



# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECfp®\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

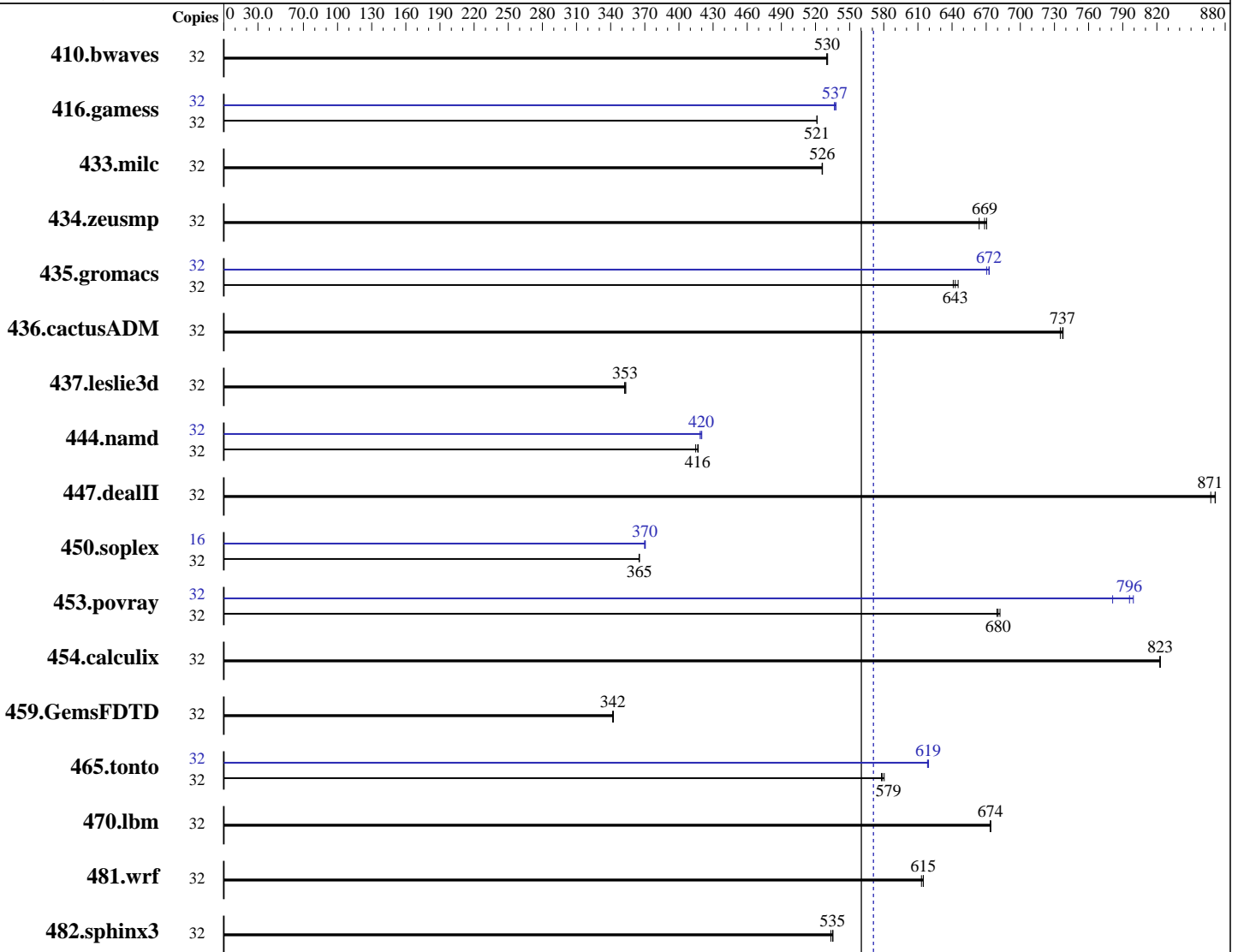
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016



SPECfp\_rate\_base2006 = 560

SPECfp\_rate2006 = 571

### Hardware

CPU Name: Intel Xeon E5-2620 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
 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  
 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: No  
 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

SPECfp\_rate2006 = **571**

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = **560**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)  
Disk Subsystem: 1 x 800 GB SATA SSD  
Other Hardware: None

Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	821	530	<b>820</b>	<b>530</b>	819	531	32	821	530	<b>820</b>	<b>530</b>	819	531
416.gamess	32	1202	521	1202	521	<b>1202</b>	<b>521</b>	32	1165	538	1168	537	<b>1167</b>	<b>537</b>
433.milc	32	559	526	<b>559</b>	<b>526</b>	558	526	32	559	526	<b>559</b>	<b>526</b>	558	526
434.zeusmp	32	439	664	<b>436</b>	<b>669</b>	434	670	32	439	664	<b>436</b>	<b>669</b>	434	670
435.gromacs	32	354	645	<b>355</b>	<b>643</b>	356	641	32	340	673	<b>340</b>	<b>672</b>	341	670
436.cactusADM	32	518	738	<b>519</b>	<b>737</b>	520	735	32	518	738	<b>519</b>	<b>737</b>	520	735
437.leslie3d	32	<b>853</b>	<b>353</b>	854	352	851	353	32	<b>853</b>	<b>353</b>	854	352	851	353
444.namd	32	<b>616</b>	<b>416</b>	619	415	616	417	32	<b>612</b>	<b>420</b>	613	419	611	420
447.dealII	32	422	867	420	871	<b>420</b>	<b>871</b>	32	422	867	420	871	<b>420</b>	<b>871</b>
450.soplex	32	731	365	731	365	<b>731</b>	<b>365</b>	16	<b>361</b>	<b>370</b>	360	370	361	370
453.povray	32	<b>250</b>	<b>680</b>	251	679	250	682	32	218	781	213	799	<b>214</b>	<b>796</b>
454.calculix	32	321	823	<b>321</b>	<b>823</b>	321	823	32	321	823	<b>321</b>	<b>823</b>	321	823
459.GemsFDTD	32	993	342	<b>993</b>	<b>342</b>	991	342	32	993	342	<b>993</b>	<b>342</b>	991	342
465.tonto	32	543	580	<b>544</b>	<b>579</b>	545	578	32	508	619	509	618	<b>509</b>	<b>619</b>
470.lbm	32	652	674	<b>653</b>	<b>674</b>	653	674	32	652	674	<b>653</b>	<b>674</b>	653	674
481.wrf	32	583	613	581	615	<b>581</b>	<b>615</b>	32	583	613	581	615	<b>581</b>	<b>615</b>
482.sphinx3	32	<b>1166</b>	<b>535</b>	1165	535	1169	534	32	<b>1166</b>	<b>535</b>	1165	535	1169	534

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## 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 ES mode

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## Platform Notes (Continued)

```
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-eqld Mon Oct 24 20:21:50 2016
```

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) CPU E5-2620 v4 @ 2.10GHz
 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 : 8
  siblings  : 16
  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:      264062632 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1
```

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## Platform Notes (Continued)

run-level 3 Oct 24 08:09 last=5

SPEC is set to: /spec16

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	714G	40G	674G	6%	/

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 Insyde Corp. 3.25 06/18/2016

Memory:

8x Samsung M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz, configured at 2133 MHz

(End of data from sysinfo program)

## General Notes

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

LD\_LIBRARY\_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"

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

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## 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



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

## 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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

## Peak Compiler Invocation

C benchmarks:

```

icc -m64

```

C++ benchmarks (except as noted below):

```

icpc -m64

```

```

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test date: Oct-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

## Peak Compiler Invocation (Continued)

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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: -D\_FILE\_OFFSET\_BITS=64  
 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

## 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) -opt-mem-layout-trans=3(pass 2)  
 -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test date: Oct-2016

Test sponsor: Huawei

Hardware Availability: Mar-2016

Tested by: Huawei

Software Availability: Mar-2016

## Peak Optimization Flags (Continued)

450.soplex: -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) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-malloc-options=3

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) -opt-mem-layout-trans=3(pass 2)  
-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: basepeak = yes

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) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -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) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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 CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 571

Huawei CH140 V3 (Intel Xeon E5-2620 v4)

SPECfp\_rate\_base2006 = 560

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016

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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Nov 15 16:06:16 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 15 November 2016.