



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = 67.7

Huawei RH1288 V2 (Intel Xeon E5-2620 2.0 GHz)

SPECfp\_base2006 = 65.5

CPU2006 license: 3175

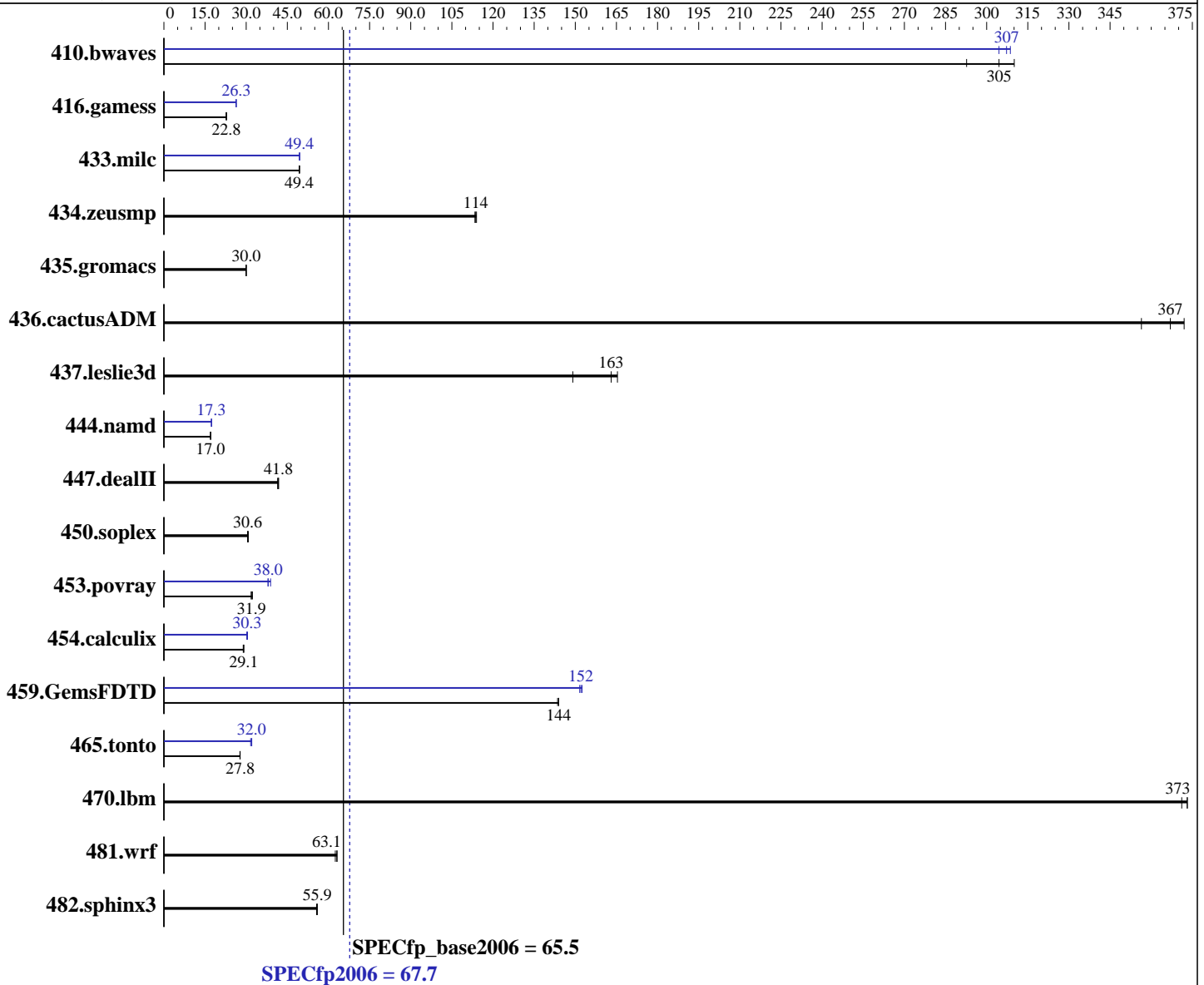
Test date: Jun-2013

Test sponsor: Huawei

Hardware Availability: May-2012

Tested by: Huawei

Software Availability: Feb-2013



### Hardware

CPU Name: Intel Xeon E5-2620  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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 6.4 (Santiago)  
 2.6.32-358.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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-10600R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 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	46.4	293	<b>44.6</b>	<b>305</b>	43.8	310	44.6	304	<b>44.2</b>	<b>307</b>	44.0	309
416.gamess	858	22.8	863	22.7	<b>859</b>	<b>22.8</b>	<b>743</b>	<b>26.3</b>	743	26.4	744	26.3
433.milc	186	49.5	186	49.3	<b>186</b>	<b>49.4</b>	186	49.5	<b>186</b>	<b>49.4</b>	186	49.4
434.zeusmp	80.2	113	79.8	114	<b>80.0</b>	<b>114</b>	80.2	113	79.8	114	<b>80.0</b>	<b>114</b>
435.gromacs	238	30.0	<b>238</b>	<b>30.0</b>	239	29.9	238	30.0	<b>238</b>	<b>30.0</b>	239	29.9
436.cactusADM	<b>32.6</b>	<b>367</b>	32.1	372	33.5	356	<b>32.6</b>	<b>367</b>	32.1	372	33.5	356
437.leslie3d	63.0	149	<b>57.6</b>	<b>163</b>	56.8	165	63.0	149	<b>57.6</b>	<b>163</b>	56.8	165
444.namd	<b>471</b>	<b>17.0</b>	471	17.0	471	17.0	462	17.4	463	17.3	<b>462</b>	<b>17.3</b>
447.dealII	274	41.8	<b>274</b>	<b>41.8</b>	276	41.5	274	41.8	<b>274</b>	<b>41.8</b>	276	41.5
450.soplex	271	30.8	<b>273</b>	<b>30.6</b>	273	30.5	271	30.8	<b>273</b>	<b>30.6</b>	273	30.5
453.povray	<b>167</b>	<b>31.9</b>	167	31.8	165	32.3	<b>140</b>	<b>38.0</b>	137	38.9	140	38.0
454.calculix	<b>284</b>	<b>29.1</b>	285	28.9	283	29.1	273	30.2	<b>272</b>	<b>30.3</b>	271	30.5
459.GemsFDTD	73.9	144	73.7	144	<b>73.7</b>	<b>144</b>	<b>69.8</b>	<b>152</b>	70.0	152	69.6	152
465.tonto	354	27.8	355	27.7	<b>354</b>	<b>27.8</b>	311	31.6	307	32.0	<b>308</b>	<b>32.0</b>
