



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = **61.9**

Huawei RH2285 v2 (Intel Xeon E5-2407 v2)

SPECfp\_base2006 = **60.5**

CPU2006 license: 3175

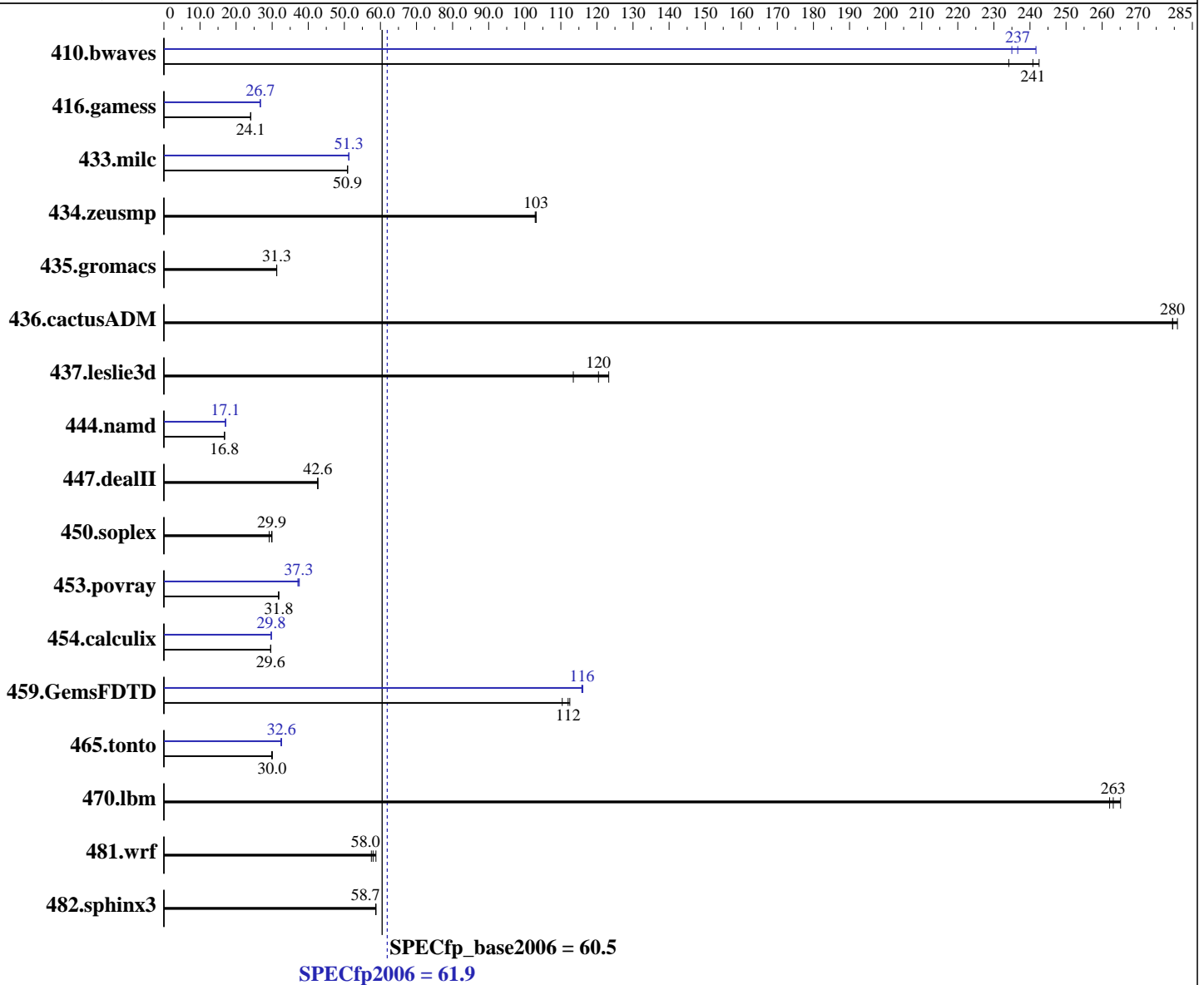
Test date: May-2014

Test sponsor: Huawei

Hardware Availability: Mar-2014

Tested by: Huawei

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2407 v2  
 CPU Characteristics:  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11,ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 7200RPM  
 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	58.0	234	<b>56.4</b>	<b>241</b>	56.0	243	<b>57.4</b>	<b>237</b>	57.8	235	56.2	242
416.gamess	814	24.1	815	24.0	<b>814</b>	<b>24.1</b>	733	26.7	733	26.7	<b>733</b>	<b>26.7</b>
433.milc	180	50.9	<b>180</b>	<b>50.9</b>	180	50.9	179	51.3	179	51.2	<b>179</b>	<b>51.3</b>
434.zeusmp	<b>88.2</b>	<b>103</b>	88.2	103	88.4	103	<b>88.2</b>	<b>103</b>	88.2	103	88.4	103
435.gromacs	228	31.3	229	31.2	<b>228</b>	<b>31.3</b>	228	31.3	229	31.2	<b>228</b>	<b>31.3</b>
436.cactusADM	<b>42.7</b>	<b>280</b>	42.5	281	42.7	280	<b>42.7</b>	<b>280</b>	42.5	281	42.7	280
437.leslie3d	76.3	123	<b>78.1</b>	<b>120</b>	82.9	113	76.3	123	<b>78.1</b>	<b>120</b>	82.9	113
444.namd	478	16.8	478	16.8	<b>478</b>	<b>16.8</b>	470	17.1	<b>470</b>	<b>17.1</b>	470	17.1
447.dealII	268	42.6	268	42.6	<b>268</b>	<b>42.6</b>	268	42.6	268	42.6	<b>268</b>	<b>42.6</b>
450.soplex	286	29.2	<b>279</b>	<b>29.9</b>	278	30.0	286	29.2	<b>279</b>	<b>29.9</b>	278	30.0
453.povray	168	31.7	<b>167</b>	<b>31.8</b>	167	31.9	142	37.5	<b>143</b>	<b>37.3</b>	143	37.1
454.calculix	279	29.6	279	29.6	<b>279</b>	<b>29.6</b>	277	29.8	278	29.7	<b>277</b>	<b>29.8</b>
459.GemsFDTD	<b>94.7</b>	<b>112</b>	94.3	112	96.1	110	<b>91.6</b>	<b>116</b>	91.6	116	91.4	116
465.tonto	<b>328</b>	<b>30.0</b>	329	29.9	328	30.0	302	32.6	<b>302</b>	<b>32.6</b>	303	32.4
470.lbm	51.8	265	<b>52.2</b>	<b>263</b>	52.4	262	51.8	265	<b>52.2</b>	<b>263</b>	52.4	262
481.wrf	190	58.8	<b>193</b>	<b>58.0</b>	194	57.5	190	58.8	<b>193</b>	<b>58.0</b>	194	57.5
482.sphinx3	<b>332</b>	<b>58.7</b>	332	58.8	332	58.7	<b>332</b>	<b>58.7</b>	332	58.8	332	58.7

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.localdomain Sat May 31 23:45:30 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 E5-2407 v2 @ 2.40GHz  
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## Platform Notes (Continued)

```

2 "physical id"s (chips)
8 "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 : 4
siblings  : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo
MemTotal:      99010156 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.localdomain 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 May 30 11:40

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  540G  115G  398G  23% /

Additional information from dmidecode:
Memory:
8x Samsung M393B1K70CH0-CH9 8 GB 1333 MHz 2 rank
3x Samsung M393B1K70DH0-CH9 8 GB 1333 MHz 2 rank
1x Samsung M393B1K70DH0-YH9 8 GB 1333 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 = "8"

```

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

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## General Notes (Continued)

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
The Huawei RH2285H v2 and Huawei RH2285 v2 models are electronically equivalent.  
The results have been measured on a Huawei RH2285H 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.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

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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: -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-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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Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Sep 2 13:39:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 September 2014.