



# SPEC® CFP2006 Result

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## Huawei Huawei CH140

SPECfp®2006 = 100

SPECfp\_base2006 = 95.6

CPU2006 license: 3175

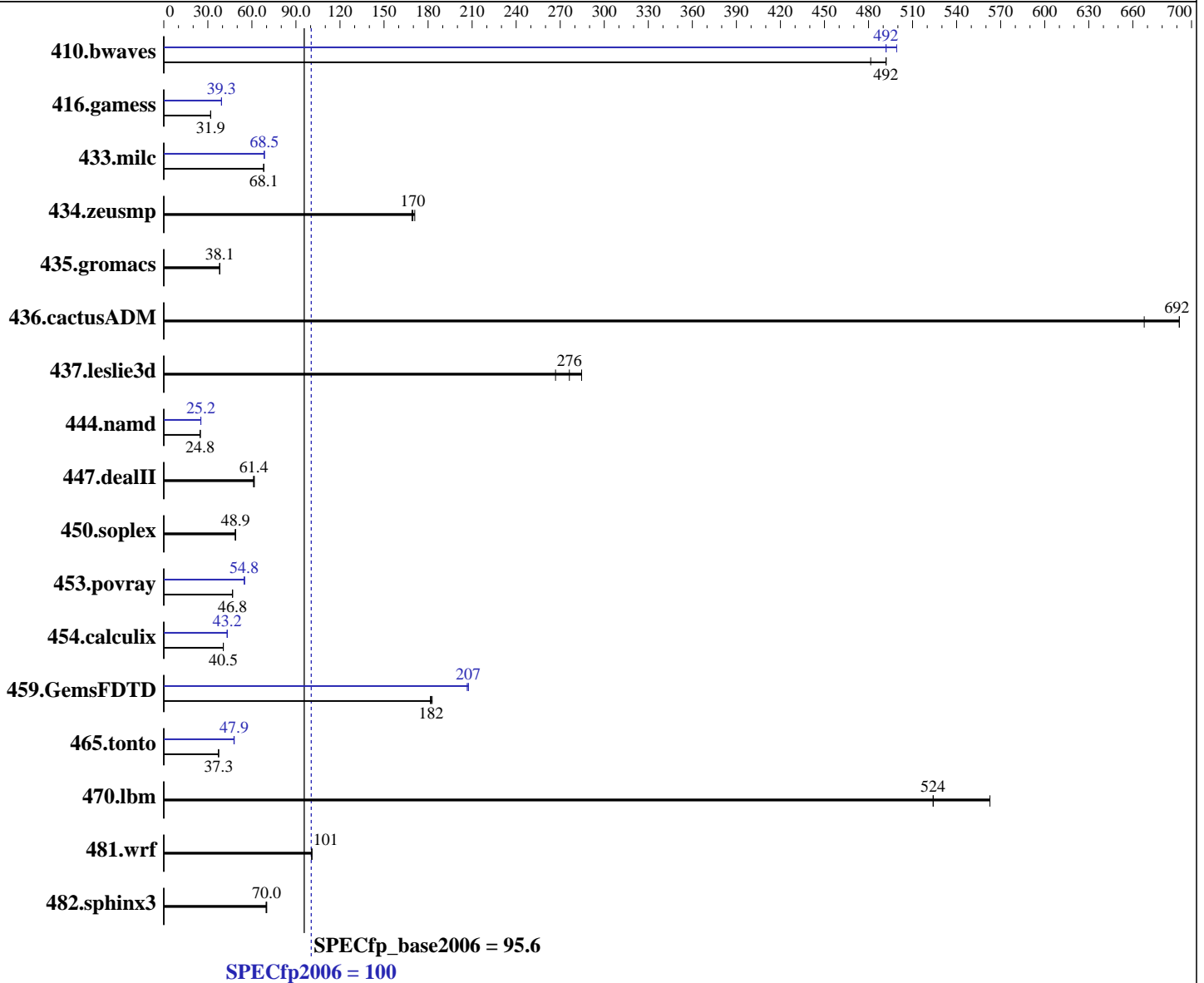
Test sponsor: Huawei

Tested by: Huawei

Test date: May-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2697 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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: ext3

