



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>2006 = 115

Huawei CH226 V3 (Intel Xeon E5-2643 v3)

SPECfp\_base2006 = 111

CPU2006 license: 3175

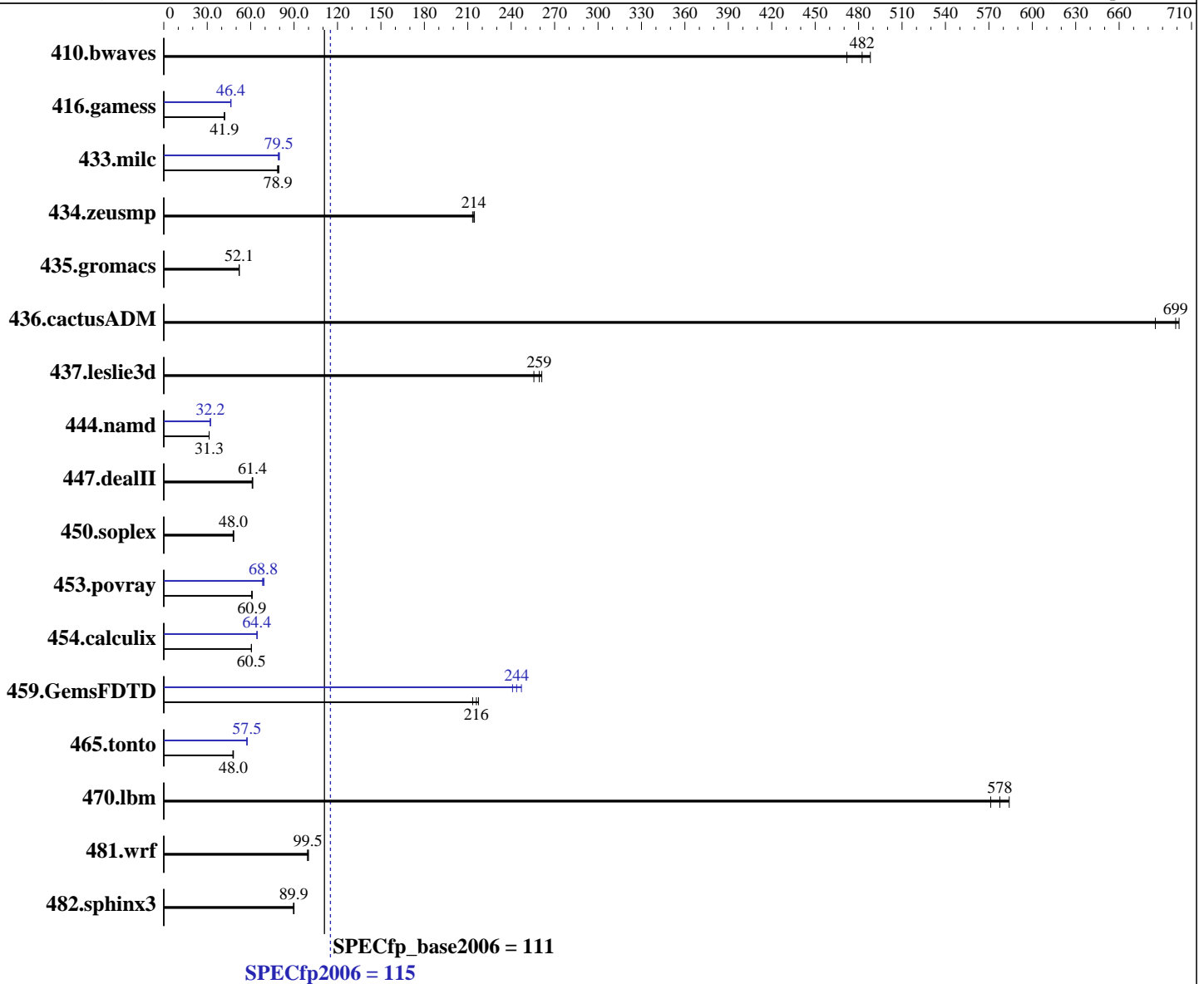
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014



