



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Huawei

SPECfp<sup>®</sup>\_rate2006 = 1260

### Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

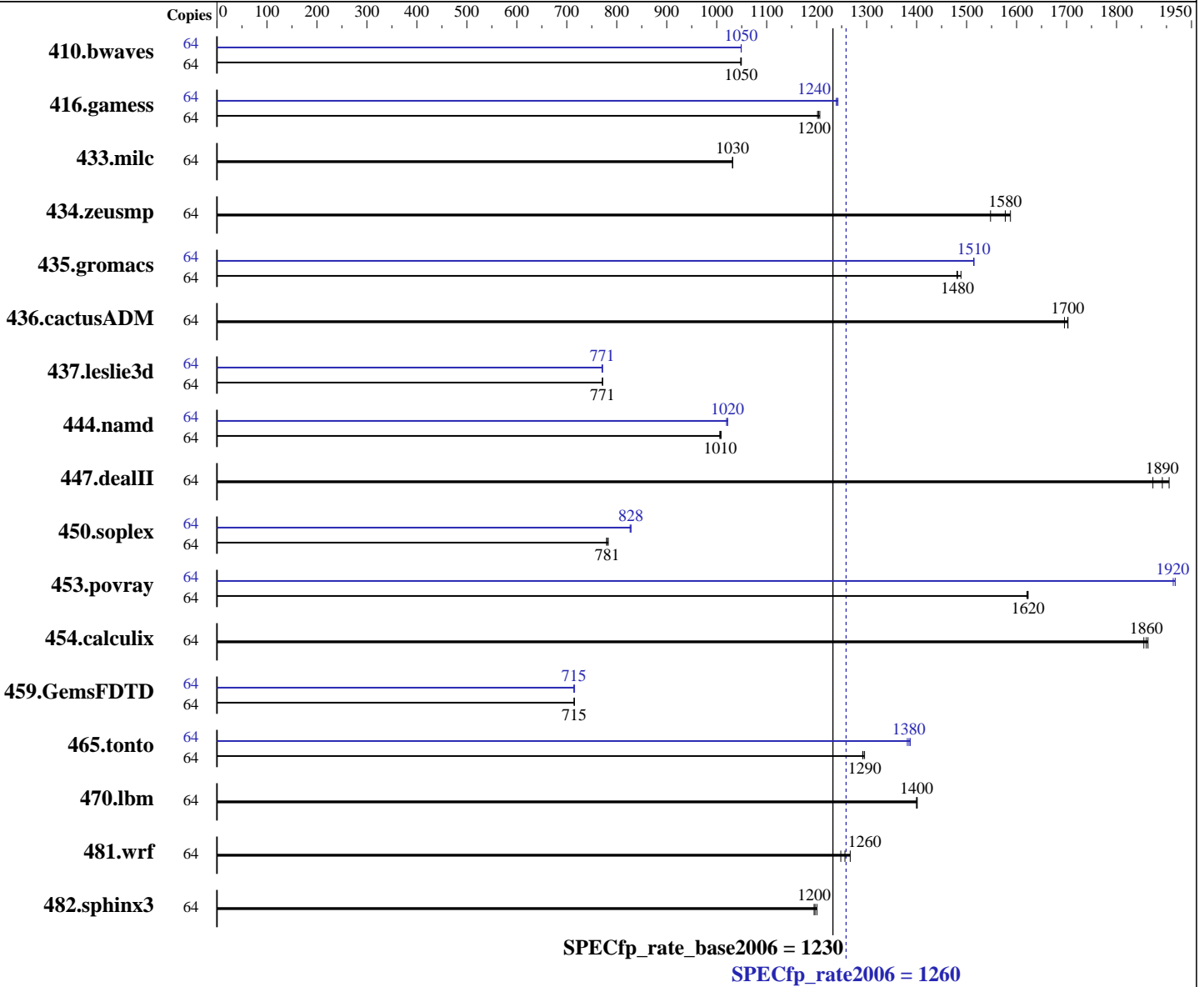
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016



#### Hardware

CPU Name: Intel Xeon Gold 6130  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 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: 1 MB I+D on chip per core

Continued on next page

#### Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)  
 3.10.0-514.el7.x86\_64  
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux  
 Auto Parallel: No  
 File System: xfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

