



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = 78.0

### Huawei RH2288 V2 (Intel Xeon E5-2650)

SPECfp\_base2006 = 73.9

CPU2006 license: 3175

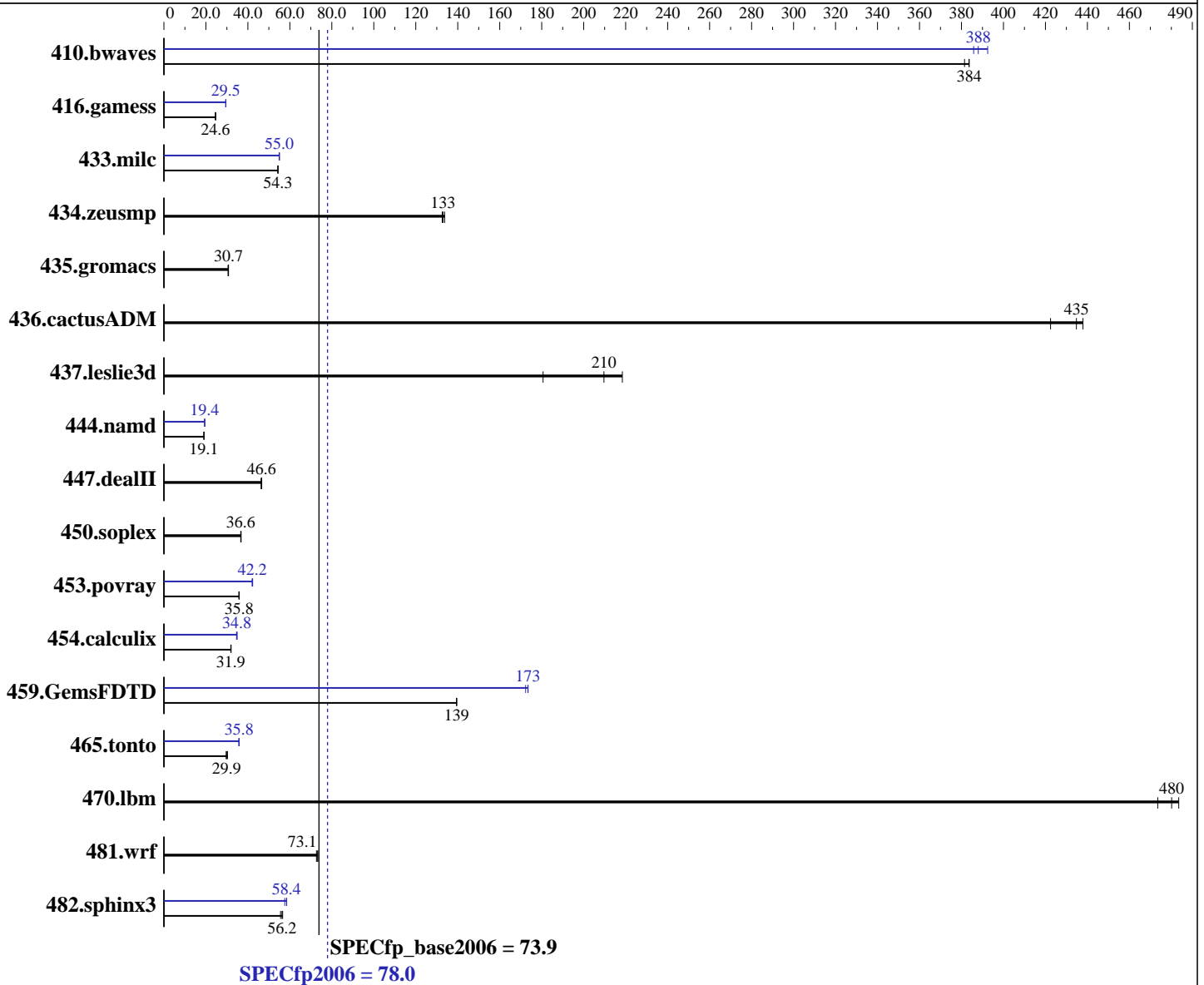
Test date: Jun-2012

Test sponsor: Huawei

Hardware Availability: Mar-2012

Tested by: Huawei

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2650  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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 6.2 (Santiago)  
 2.6.32-220.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 2Rx4 PC3-12800R-11, 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><u>35.4</u></b>	<b><u>384</u></b>	35.6	381	35.4	384	34.6	392	35.2	386	<b><u>35.0</u></b>	<b><u>388</u></b>
416.gamess	<b><u>796</u></b>	<b><u>24.6</u></b>	798	24.5	794	24.7	664	29.5	<b><u>664</u></b>	<b><u>29.5</u></b>	664	29.5
433.milc	169	54.3	169	54.3	<b><u>169</u></b>	<b><u>54.3</u></b>	167	55.0	167	54.9	<b><u>167</u></b>	<b><u>55.0</u></b>
434.zeusmp	68.6	133	68.0	134	<b><u>68.4</u></b>	<b><u>133</u></b>	68.6	133	68.0	134	<b><u>68.4</u></b>	<b><u>133</u></b>
435.gromacs	<b><u>232</u></b>	<b><u>30.7</u></b>	234	30.5	232	30.8	<b><u>232</u></b>	<b><u>30.7</u></b>	234	30.5	232	30.8
436.cactusADM	28.3	422	27.3	438	<b><u>27.5</u></b>	<b><u>435</u></b>	28.3	422	27.3	438	<b><u>27.5</u></b>	<b><u>435</u></b>
437.leslie3d	52.0	181	<b><u>44.8</u></b>	<b><u>210</u></b>	43.0	218	52.0	181	<b><u>44.8</u></b>	<b><u>210</u></b>	43.0	218
444.namd	421	19.1	<b><u>420</u></b>	<b><u>19.1</u></b>	420	19.1	<b><u>413</u></b>	<b><u>19.4</u></b>	413	19.4	413	19.4
447.dealII	<b><u>246</u></b>	<b><u>46.6</u></b>	247	46.3	245	46.6	<b><u>246</u></b>	<b><u>46.6</u></b>	247	46.3	245	46.6
450.soplex	227	36.8	228	36.6	<b><u>228</u></b>	<b><u>36.6</u></b>	227	36.8	228	36.6	<b><u>228</u></b>	<b><u>36.6</u></b>
453.povray	<b><u>149</u></b>	<b><u>35.8</u></b>	148	35.9	149	35.7	<b><u>126</u></b>	<b><u>42.2</u></b>	127	42.0	126	42.3
454.calculix	259	31.9	<b><u>259</u></b>	<b><u>31.9</u></b>	258	32.0	238	34.6	237	34.9	<b><u>237</u></b>	<b><u>34.8</u></b>
459.GemsFDTD	<b><u>76.1</u></b>	<b><u>139</u></b>	76.1	139	76.1	139	<b><u>61.2</u></b>	<b><u>173</u></b>	61.6	172	61.2	173
465.tonto	332	29.7	325	30.3	<b><u>330</u></b>	<b><u>29.9</u></b>	275	35.7	275	35.8	<b><u>275</u></b>	<b><u>35.8</u></b>
