



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

**SPECfp<sup>®</sup>2006 = 88.8**

### Huawei CH240 (Intel Xeon E5-4650 v2)

**SPECfp\_base2006 = 85.9**

CPU2006 license: 3175

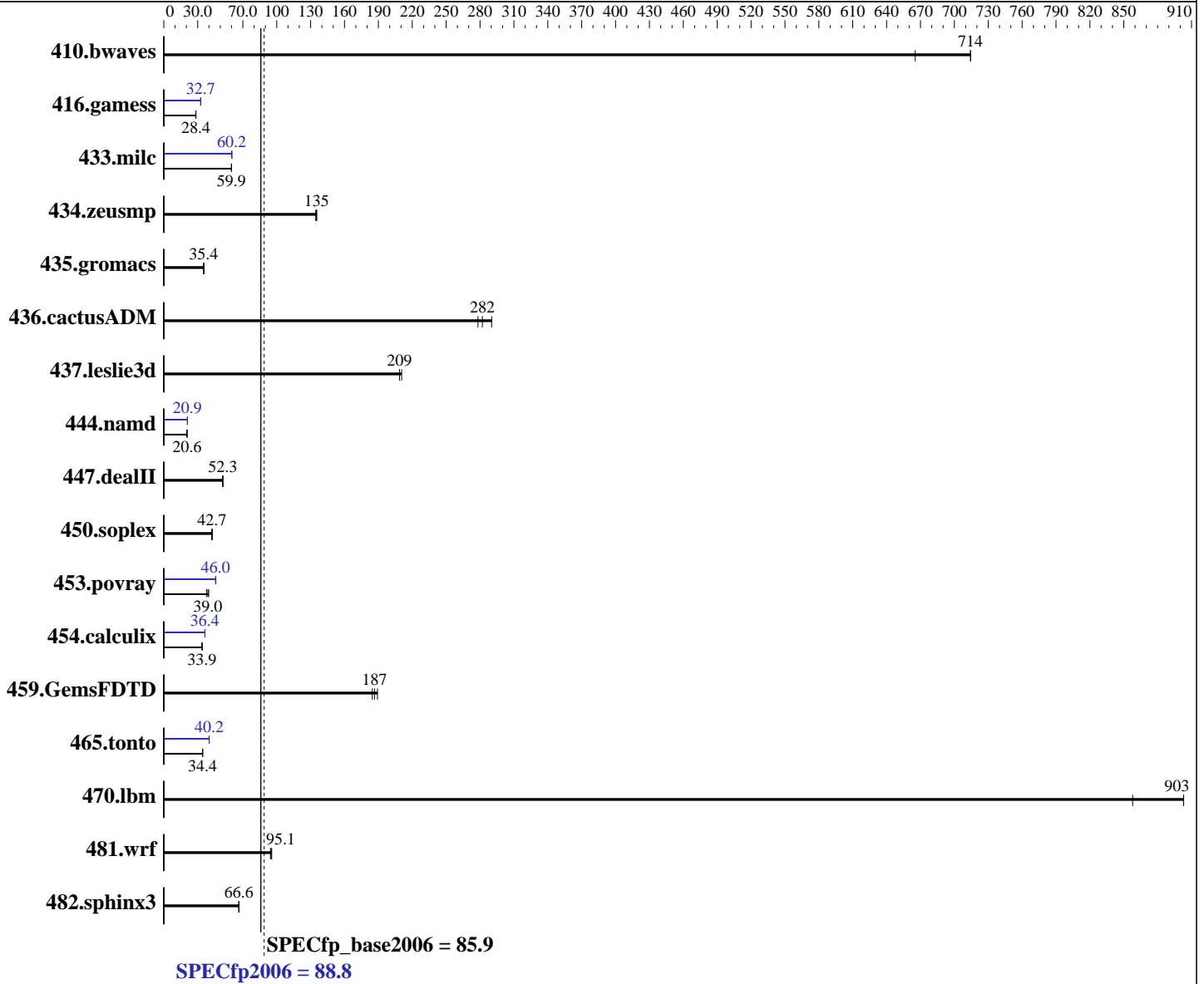
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Apr-2014