**Hardware**

CPU Name: Intel Xeon E5-2643 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 3400  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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 7.0 (Maipo)  
 3.10.0-123.el7.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
 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	28.8	472	<b><u>28.2</u></b>	<b><u>482</u></b>	27.8	488	28.8	472	<b><u>28.2</u></b>	<b><u>482</u></b>	27.8	488
416.gamess	466	42.1	<b><u>467</u></b>	<b><u>41.9</u></b>	470	41.7	424	46.2	<b><u>422</u></b>	<b><u>46.4</u></b>	422	46.4
433.milc	115	79.5	<b><u>116</u></b>	<b><u>78.9</u></b>	117	78.6	116	79.1	115	79.9	<b><u>115</u></b>	<b><u>79.5</u></b>
434.zeusmp	42.4	215	<b><u>42.5</u></b>	<b><u>214</u></b>	42.7	213	42.4	215	<b><u>42.5</u></b>	<b><u>214</u></b>	42.7	213
435.gromacs	<b><u>137</u></b>	<b><u>52.1</u></b>	137	52.1	137	52.0	<b><u>137</u></b>	<b><u>52.1</u></b>	137	52.1	137	52.0
436.cactusADM	17.0	701	<b><u>17.1</u></b>	<b><u>699</u></b>	17.4	685	17.0	701	<b><u>17.1</u></b>	<b><u>699</u></b>	17.4	685
437.leslie3d	36.0	261	36.8	256	<b><u>36.2</u></b>	<b><u>259</u></b>	36.0	261	36.8	256	<b><u>36.2</u></b>	<b><u>259</u></b>
444.namd	256	31.3	<b><u>256</u></b>	<b><u>31.3</u></b>	256	31.3	249	32.2	249	32.2	<b><u>249</u></b>	<b><u>32.2</u></b>
447.dealII	187	61.1	186	61.4	<b><u>186</u></b>	<b><u>61.4</u></b>	187	61.1	186	61.4	<b><u>186</u></b>	<b><u>61.4</u></b>
450.soplex	174	47.9	172	48.4	<b><u>174</u></b>	<b><u>48.0</u></b>	174	47.9	172	48.4	<b><u>174</u></b>	<b><u>48.0</u></b>
453.povray	87.1	61.1	<b><u>87.4</u></b>	<b><u>60.9</u></b>	87.5	60.8	78.0	68.2	<b><u>77.3</u></b>	<b><u>68.8</u></b>	76.9	69.2
454.calculix	136	60.6	<b><u>136</u></b>	<b><u>60.5</u></b>	136	60.5	128	64.5	<b><u>128</u></b>	<b><u>64.4</u></b>	128	64.4
459.GemsFDTD	48.8	217	49.7	213	<b><u>49.1</u></b>	<b><u>216</u></b>	<b><u>43.5</u></b>	<b><u>244</u></b>	44.0	241	42.9	247
465.tonto	204	48.1	206	47.7	<b><u>205</u></b>	<b><u>48.0</u></b>	171	57.5	171	57.4	<b><u>171</u></b>	<b><u>57.5</u></b>
470.lbm	23.5	584	<b><u>23.8</u></b>	<b><u>578</u></b>	24.1	571	23.5	584	<b><u>23.8</u></b>	<b><u>578</u></b>	24.1	571
481.wrf	<b><u>112</u></b>	<b><u>99.5</u></b>	112	99.3	112	100	<b><u>112</u></b>	<b><u>99.5</u></b>	112	99.3	112	100
482.sphinx3	217	90.0	218	89.5	<b><u>217</u></b>	<b><u>89.9</u></b>	217	90.0	218	89.5	<b><u>217</u></b>	<b><u>89.9</u></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 Custom  
 Set Snoop Mode to HS mode  
 Set Patrol Scrub to Disable  
 Set Hyper-Threading to Disable  
 Sysinfo program /spec/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on localhost.localdomain Wed Sep 2 05:39:32 2015

This section contains SUT (System Under Test) info as seen by  
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## Platform Notes (Continued)

some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2643 v3 @ 3.40GHz
    2 "physical id"s (chips)
    12 "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 : 6
    siblings  : 6
    physical 0: cores 0 1 2 3 4 5
    physical 1: cores 0 1 2 3 4 5
  cache size : 20480 KB

```

```

From /proc/meminfo
MemTotal:      263579832 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Sep 2 05:27

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb1       ext4  443G   54G  367G  13% /

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Insyde Corp. 1.39 05/06/2015

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## Platform Notes (Continued)

### Memory:

8x NO DIMM NO DIMM 3 rank  
8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz  
8x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact,1,0"  
LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"  
OMP\_NUM\_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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

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## Base Portability Flags (Continued)

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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



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Software Availability: Sep-2014

## Peak Optimization Flags

### C benchmarks:

433.milc: -xCORE-AVX2(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:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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

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## Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml>

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