



SPEC[®] CFP2006 Result

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Cisco Systems

Cisco UCS B200 M5 (Intel Xeon Silver 4108, 1.80 GHz)

SPECfp[®]2006 = 110

SPECfp_base2006 = 104

CPU2006 license: 9019

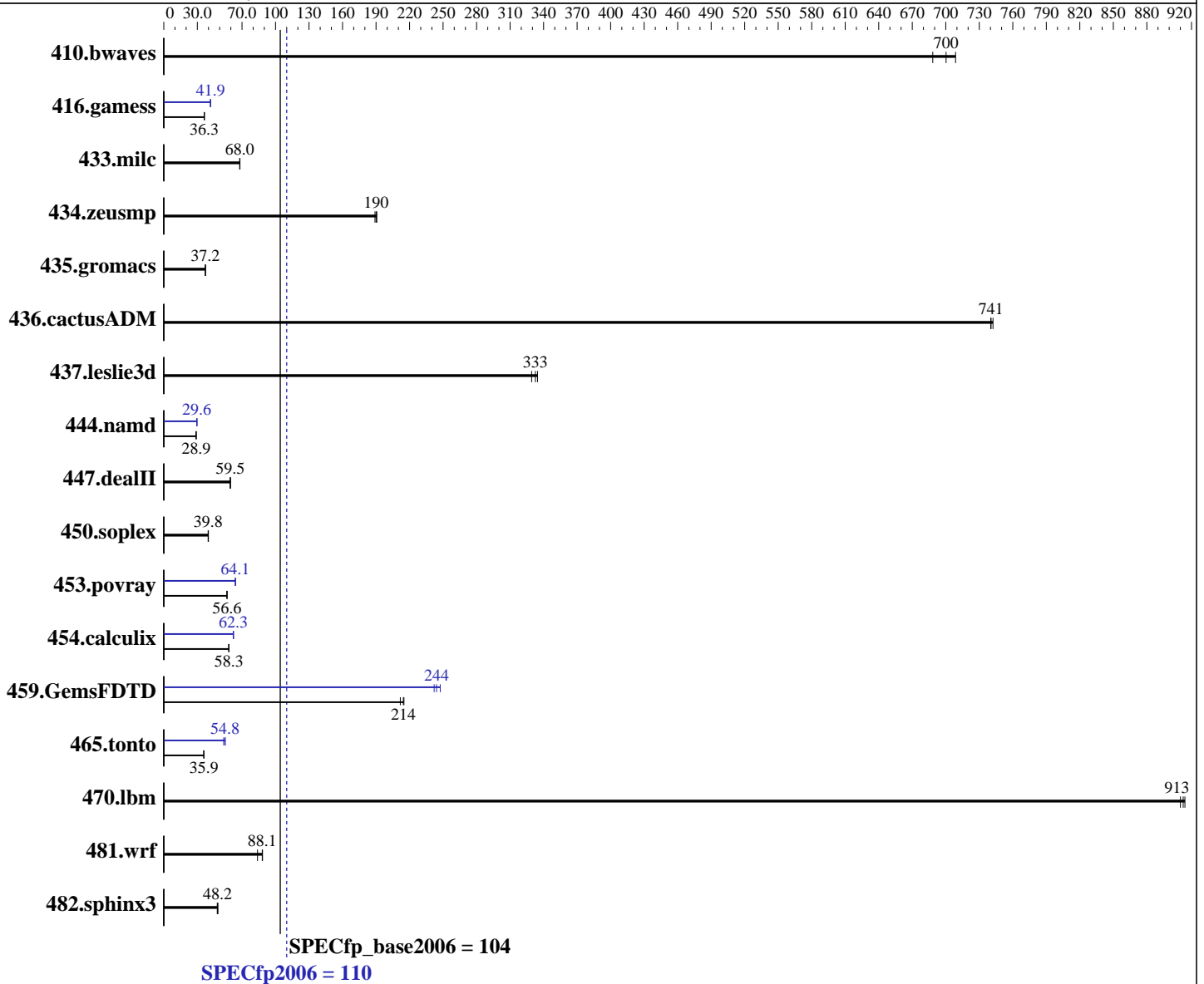
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Jul-2017



