



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECfp<sup>®</sup>2006 = **108**

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = **103**

CPU2006 license: 3175

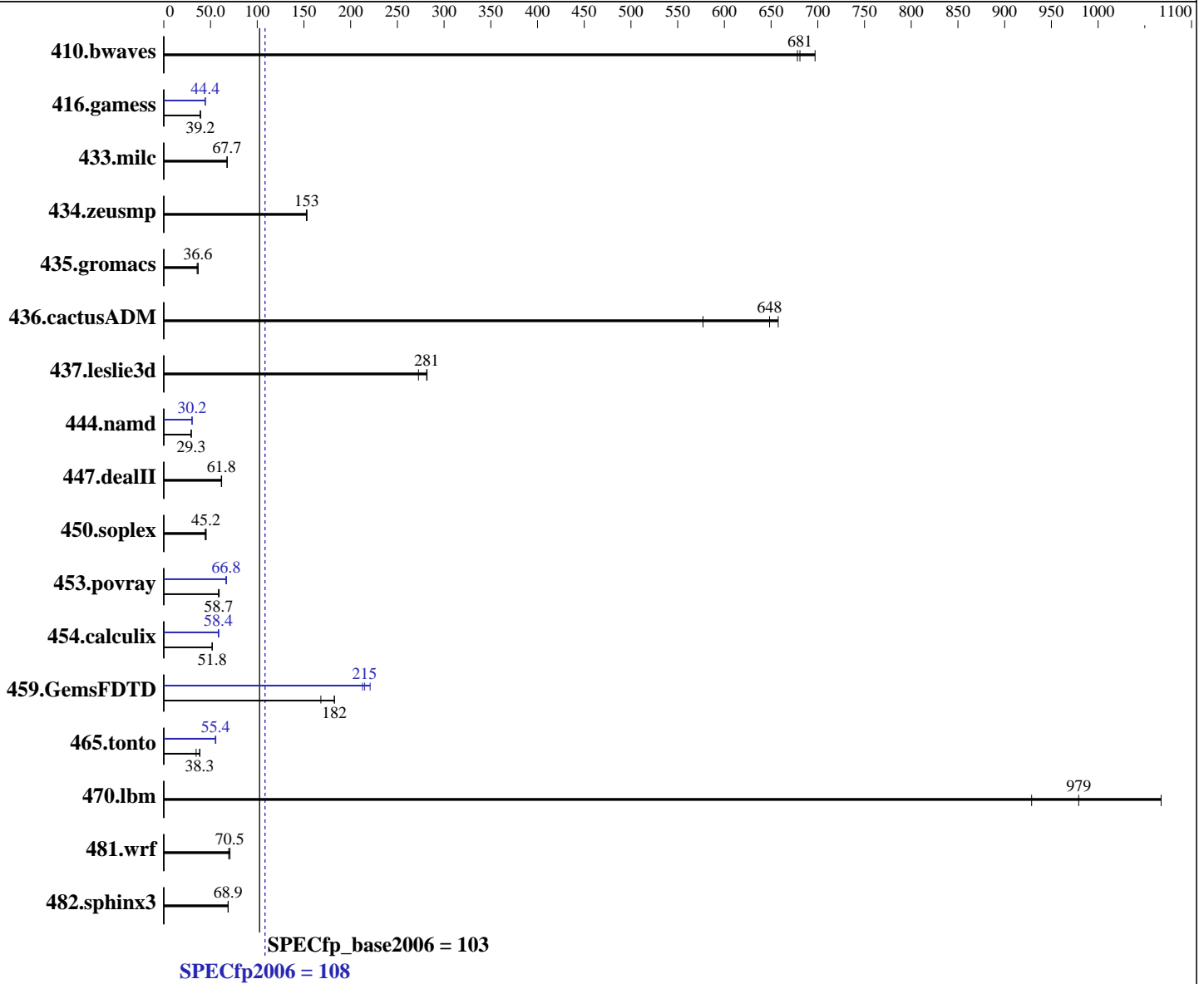
Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-2015



### Hardware

CPU Name: Intel Xeon E7-8880 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 88 cores, 4 chips, 22 cores/chip  
 CPU(s) orderable: 2,4 chips  
 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: Red Hat Enterprise Linux Server release 7.2 (Maipo)  
 3.10.0-327.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Huawei

SPECfp2006 = **108**

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = **103**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-2015

L3 Cache: 55 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx8 PC4-2400T-R, running at 1600 MHz)  
 Disk Subsystem: 1 x 1000 GB SATA, 7200 RPM  
 Other Hardware: None

