



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = 96.9

### Huawei CH220 (Intel Xeon E5-2695 v2)

SPECfp\_base2006 = 92.6

CPU2006 license: 3175

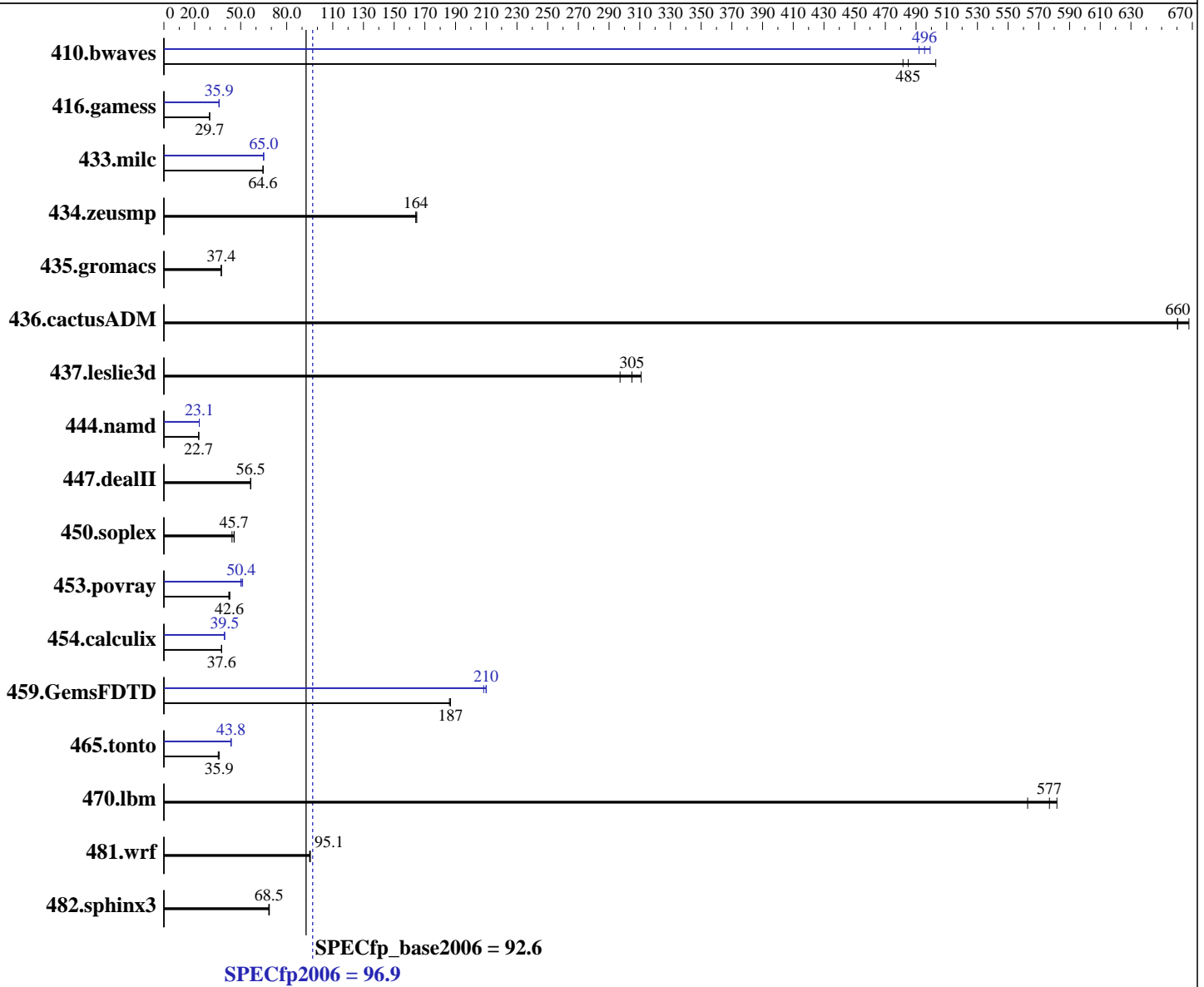
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware		Software	
CPU Name:	Intel Xeon E5-2695 v2	Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago)
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz		2.6.32-431.el6.x86_64
CPU MHz:	2400	Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
FPU:	Integrated		Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip	Auto Parallel:	Yes
CPU(s) orderable:	1,2 chip	File System:	ext4
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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L3 Cache: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 10000 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	28.2	481	27.0	503	<b><u>28.0</u></b>	<b><u>485</u></b>	27.6	492	27.2	499	<b><u>27.4</u></b>	<b><u>496</u></b>
416.gamess	659	29.7	<b><u>658</u></b>	<b><u>29.7</u></b>	658	29.8	<b><u>545</u></b>	<b><u>35.9</u></b>	545	35.9	544	36.0
433.milc	142	64.5	<b><u>142</u></b>	<b><u>64.6</u></b>	142	64.7	141	65.0	<b><u>141</u></b>	<b><u>65.0</u></b>	142	64.9
434.zeusmp	<b><u>55.4</u></b>	<b><u>164</u></b>	55.4	164	55.2	165	<b><u>55.4</u></b>	<b><u>164</u></b>	55.4	164	55.2	165
435.gromacs	<b><u>191</u></b>	<b><u>37.4</u></b>	191	37.4	191	37.3	<b><u>191</u></b>	<b><u>37.4</u></b>	191	37.4	191	37.3
436.cactusADM	18.1	660	17.9	668	<b><u>18.1</u></b>	<b><u>660</u></b>	18.1	660	17.9	668	<b><u>18.1</u></b>	<b><u>660</u></b>
437.leslie3d	<b><u>30.8</u></b>	<b><u>305</u></b>	31.6	297	30.2	311	<b><u>30.8</u></b>	<b><u>305</u></b>	31.6	297	30.2	311
444.namd	<b><u>354</u></b>	<b><u>22.7</u></b>	354	22.7	354	22.7	348	23.1	<b><u>348</u></b>	<b><u>23.1</u></b>	348	23.0
447.dealII	202	56.5	202	56.5	<b><u>202</u></b>	<b><u>56.5</u></b>	202	56.5	202	56.5	<b><u>202</u></b>	<b><u>56.5</u></b>
450.soplex	188	44.4	182	45.8	<b><u>182</u></b>	<b><u>45.7</u></b>	188	44.4	182	45.8	<b><u>182</u></b>	<b><u>45.7</u></b>
