# SPEC® CFP2006 Result



## Cisco Systems

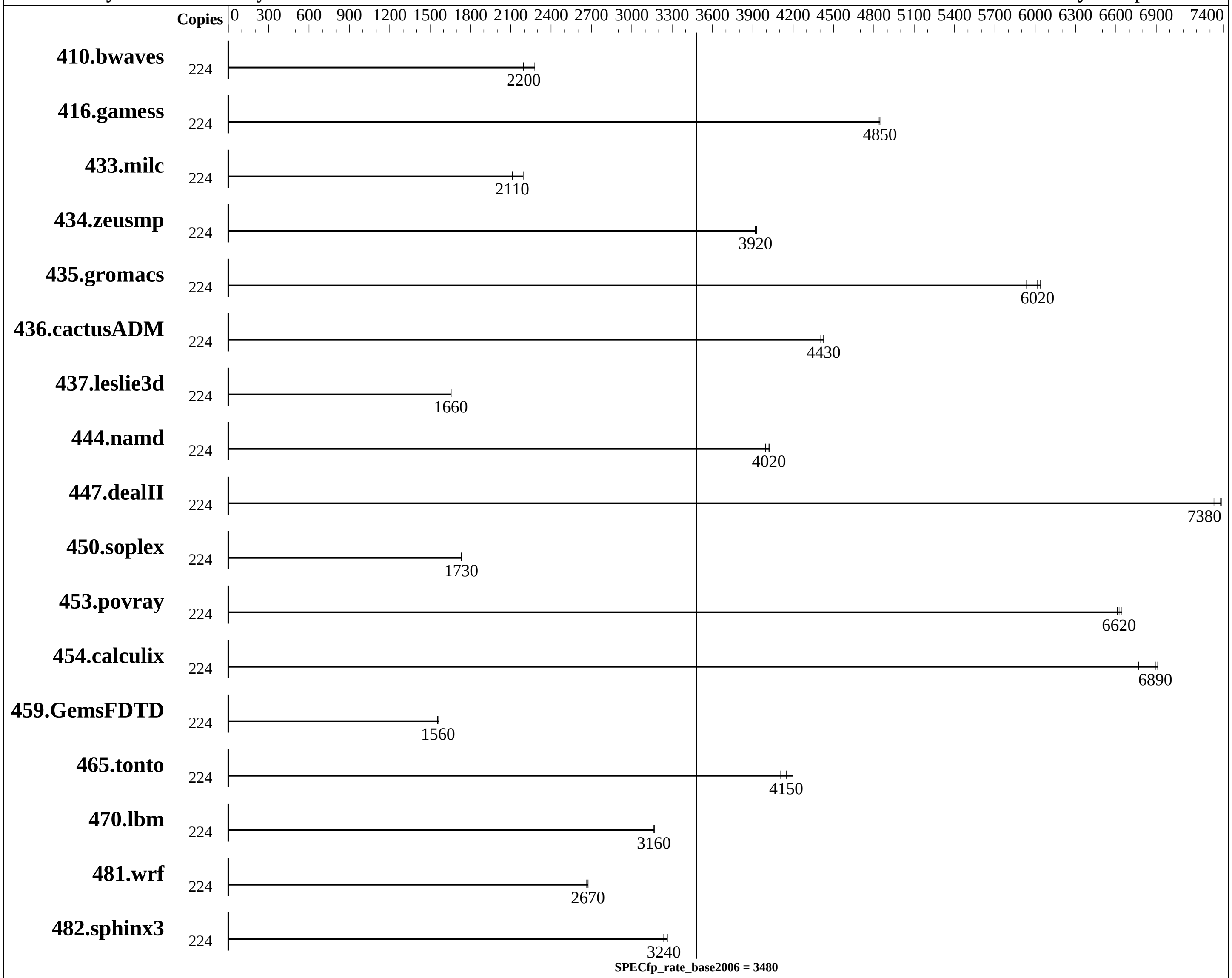
Cisco UCS C480 M5 (Intel Xeon Platinum 8180, 2.50GHz)

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




### 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 |

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

| | |
|---|---|
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | 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`

Continued on next page

# 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
```

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



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 13 12:50:40 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 July 2017.