# SPEC® CFP2006 Result

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## Huawei

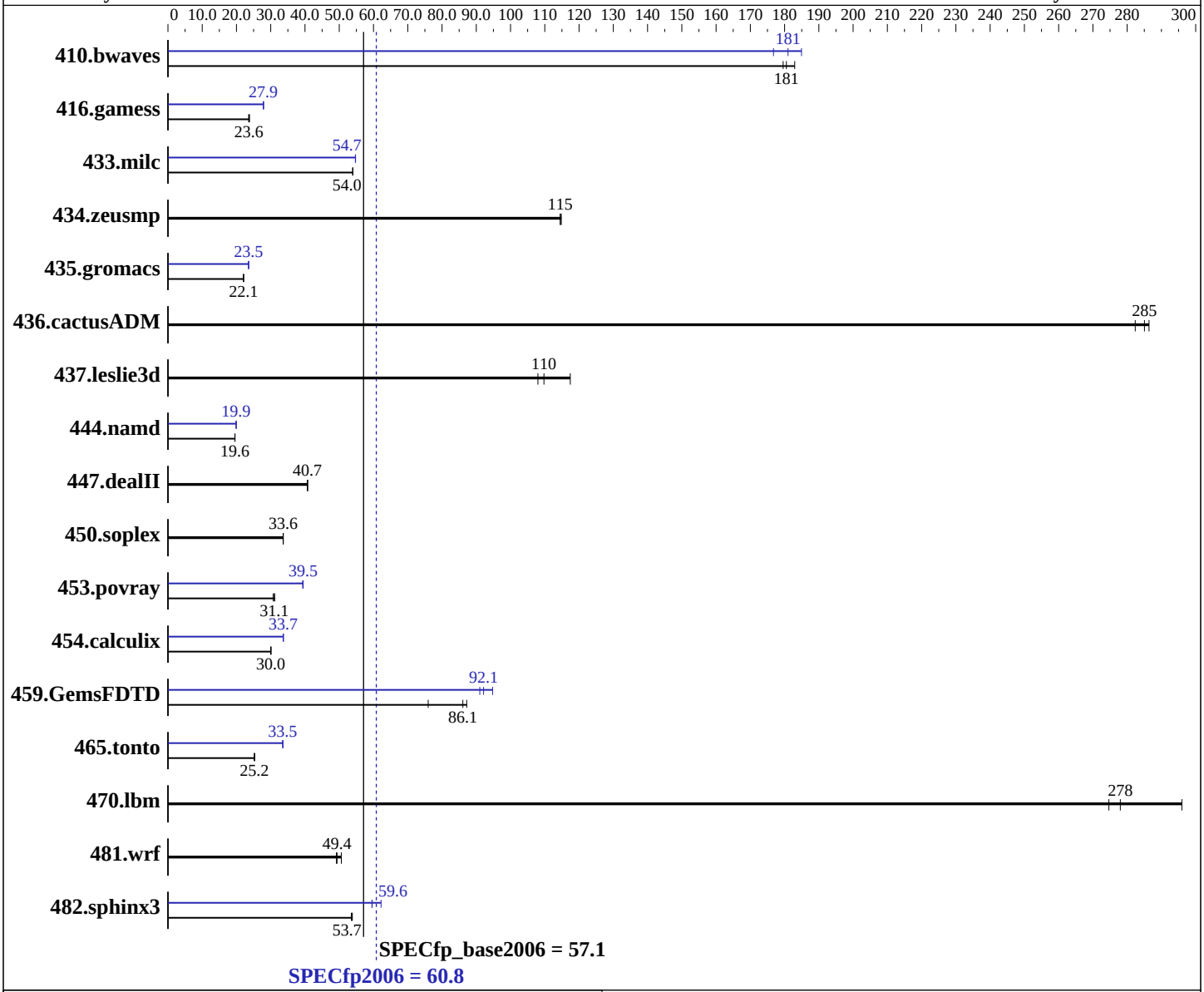
## Huawei RH2285,Intel Xeon X5670

SPECfp®2006 = 60.8

SPECfp_base2006 = 57.1

**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 | 74.3 | 183 | 75.7 | 180 | **75.3** | **181** | **75.1** | **181** | 73.5 | 185 | 76.9 | 177 |
| 416.gamess | **828** | **23.6** | 831 | 23.6 | 822 | 23.8 | 701 | 27.9 | **703** | **27.9** | 704 | 27.8 |
| 433.milc | **170** | **54.0** | 170 | 54.0 | 170 | 53.9 | 168 | 54.8 | **168** | **54.7** | 168 | 54.7 |
| 434.zeusmp | 79.3 | 115 | 79.5 | 115 | **79.5** | **115** | 79.3 | 115 | 79.5 | 115 | **79.5** | **115** |
| 435.gromacs | 324 | 22.0 | 323 | 22.1 | **324** | **22.1** | **303** | **23.5** | 304 | 23.5 | 303 | 23.5 |
| 436.cactusADM | 42.3 | 282 | 41.7 | 286 | **41.9** | **285** | 42.3 | 282 | 41.7 | 286 | **41.9** | **285** |
| 437.leslie3d | 87.0 | 108 | 80.0 | 117 | **85.6** | **110** | 87.0 | 108 | 80.0 | 117 | **85.6** | **110** |
| 444.namd | 410 | 19.6 | **410** | **19.6** | 410 | 19.6 | **403** | **19.9** | 403 | 19.9 | 403 | 19.9 |
| 447.dealII | 281 | 40.8 | 281 | 40.7 | **281** | **40.7** | 281 | 40.8 | 281 | 40.7 | **281** | **40.7** |
| 450.soplex | **248** | **33.6** | 248 | 33.6 | 248 | 33.7 | **248** | **33.6** | 248 | 33.6 | 248 | 33.7 |
| 453.povray | 171 | 31.2 | 173 | 30.7 | **171** | **31.1** | 135 | 39.3 | **135** | **39.5** | 135 | 39.5 |
| 454.calculix | 275 | 30.0 | 274 | 30.1 | **275** | **30.0** | 245 | 33.7 | 245 | 33.7 | **245** | **33.7** |
| 459.GemsFDTD | 140 | 76.0 | **123** | **86.1** | 122 | 87.2 | 112 | 94.8 | 117 | 91.0 | **115** | **92.1** |
| 465.tonto | 389 | 25.3 | 390 | 25.2 | **390** | **25.2** | 293 | 33.6 | 294 | 33.5 | **293** | **33.5** |
| 470.lbm | **49.4** | **278** | 50.0 | 275 | 46.4 | 296 | **49.4** | **278** | 50.0 | 275 | 46.4 | 296 |
| 481.wrf | 221 | 50.6 | 227 | 49.2 | **226** | **49.4** | 221 | 50.6 | 227 | 49.2 | **226** | **49.4** |
| 482.sphinx3 | 364 | 53.5 | **363** | **53.7** | 362 | 53.8 | 327 | 59.5 | 313 | 62.2 | **327** | **59.6** |

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.
```

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

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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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