470.lbm	<b><u>28.6</u></b>	<b><u>480</u></b>	29.0	474	28.4	484	<b><u>28.6</u></b>	<b><u>480</u></b>	29.0	474	28.4	484
481.wrf	<b><u>153</u></b>	<b><u>73.1</u></b>	154	72.7	152	73.3	<b><u>153</u></b>	<b><u>73.1</u></b>	154	72.7	152	73.3
482.sphinx3	351	55.6	<b><u>347</u></b>	<b><u>56.2</u></b>	345	56.6	339	57.6	333	58.5	<b><u>334</u></b>	<b><u>58.4</u></b>

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"  
 Transparent Huge Pages enabled with:  
 echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
 Select only test related files when installing the operating system

## Platform Notes

BIOS configuration:  
 Intel Hyper-Threading set to Disabled  
 Set Power Efficiency Mode to Performance  
 Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on RH62-rebuild Sun Jun 24 13:19:20 2012

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## 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 E5-2650 0 @ 2.00GHz
 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:        132124032 kB
HugePages_Total: 0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux RH62-rebuild 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jun 21 09:16

```

SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      289G  102G  173G   37% /

```

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 = "16"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5



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## 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

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



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## 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: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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

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

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## Peak Optimization Flags (Continued)

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.20120703.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.20120703.xml>

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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 Thu Jul 24 10:04:33 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 25 July 2012.