\_rate2006 =$ Not Run

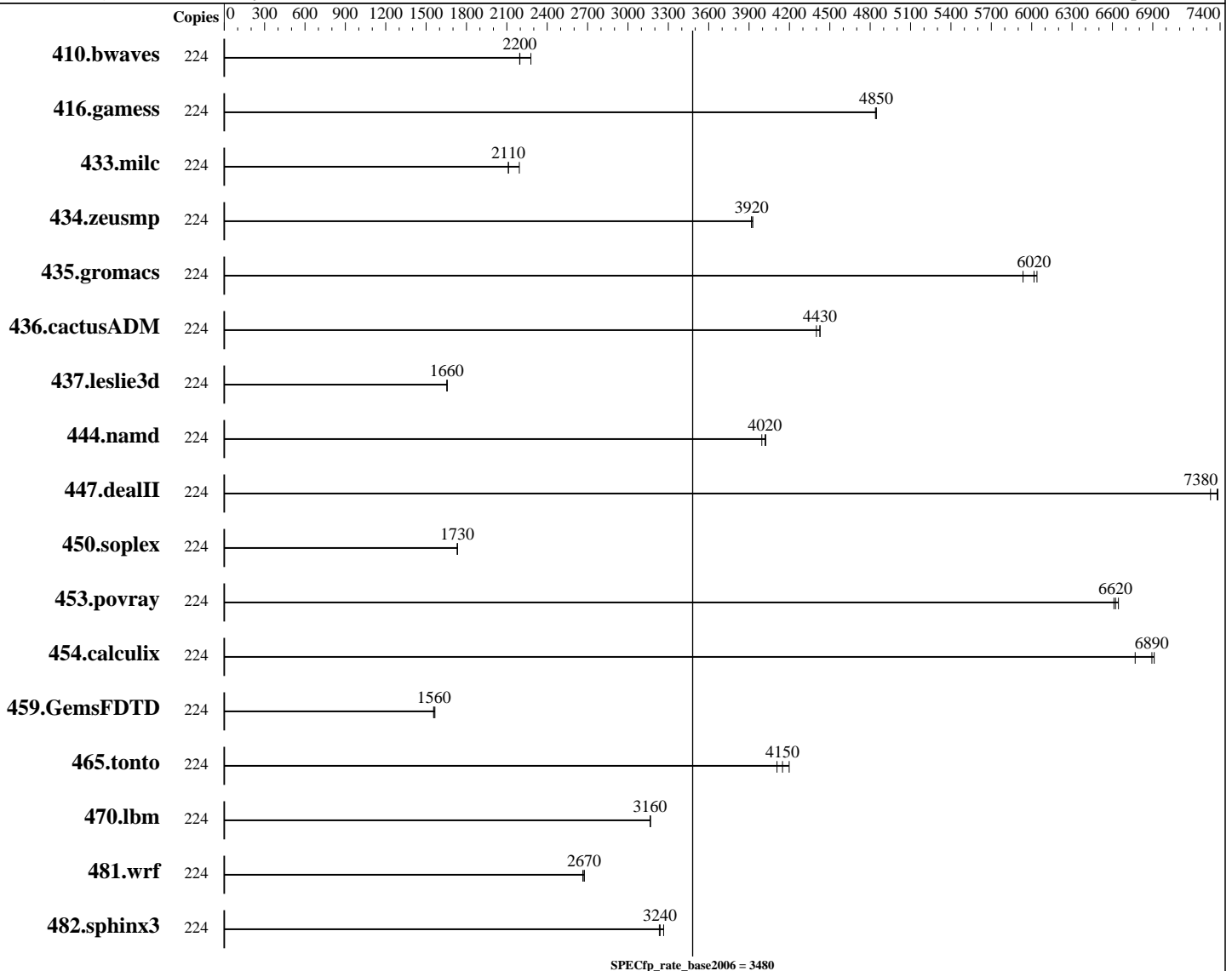$SPECfp\_rate\_base2006 =$ 3480

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

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

Benchmark	Copies	Result
410.bwaves	224	2200
416.gamess	224	4850
433.milc	224	2110
434.zeusmp	224	3920
435.gromacs	224	6020
436.cactusADM	224	4430
437.leslie3d	224	1660
444.namd	224	4020
447.dealII	224	7380
450.soplex	224	1730
453.povray	224	6620
454.calculix	224	6890
459.GemsFDTD	224	1560
465.tonto	224	4150
470.lbm	224	3160
481.wrf	224	2670
482.sphinx3	224	3240

SPECfp_rate_base2006 = 3480

Hardware

CPU Name:	Intel Xeon Platinum 8180
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	112 cores, 4 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	No
File System:	xfs
System State:	Run level 3 (multi-user)

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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: 768 GB (48 x 16 GB 2Rx4 PC4-2666V-R)	Other Software: None
Disk Subsystem: 1 x 400 GB SSD SAS	
Other Hardware: None	

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	224	1336	2280	**1386**	**2200**	1387	2200							
416.gamess	224	**905**	**4850**	905	4850	906	4840							
433.milc	224	**974**	**2110**	974	2110	938	2190							
434.zeusmp	224	520	3920	**520**	**3920**	519	3930							
435.gromacs	224	**266**	**6020**	269	5940	265	6040							
436.cactusADM	224	608	4400	**605**	**4430**	605	4430							
437.leslie3d	224	**1272**	**1660**	1270	1660	1273	1650							
444.namd	224	446	4020	450	3990	**447**	**4020**							
447.dealII	224	347	7380	**347**	**7380**	350	7330							
450.soplex	224	1078	1730	1079	1730	**1078**	**1730**							
453.povray	224	179	6640	**180**	**6620**	180	6610							
454.calculix	224	**268**	**6890**	273	6770	267	6910							
459.GemsFDTD	224	1518	1570	**1524**	**1560**	1528	1560							
465.tonto	224	537	4110	525	4200	**531**	**4150**							
470.lbm	224	973	3160	**973**	**3160**	972	3170							
481.wrf	224	**936**	**2670**	935	2680	939	2660							
482.sphinx3	224	1350	3230	1337	3270	**1348**	**3240**							

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

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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-k2f8 Sun Jun 25 02:22:50 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 8180 CPU @ 2.50GHz
           4 "physical id"s (chips)
           224 "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
           physical 2: 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 3: 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:       790980256 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"
```
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Platform Notes (Continued)

```
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
   Linux linux-k2f8 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 Jun 24 21:00

SPEC is set to: /home/cpu2006-1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda3       xfs   404G   33G  372G   8% /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. C480M5.3.1.0.272.0613172154 06/13/2017
  Memory:
   48x 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

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Base Compiler Invocation (Continued)

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:
```
-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
```

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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-revG.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-revG.xml

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For other inquiries, please contact webmaster@spec.org.

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