



# SPEC® CFP2006 Result

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Huawei  
Huawei CH242 v3

SPECfp®2006 = 91.8

SPECfp\_base2006 = 88.1

CPU2006 license: 3175

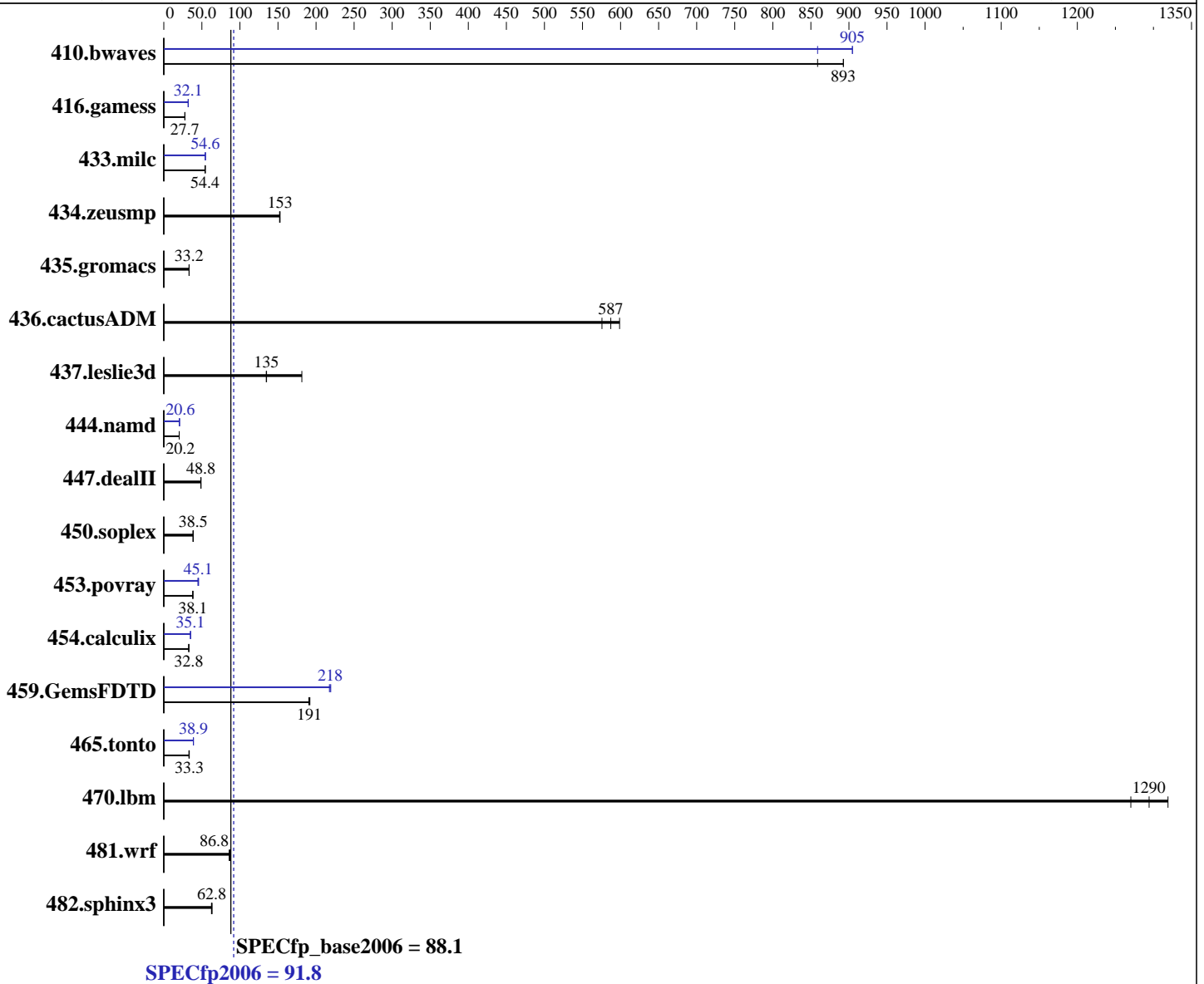
Test sponsor: Huawei

Tested by: Huawei

Test date: May-2014

Hardware Availability: Jan-2014

Software Availability: Nov-2013



## Hardware

CPU Name: Intel Xeon E7-4870 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 60 cores, 4 chips, 15 cores/chip  
 CPU(s) orderable: 2,4 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: ext4