Hardware	
CPU Name:	Intel Xeon Silver 4108
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	1800
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

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: 11 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R, running at 2400)
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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	19.2	709	<u>19.4</u>	<u>700</u>	19.7	688	19.2	709	<u>19.4</u>	<u>700</u>	19.7	688
416.gamess	<u>540</u>	<u>36.3</u>	540	36.2	540	36.3	470	41.6	467	41.9	<u>467</u>	<u>41.9</u>
433.milc	135	68.0	135	68.2	<u>135</u>	<u>68.0</u>	135	68.0	135	68.2	<u>135</u>	<u>68.0</u>
434.zeusmp	48.1	189	<u>47.9</u>	<u>190</u>	47.7	191	48.1	189	<u>47.9</u>	<u>190</u>	47.7	191
435.gromacs	192	37.3	192	37.2	<u>192</u>	<u>37.2</u>	192	37.3	192	37.2	<u>192</u>	<u>37.2</u>
436.cactusADM	16.1	740	16.1	742	<u>16.1</u>	<u>741</u>	16.1	740	16.1	742	<u>16.1</u>	<u>741</u>
437.leslie3d	28.5	329	<u>28.3</u>	<u>333</u>	28.1	335	28.5	329	<u>28.3</u>	<u>333</u>	28.1	335
444.namd	<u>277</u>	<u>28.9</u>	277	28.9	277	28.9	<u>271</u>	<u>29.6</u>	271	29.6	271	29.6
447.dealII	192	59.7	192	59.4	<u>192</u>	<u>59.5</u>	192	59.7	192	59.4	<u>192</u>	<u>59.5</u>
450.soplex	209	39.9	<u>210</u>	<u>39.8</u>	210	39.7	209	39.9	<u>210</u>	<u>39.8</u>	210	39.7
453.povray	<u>94.0</u>	<u>56.6</u>	93.9	56.6	94.2	56.5	83.0	64.1	<u>83.0</u>	<u>64.1</u>	83.1	64.0
454.calculix	142	58.3	<u>142</u>	<u>58.3</u>	142	58.1	<u>133</u>	<u>62.3</u>	132	62.5	133	62.1
459.GemsFDTD	49.4	215	50.1	212	<u>49.5</u>	<u>214</u>	<u>43.5</u>	<u>244</u>	43.8	242	42.9	247
465.tonto	274	35.9	275	35.8	<u>274</u>	<u>35.9</u>	184	53.5	179	54.9	<u>179</u>	<u>54.8</u>
470.lbm	15.0	914	15.1	910	<u>15.1</u>	<u>913</u>	15.0	914	15.1	910	<u>15.1</u>	<u>913</u>
481.wrf	<u>127</u>	<u>88.1</u>	133	83.9	126	88.4	<u>127</u>	<u>88.1</u>	133	83.9	126	88.4
482.sphinx3	403	48.4	<u>404</u>	<u>48.2</u>	407	47.8	403	48.4	<u>404</u>	<u>48.2</u>	407	47.8

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-djj4 Sun Dec 17 04:31:20 2017

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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) Silver 4108 CPU @ 1.80GHz
 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 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
 cache size : 11264 KB

```

```

From /proc/meminfo
MemTotal:      394667604 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-djj4 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 06:54

```

SPEC is set to: /home/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        xfs   559G  129G  430G  24% /

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
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Platform Notes (Continued)

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. B200M5.3.2.1d.5.0727171353 07/27/2017

Memory:

24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz, configured at 2400 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

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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 -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.dealIII: `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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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-alloc -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>

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