



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = 68.7

### Huawei RH2288 v2 (Intel Xeon E5-2658)

SPECfp\_base2006 = 66.1

CPU2006 license: 3175

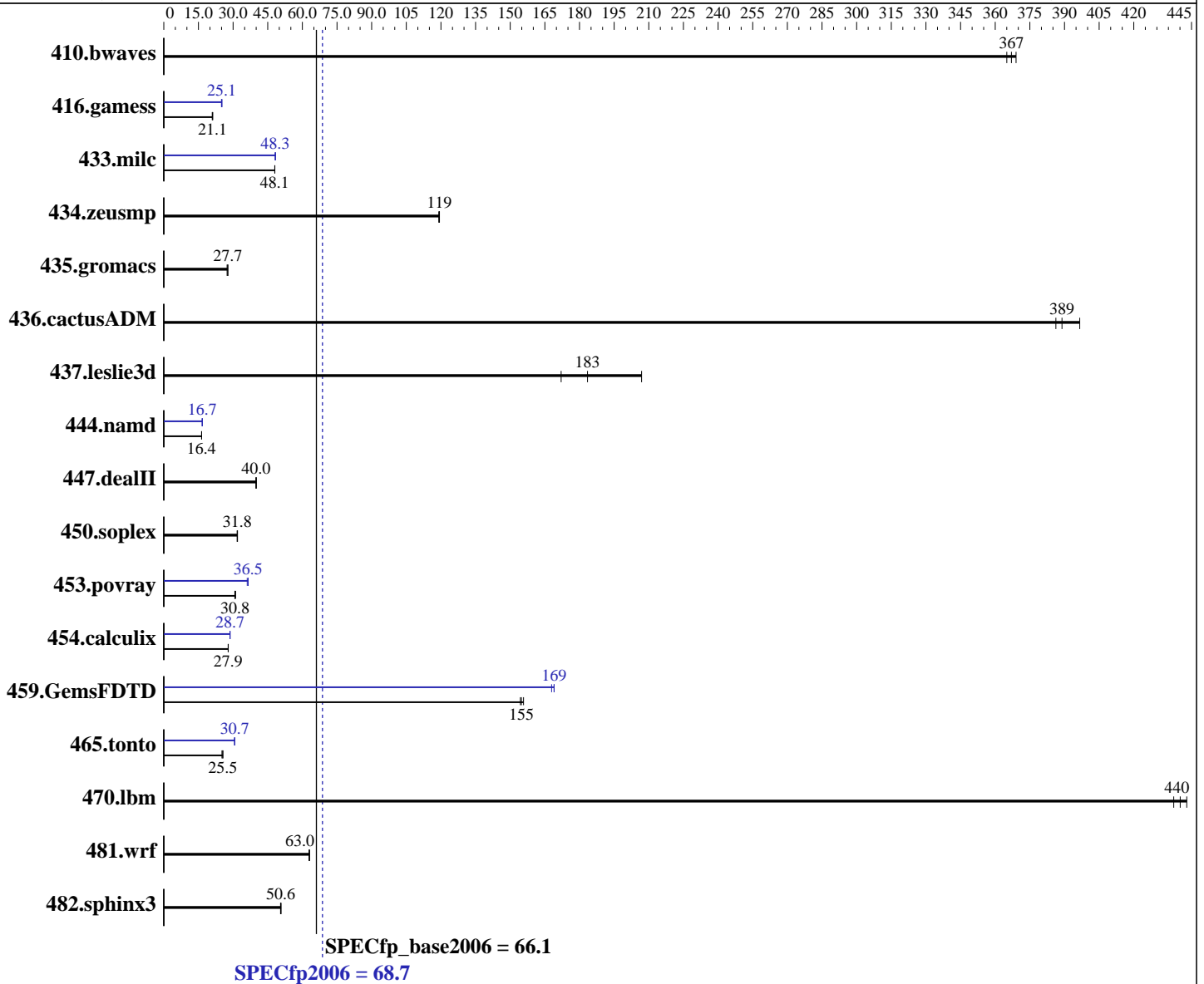
Test sponsor: Huawei

Tested by: Huawei

Test date: Jul-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



**Hardware**

CPU Name: Intel Xeon E5-2658  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
 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