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L3 Cache: 30 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13,ECC)  
Disk Subsystem: 1 X 500 GB SATA 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    | 27.6        | 492         | 28.2        | 481         | <u>27.6</u> | <u>492</u>  | <u>27.6</u> | <u>492</u>  | 27.6        | 492         | 27.2       | 499         |
| 416.gamess    | 613         | 31.9        | 613         | 32.0        | <u>613</u>  | <u>31.9</u> | 498         | 39.3        | 498         | 39.3        | <u>498</u> | <u>39.3</u> |
| 433.milc      | <u>135</u>  | <u>68.1</u> | 135         | 68.1        | 135         | 68.0        | 134         | 68.4        | 134         | 68.5        | <u>134</u> | <u>68.5</u> |
| 434.zeusmp    | <u>53.6</u> | <u>170</u>  | 53.2        | 171         | 53.8        | 169         | <u>53.6</u> | <u>170</u>  | 53.2        | 171         | 53.8       | 169         |
| 435.gromacs   | 187         | 38.1        | 188         | 38.1        | <u>188</u>  | <u>38.1</u> | 187         | 38.1        | 188         | 38.1        | <u>188</u> | <u>38.1</u> |
| 436.cactusADM | <u>17.3</u> | <u>692</u>  | 17.9        | 668         | 17.3        | 692         | <u>17.3</u> | <u>692</u>  | 17.9        | 668         | 17.3       | 692         |
| 437.leslie3d  | 35.2        | 267         | <u>34.0</u> | <u>276</u>  | 33.0        | 285         | 35.2        | 267         | <u>34.0</u> | <u>276</u>  | 33.0       | 285         |
| 444.namd      | 323         | 24.8        | <u>323</u>  | <u>24.8</u> | 323         | 24.8        | 318         | 25.2        | <u>318</u>  | <u>25.2</u> | 318        | 25.2        |
| 447.dealII    | 185         | 61.7        | <u>186</u>  | <u>61.4</u> | 187         | 61.1        | 185         | 61.7        | <u>186</u>  | <u>61.4</u> | 187        | 61.1        |
| 450.soplex    | <u>170</u>  | <u>48.9</u> | 170         | 49.0        | 172         | 48.6        | <u>170</u>  | <u>48.9</u> | 170         | 49.0        | 172        | 48.6        |
| 453.povray    | 114         | 46.9        | <u>114</u>  | <u>46.8</u> | 114         | 46.7        | <u>97.1</u> | <u>54.8</u> | 97.1        | 54.8        | 96.6       | 55.1        |
| 454.calculix  | <u>203</u>  | <u>40.5</u> | 203         | 40.5        | 204         | 40.5        | 191         | 43.2        | 191         | 43.2        | <u>191</u> | <u>43.2</u> |
| 459.GemsFDTD  | 58.4        | 182         | 58.0        | 183         | <u>58.3</u> | <u>182</u>  | <u>51.2</u> | <u>207</u>  | 51.3        | 207         | 51.1       | 207         |
| 465.tonto     | 264         | 37.3        | 264         | 37.3        | <u>264</u>  | <u>37.3</u> | <u>205</u>  | <u>47.9</u> | 206         | 47.8        | 205        | 48.0        |
| 470.lbm       | <u>26.2</u> | <u>524</u>  | 26.2        | 524         | 24.4        | 563         | <u>26.2</u> | <u>524</u>  | 26.2        | 524         | 24.4       | 563         |
| 481.wrf       | <u>111</u>  | <u>101</u>  | 111         | 101         | 111         | 101         | <u>111</u>  | <u>101</u>  | 111         | 101         | 111        | 101         |
| 482.sphinx3   | 280         | 69.6        | <u>278</u>  | <u>70.0</u> | 278         | 70.1        | 280         | 69.6        | <u>278</u>  | <u>70.0</u> | 278        | 70.1        |

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"

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Performance  
Set Intel HT Technology to Disable  
Sysinfo program /spec/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on localhost Wed May 28 17:19:47 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>

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CPU2006 license: 3175  
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Test date: May-2014  
Hardware Availability: Sep-2013  
Software Availability: Nov-2013

## Platform Notes (Continued)

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2697 v2 @ 2.70GHz
 2 "physical id"s (chips)
24 "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 : 12
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      132114848 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 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 28 11:44
```

```
SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext3  455G  24G  409G   6% /
```

```
Additional information from dmidecode:
Memory:
 8x Samsung M393B2G70BH0-CMA 16 GB 1866 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 = "24"

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

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## General Notes (Continued)

using RHEL 6.1  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## 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: 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.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-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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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