



SPEC[®] CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp[®]2006 = 70.5

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = 68.3

CPU2006 license: 3175

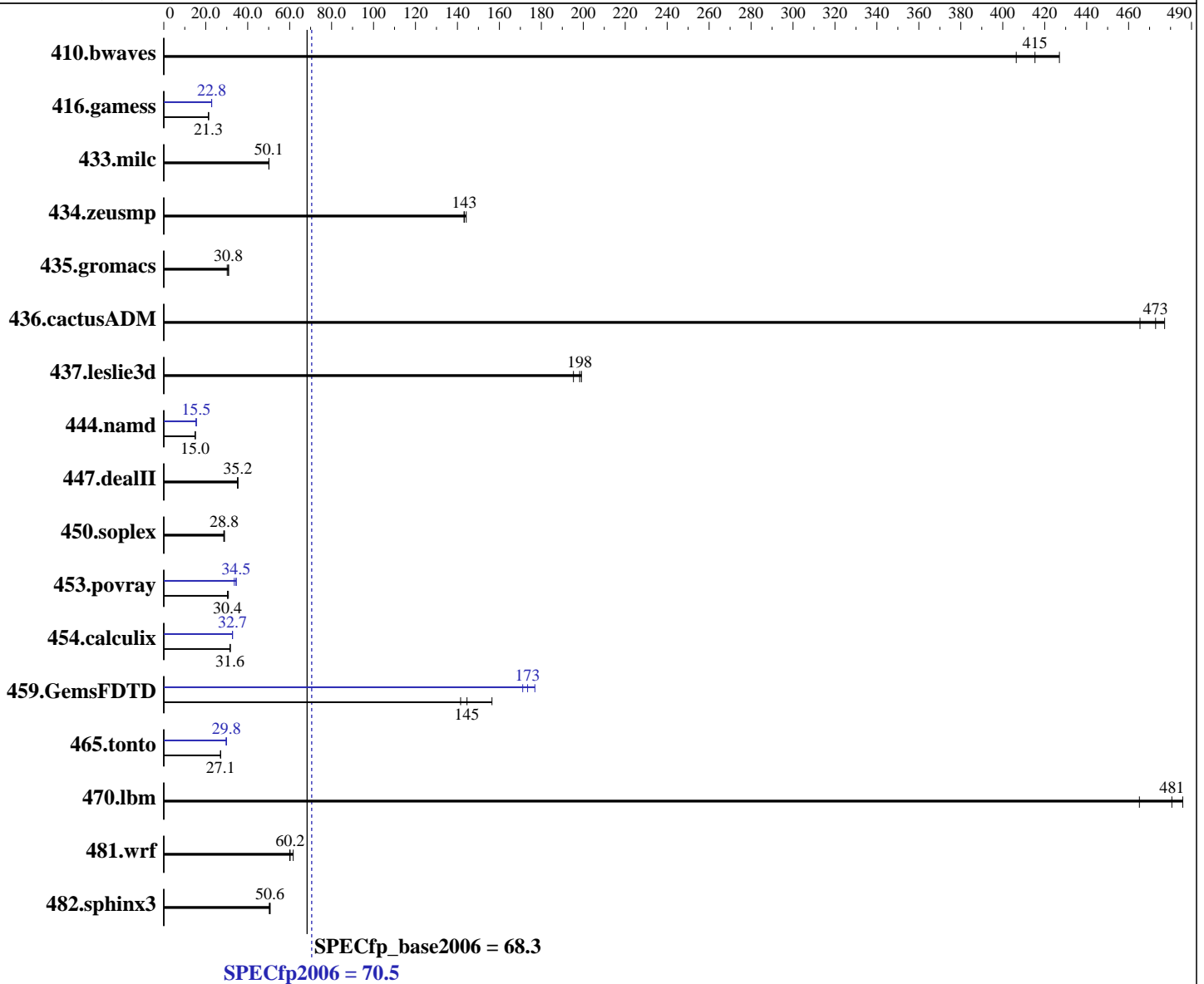
Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015



