



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp®2006 = 122

SPECfp_base2006 = 117

CPU2006 license: 9019

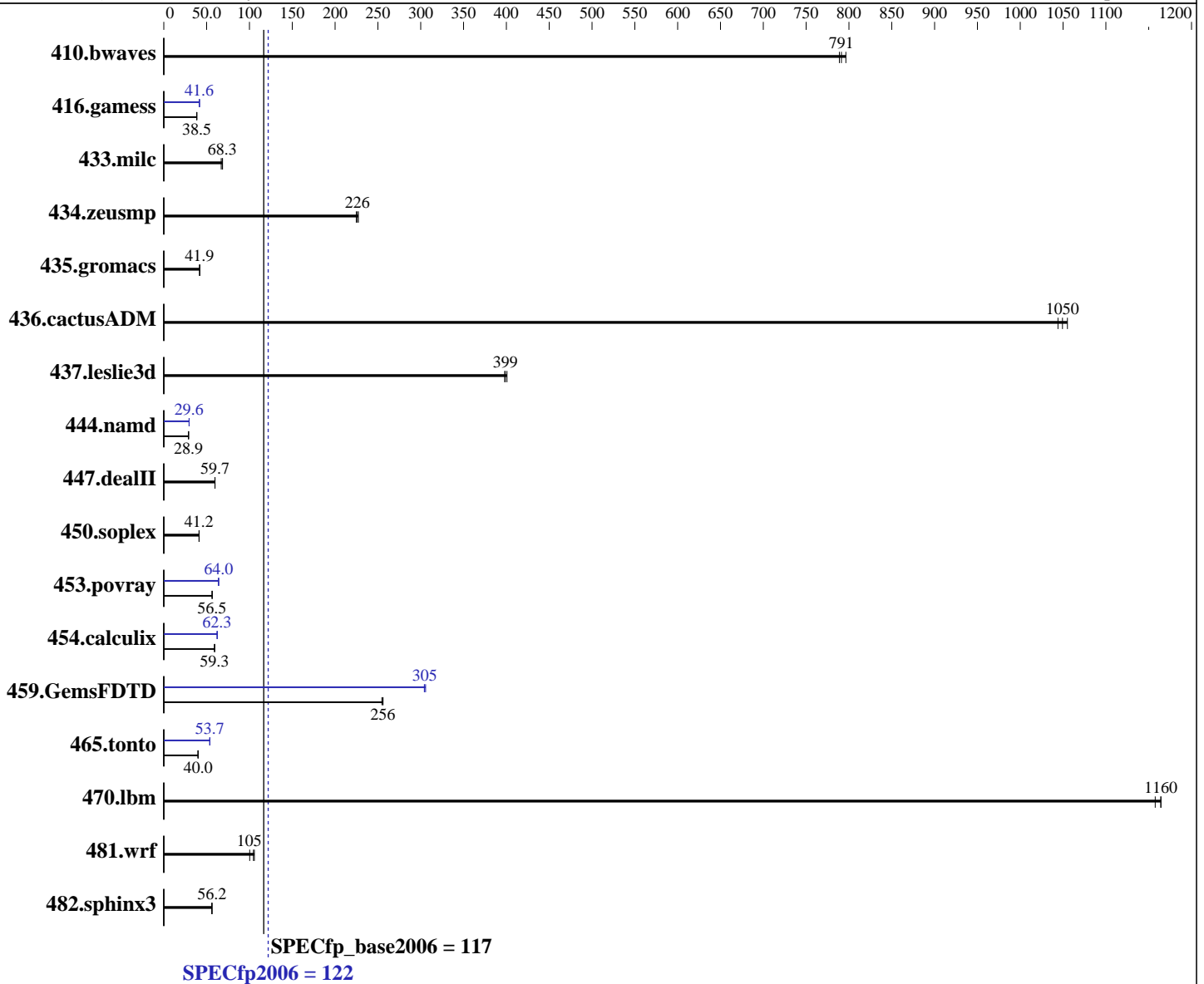
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon Silver 4116
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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 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)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp2006 = **122**

