



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = 92.5

Huawei RH1288 V2 (Intel Xeon E5-2660 V2)

SPECfp\_base2006 = 88.6

CPU2006 license: 3175

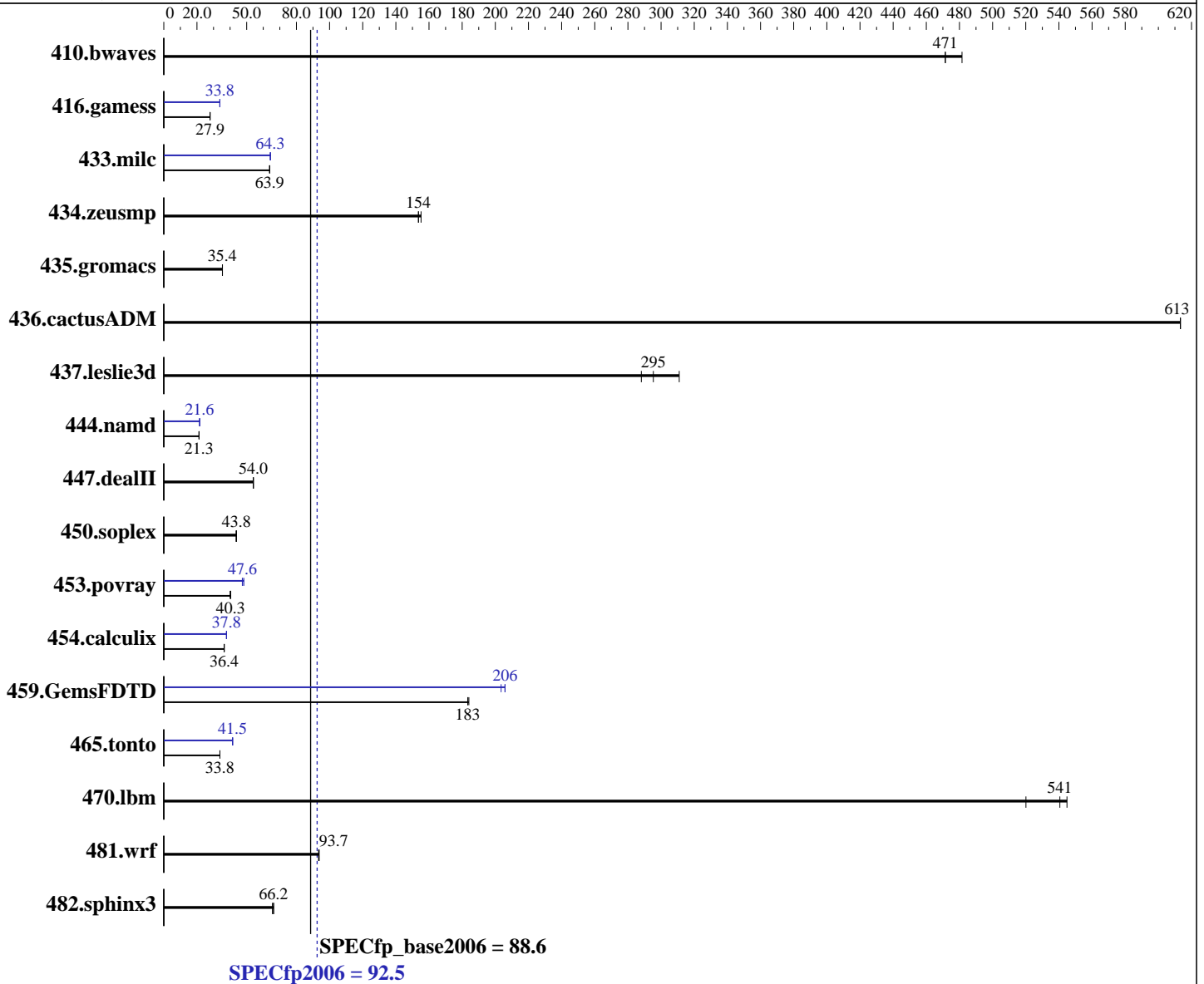
Test sponsor: Huawei

Tested by: Huawei

Test date: Apr-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



**Hardware**

CPU Name: Intel Xeon E5-2660 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