Hardware

CPU Name: Intel Xeon E5-2609 v4
 CPU Characteristics:
 CPU MHz: 1700
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = **70.5**

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = **68.3**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

L3 Cache: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R, running at 1867 MHz)
 Disk Subsystem: 1 x 480 GB SATA SSD
 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	32.7	415	31.8	427	33.4	406	32.7	415	31.8	427	33.4	406
416.gamess	919	21.3	918	21.3	917	21.3	858	22.8	858	22.8	858	22.8
433.milc	183	50.1	183	50.2	183	50.1	183	50.1	183	50.2	183	50.1
434.zeusmp	63.1	144	63.5	143	63.6	143	63.1	144	63.5	143	63.6	143
435.gromacs	232	30.8	231	30.9	236	30.2	232	30.8	231	30.9	236	30.2
436.cactusADM	25.3	473	25.0	477	25.7	465	25.3	473	25.0	477	25.7	465
437.leslie3d	47.4	198	48.1	195	47.2	199	47.4	198	48.1	195	47.2	199
444.namd	535	15.0	535	15.0	535	15.0	519	15.5	519	15.5	519	15.5
447.dealII	326	35.1	325	35.2	323	35.4	326	35.1	325	35.2	323	35.4
450.soplex	290	28.8	288	28.9	292	28.6	290	28.8	288	28.9	292	28.6
453.povray	175	30.4	173	30.8	175	30.4	158	33.6	154	34.5	154	34.5
454.calculix	260	31.7	261	31.6	261	31.6	252	32.7	252	32.8	252	32.7
459.GemsFDTD	67.8	156	73.4	145	75.0	142	60.0	177	62.0	171	61.2	173
465.tonto	364	27.0	363	27.1	363	27.1	329	29.9	330	29.8	331	29.7
470.lbm	29.5	465	28.6	481	28.3	486	29.5	465	28.6	481	28.3	486
481.wrf	185	60.2	181	61.7	186	60.0	185	60.2	181	61.7	186	60.0
482.sphinx3	385	50.6	384	50.7	388	50.3	385	50.6	384	50.7	388	50.3

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 configuration:
 Set Power Efficiency Mode to Performance
 Set Snoop Mode to HS mode
 Set Patrol Scrub to Disable
 Sysinfo program /spec16/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on linux-102o Sat Nov 26 23:55:05 2016

This section contains SUT (System Under Test) info as seen by

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 70.5

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = 68.3

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Platform Notes (Continued)

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) CPU E5-2609 v4 @ 1.70GHz
 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 : 20480 KB
```

```
From /proc/meminfo
MemTotal: 528829580 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# 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-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"
```

```
uname -a:
Linux linux-102o 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Nov 26 14:53
```

```
SPEC is set to: /spec16
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdal ext4 394G 13G 381G 4% /
```

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 70.5

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = 68.3

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

Platform Notes (Continued)

hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 3.32 09/14/2016

Memory:

16x Hynix HMA84GR7MFR4N-UH 32 GB 2 rank 2400 MHz, configured at 1867 MHz

8x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

The Huawei CH121 V3 and Huawei CH222 V3

are electronically equivalent.

The results have been measured on a Huawei CH121 V3 model

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/

Page 4



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 70.5

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = 68.3

CPU2006 license: 3175

Test date: Nov-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Dec-2015

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 -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

```

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 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 70.5

Huawei CH222 V3 (Intel Xeon E5-2609 v4)

SPECfp_base2006 = 68.3

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2016

Hardware Availability: Mar-2016

Software Availability: Dec-2015

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: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei	SPECfp2006 =	70.5
Huawei CH222 V3 (Intel Xeon E5-2609 v4)	SPECfp_base2006 =	68.3

CPU2006 license: 3175	Test date: Nov-2016
Test sponsor: Huawei	Hardware Availability: Mar-2016
Tested by: Huawei	Software Availability: Dec-2015

Peak Optimization Flags (Continued)

465.tonto (continued):
 -opt-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 -ansi-alias

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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.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 Thu Dec 15 11:18:06 2016 by SPEC CPU2006 PS/PDF formatter v6932.
 Originally published on 13 December 2016.