



# SPEC<sup>®</sup> CFP2006 Result

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## Cisco Systems

Cisco UCS B200 M5 (Intel Xeon Gold 6132, 2.60GHz)

**SPECfp<sup>®</sup>2006 = 150**

**SPECfp\_base2006 = 144**

CPU2006 license: 9019

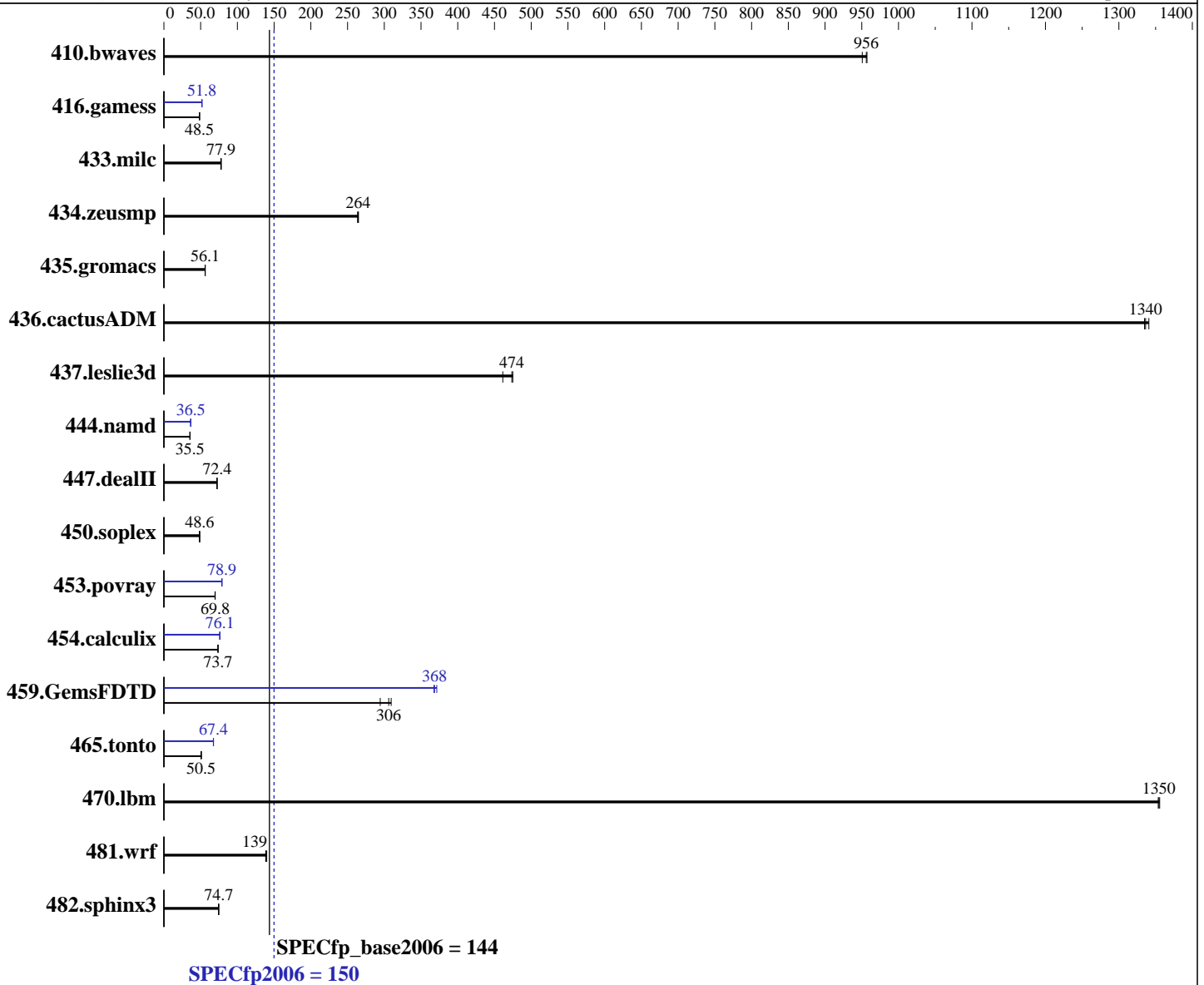
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Oct-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



Hardware	
CPU Name:	Intel Xeon Gold 6132
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	28 cores, 2 chips, 14 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

Continued on next page

Software	
Operating System:	SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)