Software Availability: Nov-2013



#### Hardware

CPU Name: Intel Xeon E5-4650 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 4 chips, 10 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: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 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	19.0	714	20.4	665	<b>19.0</b>	<b>714</b>	19.0	714	20.4	665	<b>19.0</b>	<b>714</b>
416.gamess	689	28.4	<b>690</b>	<b>28.4</b>	690	28.4	<b>599</b>	<b>32.7</b>	599	32.7	599	32.7
433.milc	<b>153</b>	<b>59.9</b>	153	60.0	153	59.8	152	60.3	<b>153</b>	<b>60.2</b>	153	60.1
434.zeusmp	67.6	135	67.2	135	<b>67.2</b>	<b>135</b>	67.6	135	67.2	135	<b>67.2</b>	<b>135</b>
435.gromacs	<b>202</b>	<b>35.4</b>	202	35.4	202	35.4	<b>202</b>	<b>35.4</b>	202	35.4	202	35.4
436.cactusADM	<b>42.4</b>	<b>282</b>	41.2	290	43.0	278	<b>42.4</b>	<b>282</b>	41.2	290	43.0	278
437.leslie3d	44.6	211	<b>45.0</b>	<b>209</b>	45.0	209	44.6	211	<b>45.0</b>	<b>209</b>	45.0	209
444.namd	<b>390</b>	<b>20.6</b>	390	20.6	390	20.6	383	20.9	<b>383</b>	<b>20.9</b>	384	20.9
447.dealII	219	52.3	219	52.2	<b>219</b>	<b>52.3</b>	219	52.3	219	52.2	<b>219</b>	<b>52.3</b>
450.soplex	<b>195</b>	<b>42.7</b>	196	42.6	195	42.9	<b>195</b>	<b>42.7</b>	196	42.6	195	42.9
453.povray	<b>136</b>	<b>39.0</b>	134	39.8	141	37.8	<b>116</b>	<b>46.0</b>	115	46.1	116	45.8
454.calculix	243	34.0	<b>244</b>	<b>33.9</b>	244	33.8	227	36.4	226	36.4	<b>227</b>	<b>36.4</b>
459.GemsFDTD	57.5	185	56.1	189	<b>56.9</b>	<b>187</b>	57.5	185	56.1	189	<b>56.9</b>	<b>187</b>
465.tonto	286	34.4	<b>286</b>	<b>34.4</b>	287	34.3	245	40.2	<b>245</b>	<b>40.2</b>	245	40.2
470.lbm	<b>15.2</b>	<b>903</b>	16.0	858	15.2	903	<b>15.2</b>	<b>903</b>	16.0	858	15.2	903
481.wrf	<b>117</b>	<b>95.1</b>	118	94.4	117	95.6	<b>117</b>	<b>95.1</b>	118	94.4	117	95.6
482.sphinx3	292	66.7	<b>293</b>	<b>66.6</b>	294	66.3	292	66.7	<b>293</b>	<b>66.6</b>	294	66.3

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 Custom  
 Set Hyper-Threading to Disabled  
 Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on localhost.localdomain Fri Sep 5 07:36:56 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 E5-4650 v2 @ 2.40GHz
 4 "physical id"s (chips)
40 "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 : 10
  siblings  : 10
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  physical 2: cores 0 1 2 3 4 8 9 10 11 12
  physical 3: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal:      529228328 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 Sep 5 01:12

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  411G  158G  233G  41% /

Additional information from dmidecode:
Memory:
 16x Micron 36JSF2G72PZ-1G9E1 16 GB 1866 MHz 2 rank
 16x Samsung M393B2G70DB0-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"

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## General Notes (Continued)

OMP\_NUM\_THREADS = "40"

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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<b>CPU2006 license:</b> 3175	<b>Test date:</b> Sep-2014
<b>Test sponsor:</b> Huawei	<b>Hardware Availability:</b> Apr-2014
<b>Tested by:</b> Huawei	<b>Software Availability:</b> Nov-2013

## 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: basepeak = yes

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: basepeak = yes

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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