# SPEC® CFP2006 Result



## Huawei

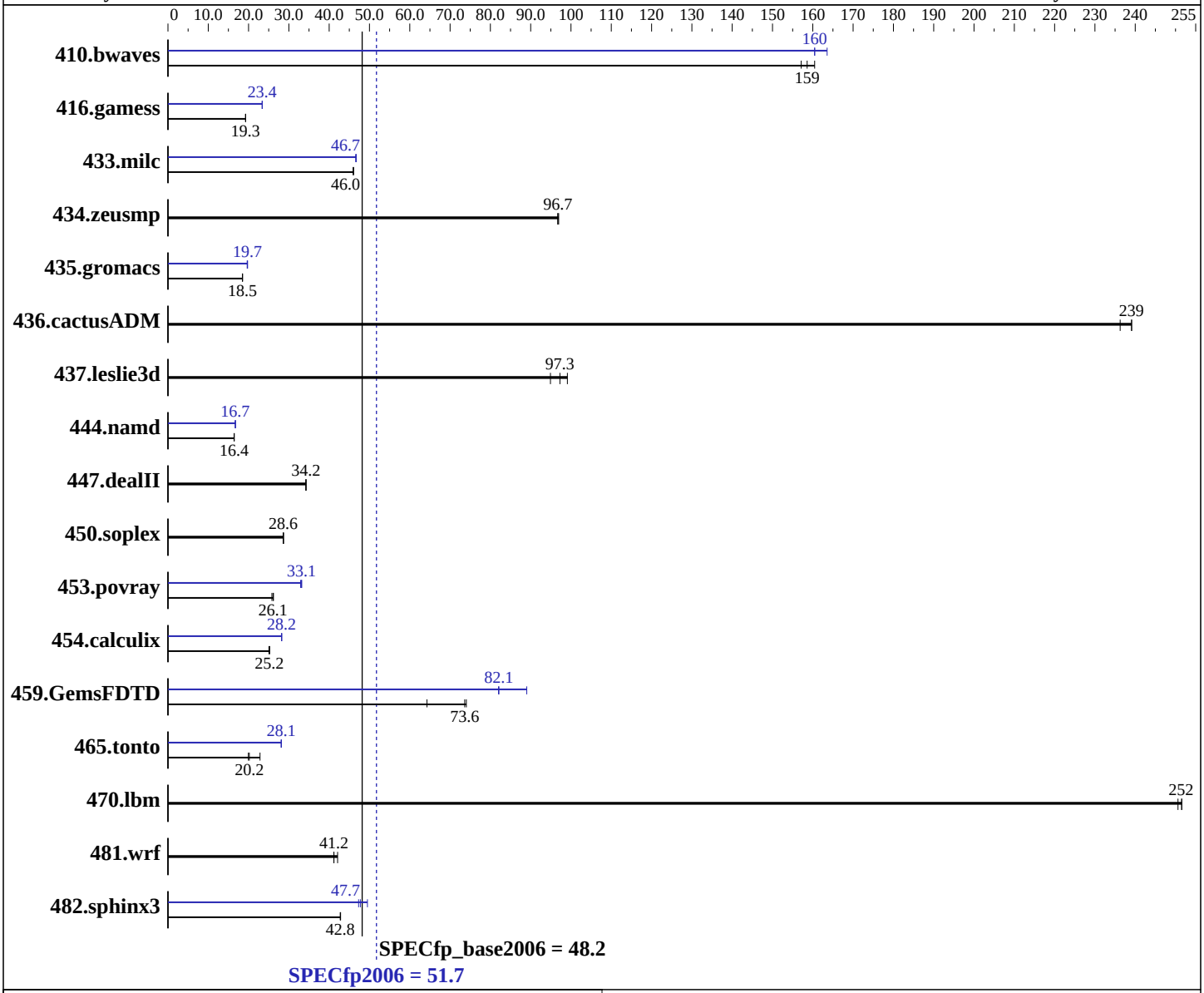
## Huawei RH2285,Intel Xeon E5645

SPECfp®2006 = 51.7

SPECfp_base2006 = 48.2

**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 E5645 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.8 GHz |
| CPU MHz: | 2400 |
| 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 | **85.7** | **159** | 86.5 | 157 | 84.7 | 160 | 83.1 | 164 | **84.7** | **160** | 84.7 | 160 |
| 416.gamess | 1015 | 19.3 | 1018 | 19.2 | **1015** | **19.3** | 838 | 23.4 | **837** | **23.4** | 836 | 23.4 |
| 433.milc | **199** | **46.0** | 199 | 46.0 | 200 | 46.0 | **197** | **46.7** | 197 | 46.7 | 197 | 46.6 |
| 434.zeusmp | 93.9 | 96.9 | **94.1** | **96.7** | 94.1 | 96.7 | 93.9 | 96.9 | **94.1** | **96.7** | 94.1 | 96.7 |
| 435.gromacs | **386** | **18.5** | 385 | 18.5 | 387 | 18.5 | 362 | 19.7 | **362** | **19.7** | 363 | 19.7 |
| 436.cactusADM | 50.6 | 236 | 50.0 | 239 | **50.0** | **239** | 50.6 | 236 | 50.0 | 239 | **50.0** | **239** |
| 437.leslie3d | **96.6** | **97.3** | 99.0 | 94.9 | 94.8 | 99.1 | **96.6** | **97.3** | 99.0 | 94.9 | 94.8 | 99.1 |
| 444.namd | 488 | 16.4 | 489 | 16.4 | **488** | **16.4** | 480 | 16.7 | **479** | **16.7** | 479 | 16.7 |
| 447.dealII | 334 | 34.3 | 334 | 34.2 | **334** | **34.2** | 334 | 34.3 | 334 | 34.2 | **334** | **34.2** |
| 450.soplex | 292 | 28.6 | 291 | 28.7 | **291** | **28.6** | 292 | 28.6 | 291 | 28.7 | **291** | **28.6** |
| 453.povray | 206 | 25.8 | 203 | 26.2 | **204** | **26.1** | **161** | **33.1** | 160 | 33.2 | 162 | 32.9 |
| 454.calculix | 327 | 25.3 | **328** | **25.2** | 329 | 25.1 | 293 | 28.2 | 292 | 28.2 | **292** | **28.2** |
| 459.GemsFDTD | 165 | 64.3 | 143 | 74.0 | **144** | **73.6** | **129** | **82.1** | 119 | 89.0 | 129 | 82.0 |
| 465.tonto | 431 | 22.8 | **487** | **20.2** | 493 | 20.0 | **350** | **28.1** | 349 | 28.2 | 350 | 28.1 |
| 470.lbm | **54.6** | **252** | 54.8 | 251 | 54.6 | 252 | **54.6** | **252** | 54.8 | 251 | 54.6 | 252 |
| 481.wrf | **271** | **41.2** | 265 | 42.1 | 271 | 41.2 | **271** | **41.2** | 265 | 42.1 | 271 | 41.2 |
| 482.sphinx3 | 455 | 42.8 | 456 | 42.8 | **456** | **42.8** | 394 | 49.5 | **408** | **47.7** | 412 | 47.3 |

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

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

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