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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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx8 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 10000RPM  
 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	37.2	365	<b>37.0</b>	<b>367</b>	36.8	369	37.2	365	<b>37.0</b>	<b>367</b>	36.8	369
416.gamess	925	21.2	<b>926</b>	<b>21.1</b>	934	21.0	778	25.2	<b>779</b>	<b>25.1</b>	784	25.0
433.milc	191	48.0	<b>191</b>	<b>48.1</b>	191	48.1	<b>190</b>	<b>48.3</b>	190	48.2	190	48.4
434.zeusmp	<b>76.2</b>	<b>119</b>	76.4	119	76.2	119	<b>76.2</b>	<b>119</b>	76.4	119	76.2	119
435.gromacs	257	27.7	<b>258</b>	<b>27.7</b>	261	27.4	257	27.7	<b>258</b>	<b>27.7</b>	261	27.4
436.cactusADM	30.1	397	30.9	386	<b>30.7</b>	<b>389</b>	30.1	397	30.9	386	<b>30.7</b>	<b>389</b>
437.leslie3d	45.4	207	54.6	172	<b>51.2</b>	<b>183</b>	45.4	207	54.6	172	<b>51.2</b>	<b>183</b>
444.namd	490	16.4	490	16.4	<b>490</b>	<b>16.4</b>	482	16.7	<b>482</b>	<b>16.7</b>	482	16.7
447.dealII	<b>286</b>	<b>40.0</b>	286	40.1	287	39.9	<b>286</b>	<b>40.0</b>	286	40.1	287	39.9
450.soplex	262	31.8	<b>262</b>	<b>31.8</b>	261	31.9	262	31.8	<b>262</b>	<b>31.8</b>	261	31.9
453.povray	171	31.1	173	30.8	<b>173</b>	<b>30.8</b>	<b>146</b>	<b>36.5</b>	146	36.5	147	36.1
454.calculix	295	27.9	296	27.9	<b>296</b>	<b>27.9</b>	<b>288</b>	<b>28.7</b>	288	28.6	287	28.7
459.GemsFDTD	68.1	156	68.7	154	<b>68.5</b>	<b>155</b>	62.8	169	<b>62.8</b>	<b>169</b>	63.2	168
465.tonto	391	25.2	385	25.6	<b>386</b>	<b>25.5</b>	321	30.6	<b>320</b>	<b>30.7</b>	320	30.7
470.lbm	31.4	437	<b>31.2</b>	<b>440</b>	31.0	443	31.4	437	<b>31.2</b>	<b>440</b>	31.0	443
481.wrf	177	63.1	178	62.9	<b>177</b>	<b>63.0</b>	177	63.1	178	62.9	<b>177</b>	<b>63.0</b>
482.sphinx3	384	50.8	<b>385</b>	<b>50.6</b>	386	50.5	384	50.8	<b>385</b>	<b>50.6</b>	386	50.5

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  
 Baseboard Management Controller used to adjust the fan speed to 100%  
 Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on localhost Thu Jul 17 01:37:46 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>

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Test date: Jul-2014

Hardware Availability: Sep-2013

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## Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2658 0 @ 2.10GHz
 2 "physical id"s (chips)
 16 "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  : 8
  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:      132103752 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_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 Jul 16 17:29

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext4  193G  18G  166G  10% /

```

Additional information from dmidecode:

```

Memory:
16x Micron 18JSF1G72PDZ-1G6E 8 GB 1600 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 = "16"

```

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

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## General Notes (Continued)

using RHEL 6.1  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## 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.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:

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

C++ benchmarks:

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

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<b>CPU2006 license:</b> 3175	<b>Test date:</b> Jul-2014
<b>Test sponsor:</b> Huawei	<b>Hardware Availability:</b> Sep-2013
<b>Tested by:</b> Huawei	<b>Software Availability:</b> Nov-2013

## Base Optimization Flags (Continued)

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.deallI: 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-linux64.20111122.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-linux64.20111122.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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