SPECfp_base2006 = **117**

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

L3 Cache: 16.5 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	17.2	789	17.1	796	<u>17.2</u>	<u>791</u>	17.2	789	17.1	796	<u>17.2</u>	<u>791</u>
416.gamess	509	38.5	<u>508</u>	<u>38.5</u>	508	38.5	470	41.7	<u>471</u>	<u>41.6</u>	471	41.6
433.milc	<u>134</u>	<u>68.3</u>	137	67.0	134	68.6	<u>134</u>	<u>68.3</u>	137	67.0	134	68.6
434.zeusmp	40.5	225	40.1	227	<u>40.2</u>	<u>226</u>	40.5	225	40.1	227	<u>40.2</u>	<u>226</u>
435.gromacs	171	41.9	<u>170</u>	<u>41.9</u>	170	41.9	171	41.9	<u>170</u>	<u>41.9</u>	170	41.9
436.cactusADM	<u>11.4</u>	<u>1050</u>	11.3	1060	11.4	1040	<u>11.4</u>	<u>1050</u>	11.3	1060	11.4	1040
437.leslie3d	<u>23.6</u>	<u>399</u>	23.5	401	23.6	398	<u>23.6</u>	<u>399</u>	23.5	401	23.6	398
444.namd	278	28.9	<u>278</u>	<u>28.9</u>	278	28.9	271	29.5	<u>271</u>	<u>29.6</u>	271	29.6
447.dealII	191	59.8	<u>192</u>	<u>59.7</u>	192	59.7	191	59.8	<u>192</u>	<u>59.7</u>	192	59.7
450.soplex	<u>202</u>	<u>41.2</u>	203	41.1	202	41.3	<u>202</u>	<u>41.2</u>	203	41.1	202	41.3
453.povray	<u>94.2</u>	<u>56.5</u>	94.1	56.5	94.3	56.4	<u>83.1</u>	<u>64.0</u>	83.4	63.8	83.0	64.1
454.calculix	139	59.4	<u>139</u>	<u>59.3</u>	139	59.2	132	62.5	133	62.2	<u>132</u>	<u>62.3</u>
459.GemsFDTD	41.4	256	<u>41.5</u>	<u>256</u>	41.7	255	34.7	306	34.9	304	<u>34.8</u>	<u>305</u>
465.tonto	246	40.1	246	39.9	<u>246</u>	<u>40.0</u>	<u>183</u>	<u>53.7</u>	183	53.7	183	53.7
470.lbm	<u>11.8</u>	<u>1160</u>	11.8	1160	11.9	1160	<u>11.8</u>	<u>1160</u>	11.8	1160	11.9	1160
481.wrf	<u>107</u>	<u>105</u>	106	106	111	100	<u>107</u>	<u>105</u>	106	106	111	100
482.sphinx3	347	56.2	<u>347</u>	<u>56.2</u>	347	56.1	347	56.2	<u>347</u>	<u>56.2</u>	347	56.1

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)

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp2006 = 122

SPECfp_base2006 = 117

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

Test date: Dec-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Platform Notes (Continued)

running on linux-3joc Sat Dec 9 18:55:20 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) Silver 4116 CPU @ 2.10GHz
 2 "physical id"s (chips)
 24 "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 : 12
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 16896 KB
```

```
From /proc/meminfo
MemTotal:      394864792 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-3joc 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 Dec 8 18:44
```

```
SPEC is set to: /home/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
Continued on next page
```



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp2006 = 122

SPECfp_base2006 = 117

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Platform Notes (Continued)

/dev/sda3 xfs 516G 114G 403G 22% /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. C220M5.3.1.1d.0.0615170645 06/15/2017

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 = "24"

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp2006 = 122

SPECfp_base2006 = 117

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Base Portability Flags (Continued)

```

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

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

```



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116, 2.10 GHz)

SPECfp2006 = 122

SPECfp_base2006 = 117

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Silver 4116,
2.10 GHz)

SPECfp2006 = 122

SPECfp_base2006 = 117

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Dec-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

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>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Wed Dec 27 12:04:47 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 December 2017.