



# SPEC® CFP2006 Result

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## Huawei Huawei CH221

SPECfp®2006 = 41.6

SPECfp\_base2006 = 39.0

CPU2006 license: 3175

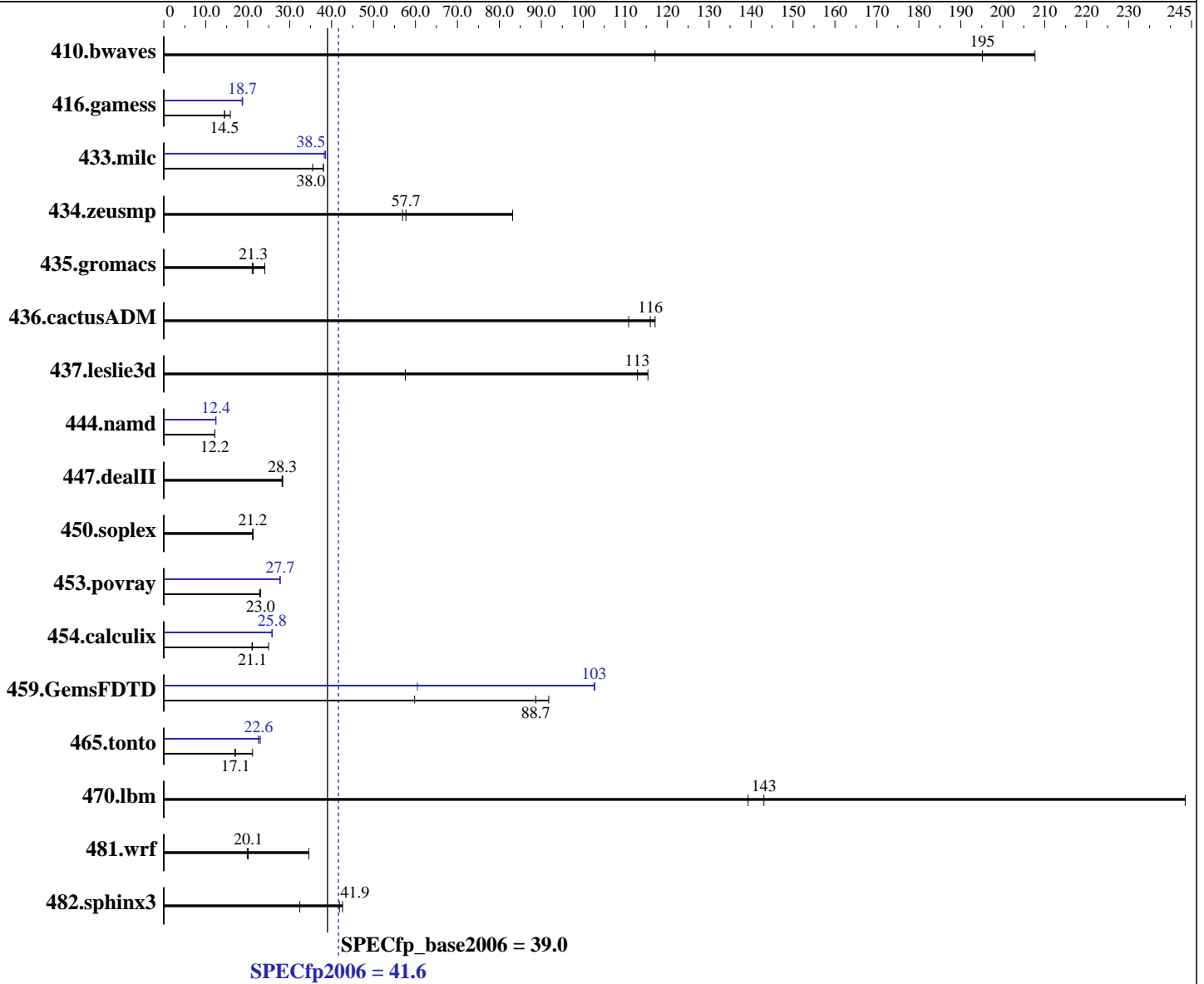
Test sponsor: Huawei

Tested by: Huawei

Test date: Apr-2014

Hardware Availability: Jan-2012

Software Availability: Nov-2013



SPECfp2006 = 41.6

### Hardware

CPU Name: Intel Xeon E5-2603  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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 14.0.0.080 of Intel C++ Studio XE for Linux;  
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 10 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-10600R-09, ECC)  
Disk Subsystem: 1 X 300 GB SAS 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	<b>69.6</b>	<b>195</b>	65.4	208	116	117	<b>69.6</b>	<b>195</b>	65.4	208	116	117
416.gamess	1357	14.4	1234	15.9	<b>1352</b>	<b>14.5</b>	<b>1045</b>	<b>18.7</b>	1048	18.7	1041	18.8
433.milc	259	35.5	241	38.1	<b>242</b>	<b>38.0</b>	240	38.3	<b>238</b>	<b>38.5</b>	238	38.6
434.zeusmp	<b>158</b>	<b>57.7</b>	160	56.9	109	83.1	<b>158</b>	<b>57.7</b>	160	56.9	109	83.1
435.gromacs	<b>335</b>	<b>21.3</b>	339	21.1	296	24.1	<b>335</b>	<b>21.3</b>	339	21.1	296	24.1
436.cactusADM	<b>103</b>	<b>116</b>	102	117	108	111	<b>103</b>	<b>116</b>	102	117	108	111
437.leslie3d	81.4	115	<b>83.2</b>	<b>113</b>	163	57.6	81.4	115	<b>83.2</b>	<b>113</b>	163	57.6
444.namd	<b>658</b>	<b>12.2</b>	658	12.2	659	12.2	646	12.4	<b>646</b>	<b>12.4</b>	646	12.4
447.dealII	406	28.2	404	28.3	<b>404</b>	<b>28.3</b>	406	28.2	404	28.3	<b>404</b>	<b>28.3</b>
450.soplex	392	21.3	<b>393</b>	<b>21.2</b>	393	21.2	392	21.3	<b>393</b>	<b>21.2</b>	393	21.2
453.povray	<b>231</b>	<b>23.0</b>	233	22.8	231	23.0	192	27.7	<b>192</b>	<b>27.7</b>	192	27.8
454.calculix	<b>391</b>	<b>21.1</b>	330	25.0	392	21.0	320	25.8	<b>320</b>	<b>25.8</b>	320	25.8
459.GemsFDTD	116	91.8	<b>120</b>	<b>88.7</b>	177	59.8	103	103	<b>103</b>	<b>103</b>	175	60.5
465.tonto	581	16.9	465	21.2	<b>575</b>	<b>17.1</b>	<b>435</b>	<b>22.6</b>	427	23.0	435	22.6
470.lbm	<b>96.0</b>	<b>143</b>	56.4	243	98.6	139	<b>96.0</b>	<b>143</b>	56.4	243	98.6	139
481.wrf	561	19.9	<b>555</b>	<b>20.1</b>	323	34.6	561	19.9	<b>555</b>	<b>20.1</b>	323	34.6
482.sphinx3	601	32.4	457	42.6	<b>465</b>	<b>41.9</b>	601	32.4	457	42.6	<b>465</b>	<b>41.9</b>

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  
Sysinfo program /spec/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on huawei Thu Apr 10 05:52:12 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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**Tested by:** Huawei