453.povray	124	43.0	126	42.3	<b><u>125</u></b>	<b><u>42.6</u></b>	106	50.2	104	51.3	<b><u>106</u></b>	<b><u>50.4</u></b>
454.calculix	<b><u>220</u></b>	<b><u>37.6</u></b>	219	37.6	220	37.6	209	39.6	<b><u>209</u></b>	<b><u>39.5</u></b>	209	39.4
459.GemsFDTD	<b><u>56.8</u></b>	<b><u>187</u></b>	57.0	186	56.8	187	50.9	208	50.5	210	<b><u>50.5</u></b>	<b><u>210</u></b>
465.tonto	274	35.9	<b><u>274</u></b>	<b><u>35.9</u></b>	278	35.4	224	43.9	<b><u>225</u></b>	<b><u>43.8</u></b>	226	43.6
470.lbm	23.6	582	<b><u>23.8</u></b>	<b><u>577</u></b>	24.4	563	23.6	582	<b><u>23.8</u></b>	<b><u>577</u></b>	24.4	563
481.wrf	118	94.9	117	95.4	<b><u>117</u></b>	<b><u>95.1</u></b>	118	94.9	117	95.4	<b><u>117</u></b>	<b><u>95.1</u></b>
482.sphinx3	<b><u>285</u></b>	<b><u>68.5</u></b>	284	68.7	285	68.4	<b><u>285</u></b>	<b><u>68.5</u></b>	284	68.7	285	68.4

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  
 Baseboard Management Controller used to adjust the fan speed to 100%  
 Sysinfo program /spec/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on localhost Thu Sep 11 03:13:52 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

Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013

## Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2695 v2 @ 2.40GHz
 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:      264478184 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 Sep 10 21:15

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  272G  31G   227G  12% /

```

```

Additional information from dmidecode:
Memory:
4x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
12x Samsung M393B2G70DB0-CMA 16 GB 1867 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"

```

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## General Notes (Continued)

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> Sep-2013
<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: -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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