



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = 60.9

## Huawei XH620, Intel Xeon X5670

SPECfp\_base2006 = 57.3

CPU2006 license: 3175

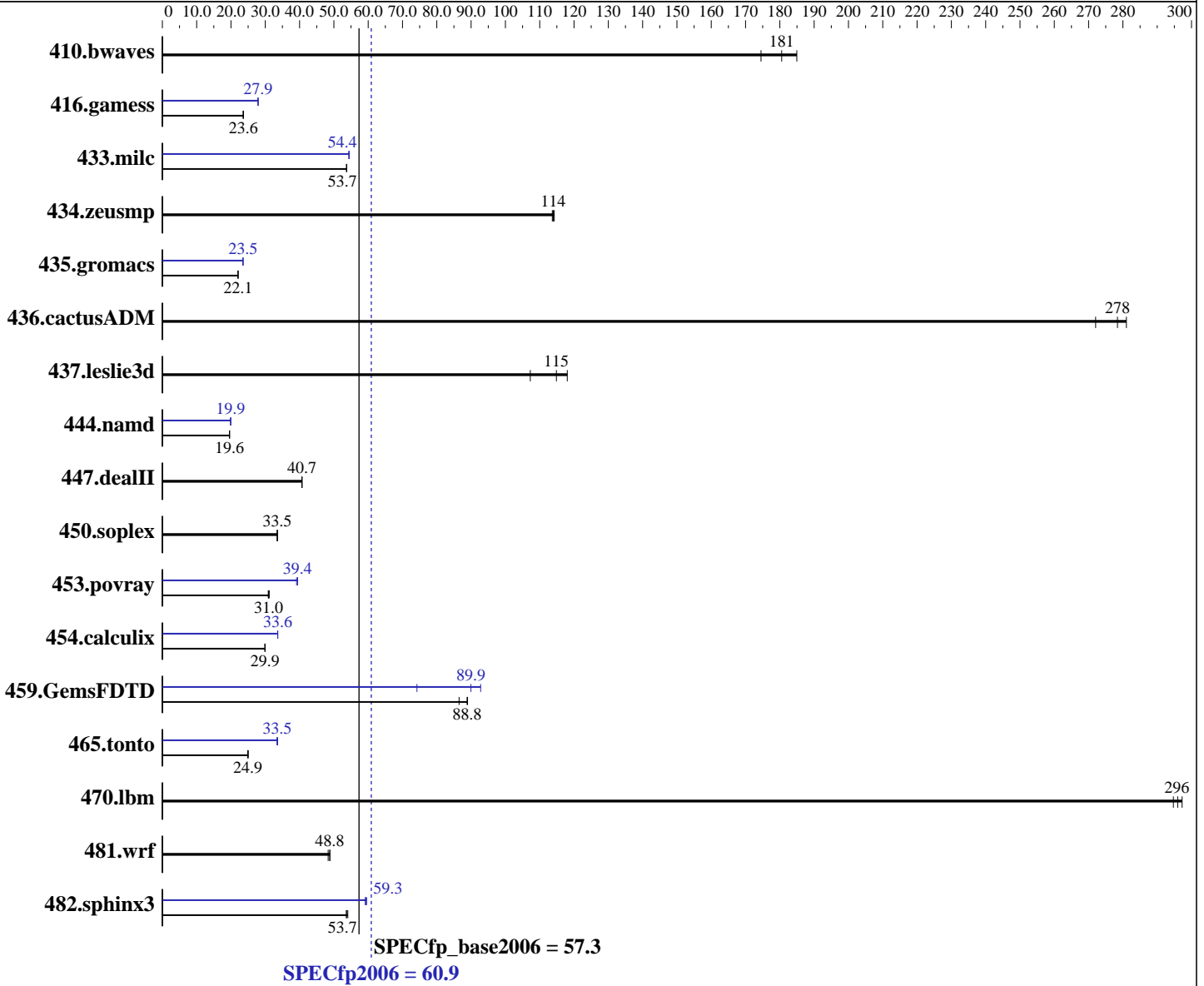
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2011

Hardware Availability: May-2011

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon X5670  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz  
 CPU MHz: 2933  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: C++: Version 12.0 Update 3 of Intel 64 Compiler XE Build 20101116; Fortran: Version 12.0 Update 3 of Intel 64 Compiler XE Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 15K RPM  
 Other Hardware: None

