



# SPEC<sup>®</sup> CFP2006 Result

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## Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Platinum 8153, 2.00GHz)

**SPECfp<sup>®</sup>2006 = 126**

**SPECfp\_base2006 = 121**

CPU2006 license: 9019

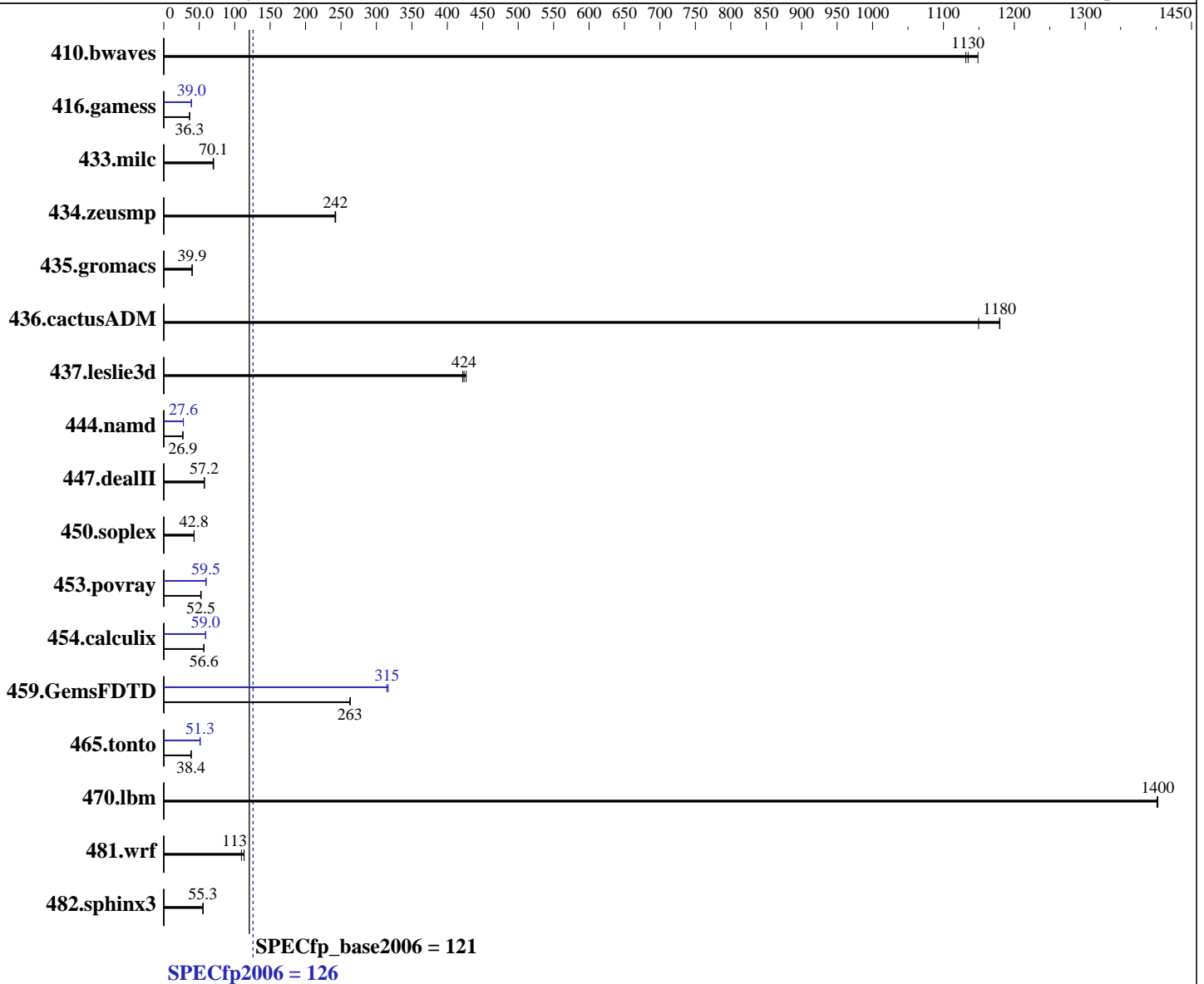
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Aug-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



