



# SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Huawei

SPECfp®\_rate2006 = 1510

### Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

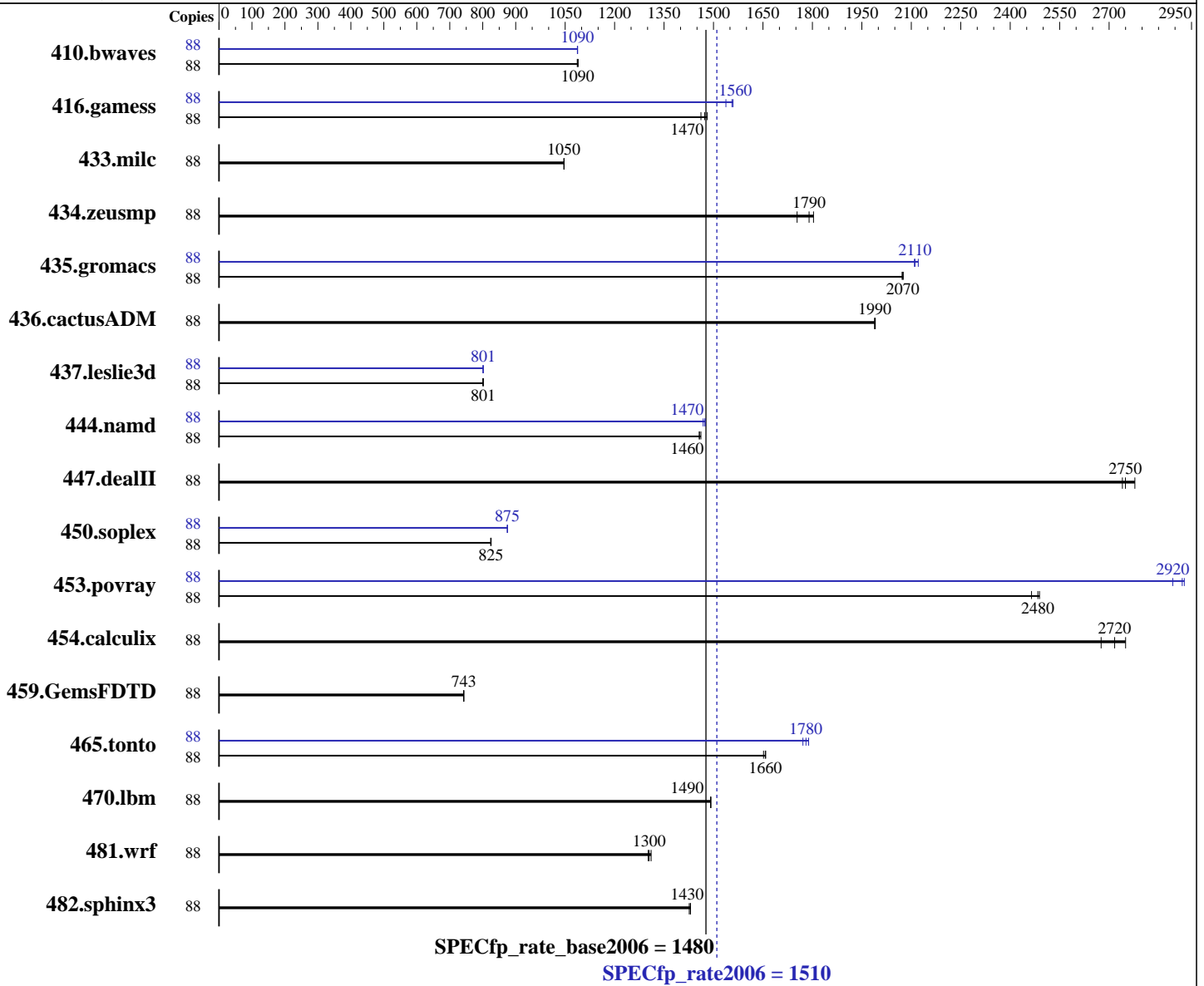
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016



#### Hardware

CPU Name: Intel Xeon Gold 6152  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 44 cores, 2 chips, 22 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 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

