



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = 63.1

Huawei RH2285H V2 (Intel Xeon E5-2430L)

SPECfp\_base2006 = 60.5

CPU2006 license: 3175

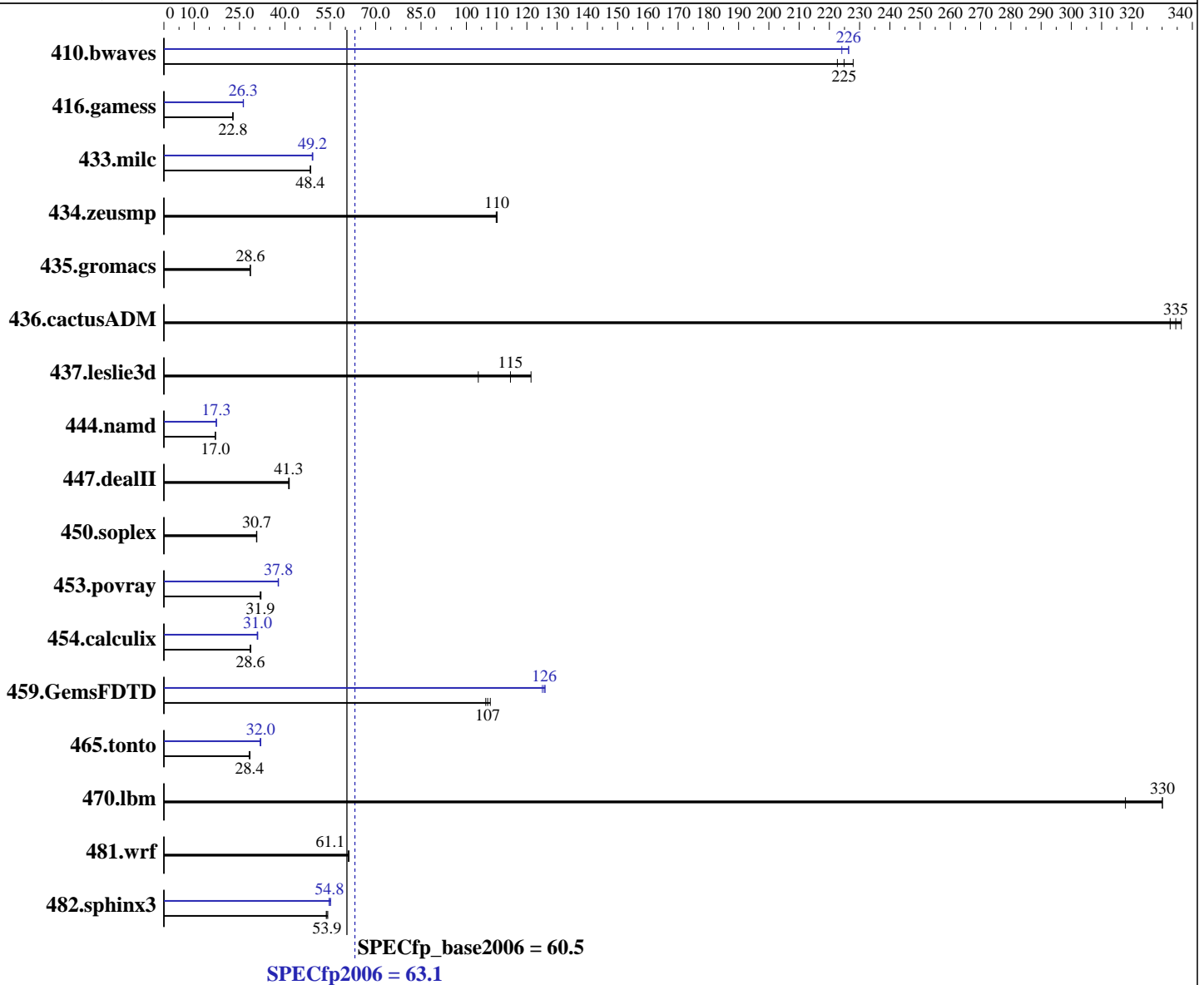
Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2012