L3 Cache: 22 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem: 1 x 1200 GB SAS, 10000 RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
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	64	829	1050	<u>829</u>	<u>1050</u>	830	1050	64	829	1050	<u>829</u>	<u>1050</u>	829	1050
416.gamess	64	1043	1200	1039	1210	<u>1041</u>	<u>1200</u>	64	1008	1240	<u>1010</u>	<u>1240</u>	1011	1240
433.milc	64	570	1030	569	1030	<u>569</u>	<u>1030</u>	64	570	1030	569	1030	<u>569</u>	<u>1030</u>
434.zeusmp	64	376	1550	367	1590	<u>369</u>	<u>1580</u>	64	376	1550	367	1590	<u>369</u>	<u>1580</u>
435.gromacs	64	307	1490	<u>308</u>	<u>1480</u>	309	1480	64	<u>302</u>	<u>1510</u>	302	1510	302	1510
436.cactusADM	64	451	1700	449	1700	<u>449</u>	<u>1700</u>	64	451	1700	449	1700	<u>449</u>	<u>1700</u>
437.leslie3d	64	<u>780</u>	<u>771</u>	779	772	780	771	64	<u>780</u>	<u>771</u>	780	772	781	771
444.namd	64	<u>509</u>	<u>1010</u>	509	1010	510	1010	64	<u>502</u>	<u>1020</u>	503	1020	502	1020
447.dealII	64	<u>387</u>	<u>1890</u>	384	1910	391	1870	64	<u>387</u>	<u>1890</u>	384	1910	391	1870
450.soplex	64	<u>684</u>	<u>781</u>	682	783	685	780	64	644	828	<u>644</u>	<u>828</u>	646	827
453.povray	64	210	1620	210	1620	<u>210</u>	<u>1620</u>	64	178	1920	<u>178</u>	<u>1920</u>	178	1910
454.calculix	64	285	1850	<u>284</u>	<u>1860</u>	283	1860	64	285	1850	<u>284</u>	<u>1860</u>	283	1860
459.GemsFDTD	64	<u>950</u>	<u>715</u>	950	714	949	715	64	<u>950</u>	<u>715</u>	949	716	951	714
465.tonto	64	486	1300	487	1290	<u>487</u>	<u>1290</u>	64	454	1390	<u>455</u>	<u>1380</u>	456	1380
470.lbm	64	628	1400	<u>628</u>	<u>1400</u>	628	1400	64	628	1400	<u>628</u>	<u>1400</u>	628	1400
481.wrf	64	<u>569</u>	<u>1260</u>	564	1270	573	1250	64	<u>569</u>	<u>1260</u>	564	1270	573	1250
482.sphinx3	64	<u>1042</u>	<u>1200</u>	1044	1190	1039	1200	64	<u>1042</u>	<u>1200</u>	1044	1190	1039	1200

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 SNC to Enable

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Platform Notes (Continued)

```

Set IMC Interleaving to 1 way
Set Patrol Scrub to Disable
Sysinfo program /spec17/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Sun Jun  4 13:48:35 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) Gold 6130 CPU @ 2.10GHz
 2 "physical id"s (chips)
 64 "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     : 32
  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:      394144692 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13
EDT 2016 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jun 2 10:51

```

SPEC is set to: /spec17
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   898G  16G  883G   2% /

```

Additional information from dmidecode:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Platform Notes (Continued)

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. 0.10 03/09/2017

Memory:

24x Samsung M393A2K43BB1-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:

LD\_LIBRARY\_PATH = "/spec17/libs/32:/spec17/libs/64:/spec17/sh10.2"

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

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

## 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 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175  
Test sponsor: Huawei  
Tested by: Huawei

Test date: Jun-2017  
Hardware Availability: Aug-2017  
Software Availability: Nov-2016

## 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 -qopt-prefetch -auto-p32  
-qopt-mem-layout-trans=3

C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-qopt-mem-layout-trans=3

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

Benchmarks using both Fortran and C:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-qopt-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\_2017/linux/lib/ia32

Fortran benchmarks:  
ifort -m64

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



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## 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.lelie3d: -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: -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
         -qopt-mem-layout-trans=3

```

447.dealII: basepeak = yes

```

450.soplex: -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) -qopt-malloc-options=3
           -qopt-mem-layout-trans=3

```

```

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 -qopt-mem-layout-trans=3

```

Fortran benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1260

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECfp\_rate\_base2006 = 1230

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Peak Optimization Flags (Continued)

410.bwaves: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

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

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -qopt-prefetch -auto-ilp32  
-qopt-mem-layout-trans=3

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-ic17.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.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.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Jul 25 15:52:51 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 25 July 2017.