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**Software**

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 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	<b>28.8</b>	<b>471</b>	28.8	471	28.2	482	<b>28.8</b>	<b>471</b>	28.8	471	28.2	482
416.gamess	702	27.9	<b>702</b>	<b>27.9</b>	702	27.9	579	33.8	<b>579</b>	<b>33.8</b>	579	33.8
433.milc	144	63.8	144	63.9	<b>144</b>	<b>63.9</b>	<b>143</b>	<b>64.3</b>	143	64.3	143	64.3
434.zeusmp	59.2	154	<b>59.2</b>	<b>154</b>	58.6	155	59.2	154	<b>59.2</b>	<b>154</b>	58.6	155
435.gromacs	202	35.4	<b>202</b>	<b>35.4</b>	202	35.4	202	35.4	<b>202</b>	<b>35.4</b>	202	35.4
436.cactusADM	<b>19.5</b>	<b>613</b>	19.5	613	19.5	613	<b>19.5</b>	<b>613</b>	19.5	613	19.5	613
437.leslie3d	<b>31.8</b>	<b>295</b>	30.2	311	32.6	288	<b>31.8</b>	<b>295</b>	30.2	311	32.6	288
444.namd	377	21.3	<b>377</b>	<b>21.3</b>	377	21.3	371	21.6	<b>371</b>	<b>21.6</b>	371	21.6
447.dealII	<b>212</b>	<b>54.0</b>	212	54.0	212	54.1	<b>212</b>	<b>54.0</b>	212	54.0	212	54.1
450.soplex	190	43.8	191	43.6	<b>190</b>	<b>43.8</b>	190	43.8	191	43.6	<b>190</b>	<b>43.8</b>
453.povray	<b>132</b>	<b>40.3</b>	132	40.4	133	40.0	<b>112</b>	<b>47.6</b>	110	48.3	112	47.4
454.calculix	227	36.4	226	36.5	<b>227</b>	<b>36.4</b>	218	37.8	<b>218</b>	<b>37.8</b>	218	37.8
459.GemsFDTD	57.8	183	57.6	184	<b>57.8</b>	<b>183</b>	<b>51.5</b>	<b>206</b>	52.1	203	51.5	206
465.tonto	<b>291</b>	<b>33.8</b>	291	33.9	291	33.8	<b>237</b>	<b>41.5</b>	237	41.6	237	41.4
470.lbm	25.2	545	<b>25.4</b>	<b>541</b>	26.4	520	25.2	545	<b>25.4</b>	<b>541</b>	26.4	520
481.wrf	120	93.3	<b>119</b>	<b>93.7</b>	119	93.7	120	93.3	<b>119</b>	<b>93.7</b>	119	93.7
482.sphinx3	<b>294</b>	<b>66.2</b>	297	65.5	294	66.2	<b>294</b>	<b>66.2</b>	297	65.5	294	66.2

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

Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on localhost Mon Apr 28 21:52:20 2014

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 E5-2660 v2 @ 2.20GHz  
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## Platform Notes (Continued)

2 "physical id"s (chips)  
20 "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 : 10
siblings  : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      264478184 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

/usr/bin/lsc\_release -d

Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/\*release\* /etc/\*version\*

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Apr 28 15:38

SPEC is set to: /spec

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  272G   88G  170G  34% /
```

Additional information from dmidecode:

Memory:

```
13x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
3x Samsung M393B2G70DB0-CMA 16 GB 1867 MHz 2 rank
```

(End of data from sysinfo program)

## General Notes

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

```
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "20"
```

Binaries compiled on a system with 2x Xeon X5645 CPU + 16GB memory using RHEL 6.1

Transparent Huge Pages enabled with:

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## General Notes (Continued)

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
The Huawei RH2288H v2 and Huawei RH2288 v2 and  
the Huawei RH1288 v2 models are electronically equivalent.  
The results have been measured on a Huawei RH2288H v2 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  
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: -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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -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

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

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## Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.html>  
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>  
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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