L3 Cache: 30.25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 768 GB (24 x 32 GB 2Rx4 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	88	1098	1090	1101	1090	<u>1099</u>	<u>1090</u>	88	1100	1090	1099	1090	<u>1100</u>	<u>1090</u>
416.gamess	88	1163	1480	<u>1170</u>	<u>1470</u>	1179	1460	88	1121	1540	<u>1107</u>	<u>1560</u>	1105	1560
433.milc	88	772	1050	<u>772</u>	<u>1050</u>	772	1050	88	772	1050	<u>772</u>	<u>1050</u>	772	1050
434.zeusmp	88	<u>447</u>	<u>1790</u>	457	1750	444	1800	88	<u>447</u>	<u>1790</u>	457	1750	444	1800
435.gromacs	88	303	2080	<u>303</u>	<u>2070</u>	303	2070	88	<u>298</u>	<u>2110</u>	298	2110	296	2120
436.cactusADM	88	528	1990	529	1990	<u>529</u>	<u>1990</u>	88	528	1990	529	1990	<u>529</u>	<u>1990</u>
437.leslie3d	88	<u>1032</u>	<u>801</u>	1034	800	1032	802	88	<u>1032</u>	<u>801</u>	1032	802	1033	801
444.namd	88	<u>484</u>	<u>1460</u>	483	1460	484	1460	88	481	1470	479	1470	<u>479</u>	<u>1470</u>
447.dealII	88	<u>366</u>	<u>2750</u>	367	2740	362	2780	88	<u>366</u>	<u>2750</u>	367	2740	362	2780
450.soplex	88	<u>890</u>	<u>825</u>	889	826	890	824	88	<u>839</u>	<u>875</u>	839	875	839	875
453.povray	88	190	2460	188	2490	<u>188</u>	<u>2480</u>	88	162	2890	<u>160</u>	<u>2920</u>	160	2930
454.calculix	88	271	2680	264	2750	<u>267</u>	<u>2720</u>	88	271	2680	264	2750	<u>267</u>	<u>2720</u>
459.GemsFDTD	88	1257	743	<u>1257</u>	<u>743</u>	1259	742	88	1257	743	<u>1257</u>	<u>743</u>	1259	742
465.tonto	88	524	1650	<u>523</u>	<u>1660</u>	522	1660	88	<u>486</u>	<u>1780</u>	484	1790	489	1770
470.lbm	88	811	1490	<u>811</u>	<u>1490</u>	810	1490	88	811	1490	<u>811</u>	<u>1490</u>	810	1490
481.wrf	88	755	1300	<u>753</u>	<u>1300</u>	750	1310	88	755	1300	<u>753</u>	<u>1300</u>	750	1310
482.sphinx3	88	1202	1430	<u>1200</u>	<u>1430</u>	1199	1430	88	1202	1430	<u>1200</u>	<u>1430</u>	1199	1430

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 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

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 Sat Jun 10 20:54:21 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 6152 CPU @ 2.10GHz
 2 "physical id"s (chips)
 88 "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 : 22
siblings : 44
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
28
cache size : 30976 KB
```

```
From /proc/meminfo
MemTotal: 790481628 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 7 11:42

```
SPEC is set to: /spec17
Filesystem Type Size Used Avail Use% Mounted on
Continued on next page
```



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Platform Notes (Continued)

/dev/sda2 xfs 898G 16G 883G 2% /  
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. 0.13 04/11/2017

Memory:

24x Samsung M393A4K40BB2-CTD 32 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

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 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

Test date: Jun-2017

Test sponsor: Huawei

Hardware Availability: Aug-2017

Tested by: Huawei

Software Availability: Nov-2016

## Base Portability Flags (Continued)

```

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 -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
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Peak Compiler Invocation (Continued)

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: -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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

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)

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:

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: basepeak = yes

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 CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Huawei

SPECfp\_rate2006 = 1510

Huawei CH121 V5 (Intel Xeon Gold 6152)

SPECfp\_rate\_base2006 = 1480

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-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 Jul 25 15:51:39 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 25 July 2017.