Continued on next page



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L3 Cache: 19.25 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 1 TB SAS HDD, 7.2K 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	14.2	957	<b><u>14.2</u></b>	<b><u>956</u></b>	14.3	951	14.2	957	<b><u>14.2</u></b>	<b><u>956</u></b>	14.3	951
416.gamess	404	48.5	<b><u>404</u></b>	<b><u>48.5</u></b>	404	48.4	378	51.8	<b><u>378</u></b>	<b><u>51.8</u></b>	378	51.8
433.milc	<b><u>118</u></b>	<b><u>77.9</u></b>	119	77.4	118	78.0	<b><u>118</u></b>	<b><u>77.9</u></b>	119	77.4	118	78.0
434.zeusmp	34.4	265	<b><u>34.4</u></b>	<b><u>264</u></b>	34.5	264	34.4	265	<b><u>34.4</u></b>	<b><u>264</u></b>	34.5	264
435.gromacs	127	56.3	127	56.0	<b><u>127</u></b>	<b><u>56.1</u></b>	127	56.3	127	56.0	<b><u>127</u></b>	<b><u>56.1</u></b>
436.cactusADM	8.95	1330	<b><u>8.94</u></b>	<b><u>1340</u></b>	8.91	1340	8.95	1330	<b><u>8.94</u></b>	<b><u>1340</u></b>	8.91	1340
437.leslie3d	<b><u>19.8</u></b>	<b><u>474</u></b>	20.4	461	19.8	475	<b><u>19.8</u></b>	<b><u>474</u></b>	20.4	461	19.8	475
444.namd	<b><u>226</u></b>	<b><u>35.5</u></b>	226	35.5	226	35.5	221	36.4	<b><u>220</u></b>	<b><u>36.5</u></b>	220	36.5
447.dealII	<b><u>158</u></b>	<b><u>72.4</u></b>	159	72.1	158	72.5	<b><u>158</u></b>	<b><u>72.4</u></b>	159	72.1	158	72.5
450.soplex	171	48.9	173	48.2	<b><u>172</u></b>	<b><u>48.6</u></b>	171	48.9	173	48.2	<b><u>172</u></b>	<b><u>48.6</u></b>
453.povray	<b><u>76.3</u></b>	<b><u>69.8</u></b>	76.2	69.8	76.5	69.5	<b><u>67.4</u></b>	<b><u>78.9</u></b>	67.5	78.9	67.2	79.1
454.calculix	<b><u>112</u></b>	<b><u>73.7</u></b>	112	73.8	112	73.4	<b><u>108</u></b>	<b><u>76.1</u></b>	108	76.0	108	76.2
459.GemsFDTD	<b><u>34.7</u></b>	<b><u>306</u></b>	34.3	309	36.0	294	28.6	371	<b><u>28.8</u></b>	<b><u>368</u></b>	28.9	368
465.tonto	192	51.2	195	50.4	<b><u>195</u></b>	<b><u>50.5</u></b>	146	67.3	146	67.6	<b><u>146</u></b>	<b><u>67.4</u></b>
470.lbm	<b><u>10.1</u></b>	<b><u>1350</u></b>	10.1	1360	10.2	1350	<b><u>10.1</u></b>	<b><u>1350</u></b>	10.1	1360	10.2	1350
481.wrf	79.8	140	80.6	139	<b><u>80.4</u></b>	<b><u>139</u></b>	79.8	140	80.6	139	<b><u>80.4</u></b>	<b><u>139</u></b>
482.sphinx3	<b><u>261</u></b>	<b><u>74.7</u></b>	261	74.7	262	74.3	<b><u>261</u></b>	<b><u>74.7</u></b>	261	74.7	262	74.3

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  
SNC set to Disabled  
IMC Interleaving set to Auto  
Patrol Scrub set to Disabled  
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-uezu Tue Oct 24 10:00:33 2017

Continued on next page



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**SPECfp\_base2006 = 144**

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test date:** Oct-2017

**Hardware Availability:** Aug-2017

**Software Availability:** Apr-2017

## 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 6132 CPU @ 2.60GHz
 2 "physical id"s (chips)
 28 "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 : 14
  siblings  : 14
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 19712 KB
```

From /proc/meminfo

```
MemTotal:      394832432 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-uezu 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 5 04:51

SPEC is set to: /opt/cpu2006-1.2

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       xfs   894G  127G  768G  15% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program  
Continued on next page



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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

(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 = \*/opt/intel/compilers\_and\_libraries\_2018.0.128/linux/compiler/lib/ia32:/opt/intel/compilers\_and\_libraries\_2018.0.128/linux/compiler/lib/intel64:/opt/cpu2006-1.2/sh10.2\*

OMP\_NUM\_THREADS = "28"

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

### 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

### 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

Continued on next page

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Page 4



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## Base Portability Flags (Continued)

```

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

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



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## 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-

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

Continued on next page



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## Peak Optimization Flags (Continued)

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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