Hardware Availability: May-2012

Software Availability: Dec-2011



**Hardware**

CPU Name: Intel Xeon E5-2430L  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 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: 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: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
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    | 61.0        | 223         | <b>60.4</b> | <b>225</b>  | 59.6        | 228         | <b>60.0</b> | <b>226</b>  | 60.0       | 226         | 60.6        | 224         |
| 416.gamess    | 861         | 22.8        | 857         | 22.8        | <b>857</b>  | <b>22.8</b> | 747         | 26.2        | 744        | 26.3        | <b>746</b>  | <b>26.3</b> |
| 433.milc      | <b>190</b>  | <b>48.4</b> | 190         | 48.4        | 189         | 48.5        | 187         | 49.0        | <b>187</b> | <b>49.2</b> | 187         | 49.2        |
| 434.zeusmp    | <b>82.6</b> | <b>110</b>  | 82.8        | 110         | 82.6        | 110         | <b>82.6</b> | <b>110</b>  | 82.8       | 110         | 82.6        | 110         |
| 435.gromacs   | <b>250</b>  | <b>28.6</b> | 250         | 28.6        | 251         | 28.5        | <b>250</b>  | <b>28.6</b> | 250        | 28.6        | 251         | 28.5        |
| 436.cactusADM | 35.5        | 336         | 35.9        | 333         | <b>35.7</b> | <b>335</b>  | 35.5        | 336         | 35.9       | 333         | <b>35.7</b> | <b>335</b>  |
| 437.leslie3d  | <b>82.0</b> | <b>115</b>  | 77.4        | 121         | 90.4        | 104         | <b>82.0</b> | <b>115</b>  | 77.4       | 121         | 90.4        | 104         |
| 444.namd      | 471         | 17.0        | <b>471</b>  | <b>17.0</b> | 471         | 17.0        | <b>463</b>  | <b>17.3</b> | 463        | 17.3        | 463         | 17.3        |
| 447.dealII    | 277         | 41.3        | <b>277</b>  | <b>41.3</b> | 276         | 41.5        | 277         | 41.3        | <b>277</b> | <b>41.3</b> | 276         | 41.5        |
| 450.soplex    | 272         | 30.6        | 271         | 30.7        | <b>272</b>  | <b>30.7</b> | 272         | 30.6        | 271        | 30.7        | <b>272</b>  | <b>30.7</b> |
| 453.povray    | 166         | 32.1        | 167         | 31.9        | <b>167</b>  | <b>31.9</b> | 141         | 37.8        | <b>141</b> | <b>37.8</b> | 140         | 37.9        |
| 454.calculix  | 289         | 28.5        | 287         | 28.7        | <b>288</b>  | <b>28.6</b> | 266         | 31.0        | <b>266</b> | <b>31.0</b> | 268         | 30.8        |
| 459.GemsFDTD  | 98.3        | 108         | 99.7        | 106         | <b>99.1</b> | <b>107</b>  | 84.8        | 125         | 84.2       | 126         | <b>84.4</b> | <b>126</b>  |
| 465.tonto     | 346         | 28.5        | <b>347</b>  | <b>28.4</b> | 349         | 28.2        | <b>308</b>  | <b>32.0</b> | 309        | 31.8        | 308         | 32.0        |
| 470.lbm       | 43.2        | 318         | 41.6        | 330         | <b>41.6</b> | <b>330</b>  | 43.2        | 318         | 41.6       | 330         | <b>41.6</b> | <b>330</b>  |
| 481.wrf       | 183         | 61.2        | 183         | 61.0        | <b>183</b>  | <b>61.1</b> | 183         | 61.2        | 183        | 61.0        | <b>183</b>  | <b>61.1</b> |
| 482.sphinx3   | 360         | 54.2        | 363         | 53.7        | <b>362</b>  | <b>53.9</b> | <b>356</b>  | <b>54.8</b> | 357        | 54.6        | 354         | 55.1        |

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 DH310-2 Tue Jun 19 00:53:12 2012

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CPU2006 license: 3175

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Hardware Availability: May-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 E5-2430L 0 @ 2.00GHz
 2 "physical id"s (chips)
 12 "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 : 6
siblings   : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

From /proc/meminfo

```
MemTotal:      99030424 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 DH310-2 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 18 16:56

SPEC is set to: /spec

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal        ext4      289G   66G  209G  24% /
```

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 = "12"
```

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

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## General Notes (Continued)

The Huawei RH2285 v2 and Huawei RH2285H v2 models are electronically equivalent.  
The results have been measured on a Huawei RH2285 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

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

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: `-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`

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## Peak Optimization Flags (Continued)

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

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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