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L3 Cache: 30 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (32 x 8 GB 2Rx4 PC3-10600R-09, ECC)  
Disk Subsystem: 1 X 300 GB SAS 10000RPM  
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	15.8	859	15.2	893	<u>15.2</u>	<u>893</u>	<u>15.0</u>	<u>905</u>	15.8	859	15.0	905
416.gamess	<u>706</u>	<u>27.7</u>	705	27.8	707	27.7	<u>610</u>	<u>32.1</u>	610	32.1	611	32.1
433.milc	<u>169</u>	<u>54.4</u>	169	54.3	169	54.4	168	54.5	168	54.6	<u>168</u>	<u>54.6</u>
434.zeusmp	<u>59.6</u>	<u>153</u>	59.8	152	59.6	153	<u>59.6</u>	<u>153</u>	59.8	152	59.6	153
435.gromacs	215	33.2	215	33.2	<u>215</u>	<u>33.2</u>	215	33.2	215	33.2	<u>215</u>	<u>33.2</u>
436.cactusADM	<u>20.4</u>	<u>587</u>	20.8	576	20.0	599	<u>20.4</u>	<u>587</u>	20.8	576	20.0	599
437.leslie3d	<u>69.6</u>	<u>135</u>	51.8	181	69.8	135	<u>69.6</u>	<u>135</u>	51.8	181	69.8	135
444.namd	396	20.2	<u>397</u>	<u>20.2</u>	397	20.2	390	20.6	<u>390</u>	<u>20.6</u>	390	20.6
447.dealII	235	48.7	<u>235</u>	<u>48.8</u>	235	48.8	235	48.7	<u>235</u>	<u>48.8</u>	235	48.8
450.soplex	215	38.8	<u>217</u>	<u>38.5</u>	217	38.4	215	38.8	<u>217</u>	<u>38.5</u>	217	38.4
453.povray	139	38.3	140	38.0	<u>139</u>	<u>38.1</u>	<u>118</u>	<u>45.1</u>	116	45.8	118	44.9
454.calculix	<u>251</u>	<u>32.8</u>	251	32.9	252	32.8	<u>235</u>	<u>35.1</u>	235	35.1	235	35.1
459.GemsFDTD	55.7	191	<u>55.5</u>	<u>191</u>	55.3	192	48.4	219	<u>48.6</u>	<u>218</u>	48.8	218
465.tonto	<u>295</u>	<u>33.3</u>	294	33.5	299	33.0	253	38.9	<u>253</u>	<u>38.9</u>	253	38.8
470.lbm	<u>10.6</u>	<u>1290</u>	10.4	1320	10.8	1270	<u>10.6</u>	<u>1290</u>	10.4	1320	10.8	1270
481.wrf	130	85.8	129	86.8	<u>129</u>	<u>86.8</u>	130	85.8	129	86.8	<u>129</u>	<u>86.8</u>
482.sphinx3	307	63.5	311	62.6	<u>310</u>	<u>62.8</u>	307	63.5	311	62.6	<u>310</u>	<u>62.8</u>

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 VMSE LockStep mode disable  
Set Intel HT Technology Disable  
Sysinfo program /spec/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on localhost.localdomain Mon May 12 19:10:13 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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## Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7-4870 v2 @ 2.30GHz
 4 "physical id"s (chips)
 60 "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 : 15
  siblings  : 15
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
cache size : 30720 KB

From /proc/meminfo
MemTotal:      264356784 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.localdomain 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 12 10:59

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  265G  228G   24G  91% /

Additional information from dmidecode:
Memory:
 8x Samsung M393B1K70CH0-CH9 8 GB 1333 MHz 2 rank
24x Samsung M393B1K70DH0-CH9 8 GB 1333 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"

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## General Notes (Continued)

OMP\_NUM\_THREADS = "60"

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

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## Base Optimization Flags (Continued)

C++ benchmarks:

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

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.dealII: 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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