### Hardware

CPU Name: Intel Xeon Platinum 8153  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 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  
 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: 22 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 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	11.8	1150	<b><u>12.0</u></b>	<b><u>1130</u></b>	12.0	1130	11.8	1150	<b><u>12.0</u></b>	<b><u>1130</u></b>	12.0	1130
416.gamess	539	36.4	539	36.3	<b><u>539</u></b>	<b><u>36.3</u></b>	<b><u>502</u></b>	<b><u>39.0</u></b>	502	39.0	503	38.9
433.milc	<b><u>131</u></b>	<b><u>70.1</u></b>	132	69.6	131	70.3	<b><u>131</u></b>	<b><u>70.1</u></b>	132	69.6	131	70.3
434.zeusmp	37.5	243	37.7	242	<b><u>37.6</u></b>	<b><u>242</u></b>	37.5	243	37.7	242	<b><u>37.6</u></b>	<b><u>242</u></b>
435.gromacs	179	39.9	178	40.1	<b><u>179</u></b>	<b><u>39.9</u></b>	179	39.9	178	40.1	<b><u>179</u></b>	<b><u>39.9</u></b>
436.cactusADM	10.4	1150	10.1	1180	<b><u>10.1</u></b>	<b><u>1180</u></b>	10.4	1150	10.1	1180	<b><u>10.1</u></b>	<b><u>1180</u></b>
437.leslie3d	22.0	427	<b><u>22.2</u></b>	<b><u>424</u></b>	22.3	422	22.0	427	<b><u>22.2</u></b>	<b><u>424</u></b>	22.3	422
444.namd	297	27.0	299	26.9	<b><u>298</u></b>	<b><u>26.9</u></b>	<b><u>290</u></b>	<b><u>27.6</u></b>	290	27.6	291	27.6
447.dealII	200	57.2	<b><u>200</u></b>	<b><u>57.2</u></b>	200	57.1	200	57.2	<b><u>200</u></b>	<b><u>57.2</u></b>	200	57.1
450.soplex	195	42.9	196	42.6	<b><u>195</u></b>	<b><u>42.8</u></b>	195	42.9	196	42.6	<b><u>195</u></b>	<b><u>42.8</u></b>
453.povray	102	52.1	101	52.6	<b><u>101</u></b>	<b><u>52.5</u></b>	89.4	59.5	89.2	59.6	<b><u>89.4</u></b>	<b><u>59.5</u></b>
454.calculix	146	56.7	146	56.5	<b><u>146</u></b>	<b><u>56.6</u></b>	140	59.0	<b><u>140</u></b>	<b><u>59.0</u></b>	140	59.1
459.GemsFDTD	<b><u>40.4</u></b>	<b><u>263</u></b>	40.4	263	40.4	263	<b><u>33.7</u></b>	<b><u>315</u></b>	33.7	315	33.5	317
465.tonto	256	38.4	<b><u>256</u></b>	<b><u>38.4</u></b>	254	38.8	192	51.2	192	51.3	<b><u>192</u></b>	<b><u>51.3</u></b>
470.lbm	<b><u>9.80</u></b>	<b><u>1400</u></b>	9.81	1400	9.80	1400	<b><u>9.80</u></b>	<b><u>1400</u></b>	9.81	1400	9.80	1400
481.wrf	98.6	113	102	110	<b><u>98.7</u></b>	<b><u>113</u></b>	98.6	113	102	110	<b><u>98.7</u></b>	<b><u>113</u></b>
482.sphinx3	352	55.3	<b><u>353</u></b>	<b><u>55.3</u></b>	353	55.2	352	55.3	<b><u>353</u></b>	<b><u>55.3</u></b>	353	55.2

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 /home/cpu2006-1.2/config/sysinfo.rev6993

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)

running on linux-a0tk Sun Aug 20 10:42:26 2017

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Cisco UCS C220 M5 (Intel Xeon Platinum 8153, 2.00GHz)

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**SPECfp\_base2006 = 121**

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

**Test date:** Aug-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) Platinum 8153 CPU @ 2.00GHz
 2 "physical id"s (chips)
 32 "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 : 16
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 22528 KB
```

```
From /proc/meminfo
MemTotal:      394863428 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"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

```
uname -a:
Linux linux-a0tk 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 Aug 20 10:40
```

```
SPEC is set to: /home/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda7       xfs   416G  27G  389G   7% /home
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```



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## Platform Notes (Continued)

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. C220M5.3.1.1d.0.0615170645 06/15/2017

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 = "32"

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

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## Base Portability Flags (Continued)

```

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

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64



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## 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-

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

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## Peak Optimization Flags (Continued)

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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Wed Sep 6 11:46:52 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 September 2017.