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	77.9	175	<b><u>75.3</u></b>	<b><u>181</u></b>	73.5	185	77.9	175	<b><u>75.3</u></b>	<b><u>181</u></b>	73.5	185
416.gamess	<b><u>830</u></b>	<b><u>23.6</u></b>	828	23.7	832	23.5	<b><u>702</u></b>	<b><u>27.9</u></b>	701	27.9	703	27.9
433.milc	<b><u>171</u></b>	<b><u>53.7</u></b>	171	53.7	171	53.7	169	54.4	<b><u>169</u></b>	<b><u>54.4</u></b>	169	54.4
434.zeusmp	80.1	114	<b><u>79.9</u></b>	<b><u>114</u></b>	79.7	114	80.1	114	<b><u>79.9</u></b>	<b><u>114</u></b>	79.7	114
435.gromacs	323	22.1	324	22.0	<b><u>324</u></b>	<b><u>22.1</u></b>	304	23.5	303	23.5	<b><u>304</u></b>	<b><u>23.5</u></b>
436.cactusADM	43.9	272	<b><u>42.9</u></b>	<b><u>278</u></b>	42.5	281	43.9	272	<b><u>42.9</u></b>	<b><u>278</u></b>	42.5	281
437.leslie3d	79.6	118	<b><u>81.8</u></b>	<b><u>115</u></b>	87.6	107	79.6	118	<b><u>81.8</u></b>	<b><u>115</u></b>	87.6	107
444.namd	410	19.6	410	19.6	<b><u>410</u></b>	<b><u>19.6</u></b>	403	19.9	<b><u>403</u></b>	<b><u>19.9</u></b>	403	19.9
447.dealII	281	40.7	281	40.7	<b><u>281</u></b>	<b><u>40.7</u></b>	281	40.7	281	40.7	<b><u>281</u></b>	<b><u>40.7</u></b>
450.soplex	249	33.5	<b><u>249</u></b>	<b><u>33.5</u></b>	249	33.5	249	33.5	<b><u>249</u></b>	<b><u>33.5</u></b>	249	33.5
453.povray	172	30.9	171	31.2	<b><u>172</u></b>	<b><u>31.0</u></b>	135	39.4	<b><u>135</u></b>	<b><u>39.4</u></b>	136	39.1
454.calculix	275	30.0	<b><u>276</u></b>	<b><u>29.9</u></b>	276	29.9	<b><u>245</u></b>	<b><u>33.6</u></b>	245	33.6	245	33.6
459.GemsFDTD	119	89.0	123	86.5	<b><u>119</u></b>	<b><u>88.8</u></b>	114	92.8	143	74.2	<b><u>118</u></b>	<b><u>89.9</u></b>
465.tonto	396	24.9	<b><u>395</u></b>	<b><u>24.9</u></b>	393	25.1	293	33.6	294	33.4	<b><u>294</u></b>	<b><u>33.5</u></b>
470.lbm	<b><u>46.4</u></b>	<b><u>296</u></b>	46.2	297	46.6	295	<b><u>46.4</u></b>	<b><u>296</u></b>	46.2	297	46.6	295
481.wrf	231	48.3	229	48.8	<b><u>229</u></b>	<b><u>48.8</u></b>	231	48.3	229	48.8	<b><u>229</u></b>	<b><u>48.8</u></b>
482.sphinx3	361	54.1	<b><u>363</u></b>	<b><u>53.7</u></b>	363	53.6	330	59.1	327	59.5	<b><u>329</u></b>	<b><u>59.3</u></b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

Data Reuse Optimization disabled in BIOS Setup.  
 Intel HT technology Disabled in BIOS Setup.



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<b>Huawei</b>	<b>SPECfp2006 =</b>	<b>60.9</b>
<b>Huawei XH620,Intel Xeon X5670</b>	<b>SPECfp_base2006 =</b>	<b>57.3</b>

**CPU2006 license:** 3175  
**Test sponsor:** Huawei  
**Tested by:** Huawei

**Test date:** Sep-2011  
**Hardware Availability:** May-2011  
**Software Availability:** Jan-2011

## General Notes

Binaries compiled on RHEL5.5  
OMP\_NUM\_THREADS set to number of cores

## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:  
 -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
 -xSSE4.2 -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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
 -parallel

C++ benchmarks:

444.namd: -xSSE4.2(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.dealll: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(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: -xSSE4.2(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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xSSE4.2(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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(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

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revC.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/HUAWEI-platform-linux64-revC.xml>



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