470.lbm	37.0	371	<b>36.8</b>	<b>373</b>	36.8	373	37.0	371	<b>36.8</b>	<b>373</b>	36.8	373
481.wrf	179	62.5	<b>177</b>	<b>63.1</b>	177	63.1	179	62.5	<b>177</b>	<b>63.1</b>	177	63.1
482.sphinx3	350	55.7	<b>349</b>	<b>55.9</b>	349	55.9	350	55.7	<b>349</b>	<b>55.9</b>	349	55.9

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"  
 Select only test related files when installing the operating system

## Platform Notes

BIOS configuration:  
 Set Power Efficiency Mode to Performance  
 Baseboard Management Controller used to adjust the fan speed to 100%  
 Intel Hyper Threading Technology = Disable  
 Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on localhost Thu Jun 27 00:52:42 2013

This section contains SUT (System Under Test) info as seen by  
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**Test date:** Jun-2013

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## Platform Notes (Continued)

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 E5-2620 0 @ 2.00GHz
 2 "physical id"s (chips)
 12 "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 : 6
  siblings  : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal:      132117844 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jun 26 16:59
```

```
SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2       ext4      193G  22G  161G  12% /
```

Additional information from dmidecode:

(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 = "12"
```

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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## 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.dealIII: 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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

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-revE.20121120.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-revE.20121120.xml>



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

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