# SPEC® CFP2006 Result



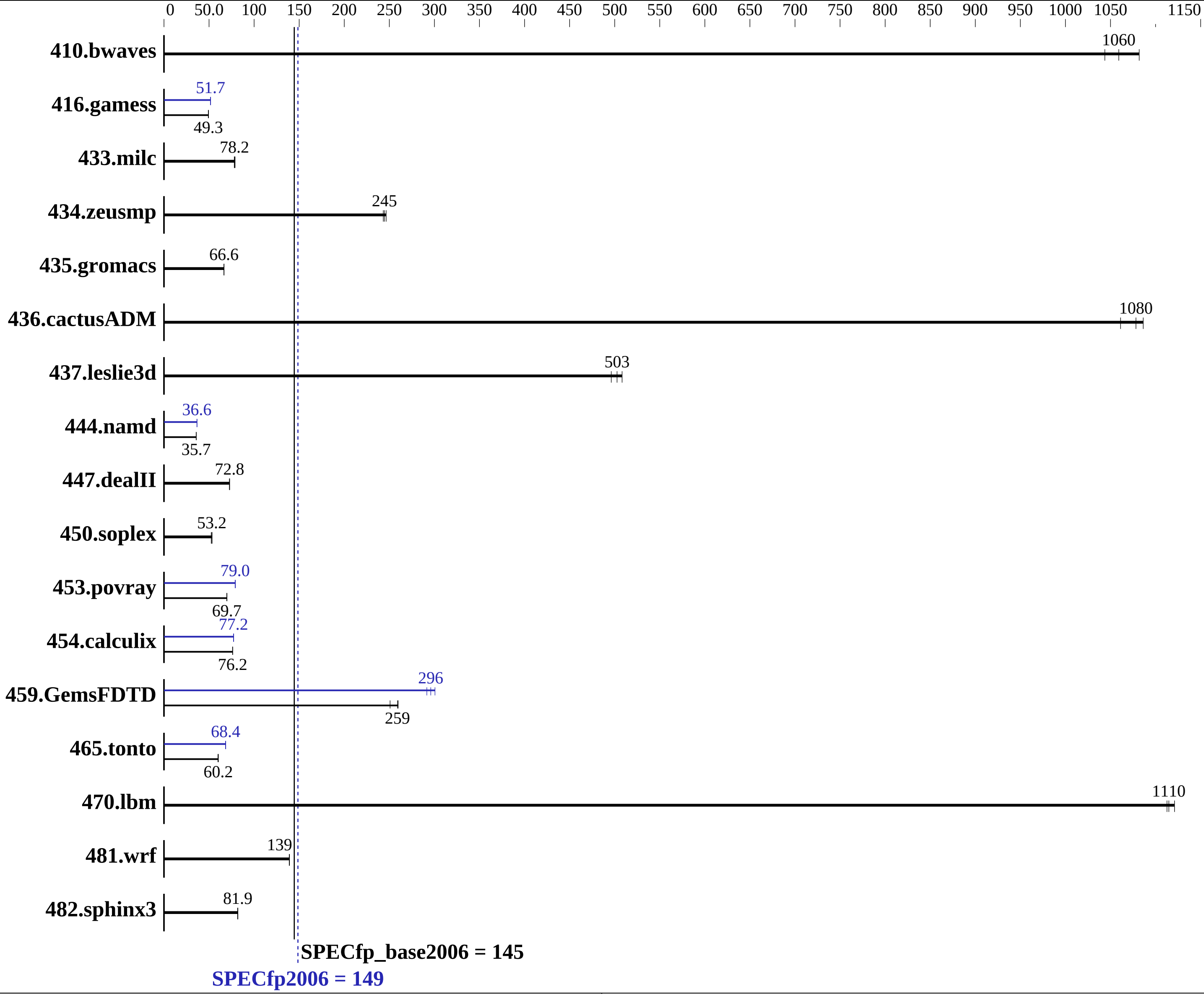
## Cisco Systems

Cisco UCS B200 M5 (Intel Xeon Gold 6134M, 3.20 GHz)

SPECfp®2006 = 149

SPECfp_base2006 = 145

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 9019 | **Test date:** | Dec-2017 |
| **Test sponsor:** | Cisco Systems | **Hardware Availability:** | Aug-2017 |
| **Tested by:** | Cisco Systems | **Software Availability:** | Jul-2017 |




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon Gold 6134M |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 3200 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip |
| 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 |

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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: | Yes |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |

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| | |
|---|---|
| L3 Cache: | 24.75 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R) |
| Disk Subsystem: | 1 x 600 GB SAS HDD, 10K RPM |
| Other Hardware: | None |

| | |
|---|---|
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | None |

## Results Table

| | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Benchmark** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** |
| 410.bwaves | 13.0 | 1040 | **12.8** | **1060** | 12.6 | 1080 | 13.0 | 1040 | **12.8** | **1060** | 12.6 | 1080 |
| 416.gamess | 397 | 49.3 | **397** | **49.3** | 397 | 49.3 | **379** | **51.7** | 379 | 51.6 | 378 | 51.8 |
| 433.milc | 118 | 78.0 | **117** | **78.2** | 116 | 78.9 | 118 | 78.0 | **117** | **78.2** | 116 | 78.9 |
| 434.zeusmp | 36.9 | 246 | **37.2** | **245** | 37.4 | 243 | 36.9 | 246 | **37.2** | **245** | 37.4 | 243 |
| 435.gromacs | 107 | 66.5 | **107** | **66.6** | 107 | 66.7 | 107 | 66.5 | **107** | **66.6** | 107 | 66.7 |
| 436.cactusADM | **11.1** | **1080** | 11.0 | 1090 | 11.3 | 1060 | **11.1** | **1080** | 11.0 | 1090 | 11.3 | 1060 |
| 437.leslie3d | 18.5 | 508 | **18.7** | **503** | 18.9 | 496 | 18.5 | 508 | **18.7** | **503** | 18.9 | 496 |
| 444.namd | 224 | 35.7 | **225** | **35.7** | 225 | 35.7 | 219 | 36.6 | **219** | **36.6** | 219 | 36.6 |
| 447.dealII | 158 | 72.6 | 157 | 72.8 | **157** | **72.8** | 158 | 72.6 | 157 | 72.8 | **157** | **72.8** |
| 450.soplex | 156 | 53.4 | 159 | 52.4 | **157** | **53.2** | 156 | 53.4 | 159 | 52.4 | **157** | **53.2** |
| 453.povray | 76.3 | 69.8 | **76.3** | **69.7** | 76.3 | 69.7 | 67.4 | 78.9 | 67.2 | 79.2 | **67.3** | **79.0** |
| 454.calculix | **108** | **76.2** | 108 | 76.2 | 108 | 76.1 | 107 | 77.3 | 107 | 77.1 | **107** | **77.2** |
| 459.GemsFDTD | 42.3 | 251 | 40.8 | 260 | **41.0** | **259** | **35.8** | **296** | 36.4 | 292 | 35.3 | 301 |
| 465.tonto | **163** | **60.2** | 163 | 60.3 | 164 | 59.9 | 144 | 68.4 | 144 | 68.5 | **144** | **68.4** |
| 470.lbm | **12.3** | **1110** | 12.3 | 1110 | 12.3 | 1120 | **12.3** | **1110** | 12.3 | 1110 | 12.3 | 1120 |
| 481.wrf | **80.4** | **139** | 80.2 | 139 | 80.4 | 139 | **80.4** | **139** | 80.2 | 139 | 80.4 | 139 |
| 482.sphinx3 | 239 | 81.7 | 238 | 82.0 | **238** | **81.9** | 239 | 81.7 | 238 | 82.0 | **238** | **81.9** |

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

## Operating System Notes

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

## Platform Notes

```
BIOS Settings:
Intel HyperThreading Technology set to Disabled
CPU performance set to Enterprise
Power Performance Tuning set to OS Controls
SNC set to Disabled
Patrol Scrub set to Disabled
 Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on linux Fri Dec 22 05:31:33 2017
```

Continued on next page

## Platform Notes (Continued)

```
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) Gold 6134M CPU @ 3.20GHz
      2 "physical id"s (chips)
      16 "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 : 8
      siblings  : 8
      physical 0: cores 0 2 3 9 16 19 26 27
      physical 1: cores 0 2 3 9 16 19 26 27
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       395441748 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

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"

uname -a:
   Linux linux 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 Jan 4 04:36

SPEC is set to: /home/cpu2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda1      xfs   280G  144G  136G  52% /
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
```

Continued on next page

## Platform Notes (Continued)

```
      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. B200M5.3.2.1d.5.0727171353 07/27/2017
     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:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2006-1.2/lib/ia32:/home/cpu2006-1.2/lib/intel64:/home/cpu2006-1.2/sh10.2"
OMP_NUM_THREADS = "16"

 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
 No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
 is mitigated in the system as tested and documented.
 No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
 is mitigated in the system as tested and documented.
 No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
 is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on
past performance using the historical hardware and/or
software described on this result page.

The system as described on this result page was formerly
generally available.  At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the
SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.
```

## 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 -parallel -qopt-prefetch
```

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## Peak Compiler Invocation

C benchmarks:

```
icc -m64
```

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## Peak Compiler Invocation (Continued)

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

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

## Peak Portability Flags

Same as Base Portability Flags

## 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`

447.dealII: `basepeak = yes`

450.soplex: `basepeak = yes`

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 -ansi-alias`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

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-`

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Cisco UCS B200 M5 (Intel Xeon Gold 6134M, 3.20 GHz)

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SPECfp_base2006 = 145

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

# Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -qopt-prefetch -parallel

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) -inline-calloc -qopt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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



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

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