**Test date:** Apr-2014  
**Hardware Availability:** Jan-2012  
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## Platform Notes (Continued)

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2603 0 @ 1.80GHz
    2 "physical id"s (chips)
    8 "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 : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
  cache size : 10240 KB

From /proc/meminfo
MemTotal:      132103760 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 huawei 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 Apr 9 18:50

SPEC is set to: /spec
  Filesystem      Type      Size      Used Avail Use% Mounted on
  /dev/sdal       ext4     193G      58G  126G  32% /

Additional information from dmidecode:
  BIOS Insyde Corp. RMIBV372 12/21/2013
  Memory:
    8x NO DIMM NO DIMM
    11x Samsung M393B1K70CH0-CH9 8 GB 1066 MHz 2 rank
    5x Samsung M393B1K70DH0-CH9 8 GB 1066 MHz 2 rank

(End of data from sysinfo program)

```

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"  
OMP\_NUM\_THREADS = "8"

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## General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4  
 Transparent Huge Pages enabled with:  
 echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
 runspec command invoked through numactl i.e.:  
 numactl --interleave=all runspec <etc>  
 The Huawei CH221 and the Huawei CH222 models are electronically equivalent.  
 The results have been measured on a Huawei CH221 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



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## Base Optimization Flags

C benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

C++ benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
 -xAVX -ipo -O3 -no-prec-div -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) -auto-ilp32  
 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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## Peak Optimization Flags (Continued)

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

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: 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-

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-ic14.0-official-linux64.20140128.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-ic14.0-official-linux64.20140128.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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