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    | <b>20.0</b> | <b>681</b>  | 19.5        | 697         | 20.0        | 678         | <b>20.0</b> | <b>681</b>  | 19.5        | 697         | 20.0        | 678         |
| 416.gamess    | <b>500</b>  | <b>39.2</b> | 499         | 39.2        | 500         | 39.2        | 441         | 44.4        | 441         | 44.4        | <b>441</b>  | <b>44.4</b> |
| 433.milc      | 135         | 67.9        | <b>136</b>  | <b>67.7</b> | 136         | 67.7        | 135         | 67.9        | <b>136</b>  | <b>67.7</b> | 136         | 67.7        |
| 434.zeusmp    | <b>59.5</b> | <b>153</b>  | 59.6        | 153         | 59.4        | 153         | <b>59.5</b> | <b>153</b>  | 59.6        | 153         | 59.4        | 153         |
| 435.gromacs   | <b>195</b>  | <b>36.6</b> | 195         | 36.7        | 200         | 35.7        | <b>195</b>  | <b>36.6</b> | 195         | 36.7        | 200         | 35.7        |
| 436.cactusADM | 20.7        | 577         | 18.2        | 658         | <b>18.4</b> | <b>648</b>  | 20.7        | 577         | 18.2        | 658         | <b>18.4</b> | <b>648</b>  |
| 437.leslie3d  | <b>33.4</b> | <b>281</b>  | 33.4        | 282         | 34.5        | 273         | <b>33.4</b> | <b>281</b>  | 33.4        | 282         | 34.5        | 273         |
| 444.namd      | 273         | 29.4        | 274         | 29.3        | <b>273</b>  | <b>29.3</b> | 265         | 30.2        | <b>265</b>  | <b>30.2</b> | 265         | 30.2        |
| 447.dealII    | <b>185</b>  | <b>61.8</b> | 185         | 61.9        | 186         | 61.6        | <b>185</b>  | <b>61.8</b> | 185         | 61.9        | 186         | 61.6        |
| 450.soplex    | 188         | 44.3        | <b>185</b>  | <b>45.2</b> | 184         | 45.2        | 188         | 44.3        | <b>185</b>  | <b>45.2</b> | 184         | 45.2        |
| 453.povray    | 89.7        | 59.3        | 90.8        | 58.6        | <b>90.6</b> | <b>58.7</b> | 79.4        | 67.0        | 79.8        | 66.6        | <b>79.7</b> | <b>66.8</b> |
| 454.calculix  | 158         | 52.1        | 160         | 51.7        | <b>159</b>  | <b>51.8</b> | <b>141</b>  | <b>58.4</b> | 141         | 58.3        | 140         | 58.9        |
| 459.GemsFDTD  | <b>58.2</b> | <b>182</b>  | 58.1        | 183         | 63.1        | 168         | 48.0        | 221         | <b>49.3</b> | <b>215</b>  | 49.8        | 213         |
| 465.tonto     | 255         | 38.6        | 284         | 34.6        | <b>257</b>  | <b>38.3</b> | <b>178</b>  | <b>55.4</b> | 177         | 55.7        | 178         | 55.3        |
| 470.lbm       | 14.8        | 929         | <b>14.0</b> | <b>979</b>  | 12.9        | 1070        | 14.8        | 929         | <b>14.0</b> | <b>979</b>  | 12.9        | 1070        |
| 481.wrf       | 161         | 69.4        | 158         | 70.8        | <b>158</b>  | <b>70.5</b> | 161         | 69.4        | 158         | 70.8        | <b>158</b>  | <b>70.5</b> |
| 482.sphinx3   | <b>283</b>  | <b>68.9</b> | 283         | 68.9        | 283         | 68.9        | <b>283</b>  | <b>68.9</b> | 283         | 68.9        | 283         | 68.9        |

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 Custom  
 Set Hyper-Threading to Disabled  
 Set Lock\_step to disabled  
 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 localhost.localdomain Fri Dec 2 11:05:37 2016

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 108

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = 103

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-2015

## Platform Notes (Continued)

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 E7-8880 v4 @ 2.20GHz
 4 "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       : 22
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
physical 2:    cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
                28
physical 3:    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     : 56320 KB

```

```

From /proc/meminfo
MemTotal:      528075896 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Dec 2 05:59

```

SPEC is set to: /spec16
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  867G  168G  655G   21% /

```

Additional information from dmidecode:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

|  |                          |            |
|--|--------------------------|------------|
| <b>Huawei</b>                                  | <b>SPECfp2006 =</b>      | <b>108</b> |
| <b>Huawei CH242 V3 (Intel Xeon E7-8880 v4)</b> | <b>SPECfp_base2006 =</b> | <b>103</b> |

|                              |  |
|------------------------------|--|
| <b>CPU2006 license:</b> 3175 | <b>Test date:</b> Dec-2016             |
| <b>Test sponsor:</b> Huawei  | <b>Hardware Availability:</b> Jun-2016 |
| <b>Tested by:</b> Huawei     | <b>Software Availability:</b> Nov-2015 |

## 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 American Megatrends Inc. BLISV788 11/07/2016

Memory:

32x Samsung M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz, configured at 1600 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,1,0"
LD_LIBRARY_PATH = "/spec16/libs/32:/spec16/libs/64:/spec16/sh"
OMP_NUM_THREADS = "88"
```

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>
```

## 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



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Huawei

SPECfp2006 = 108

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = 103

CPU2006 license: 3175

Test date: Dec-2016

Test sponsor: Huawei

Hardware Availability: Jun-2016

Tested by: Huawei

Software Availability: Nov-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 = 108

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = 103

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-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 = 108

Huawei CH242 V3 (Intel Xeon E7-8880 v4)

SPECfp\_base2006 = 103

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Dec-2016

Hardware Availability: Jun-2016

Software Availability: Nov-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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.

Report generated on Wed Dec 28 10:52:24 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 27 December 2016.

Standard Performance Evaluation Corporation

[info@spec.org](mailto:info@spec.org)

<http://www.spec.org/>

Page 7