



# SPEC® CFP2006 Result

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## Huawei

SPECfp®2006 = 106

Huawei 5288 V3 (Intel Xeon E5-2695 v3)

SPECfp\_base2006 = 101

CPU2006 license: 3175

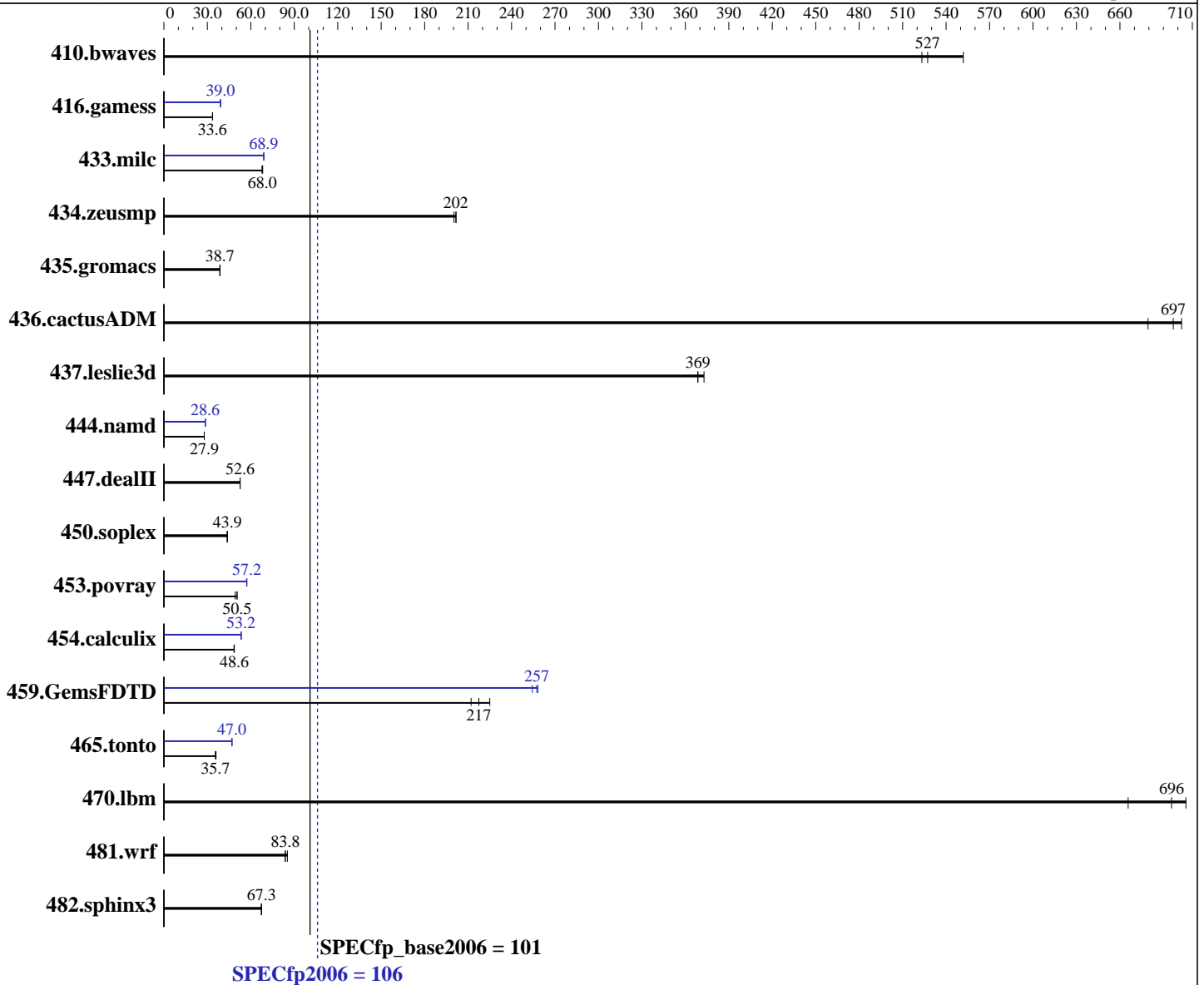
Test date: Aug-2015

Test sponsor: Huawei

Hardware Availability: Sep-2014

Tested by: Huawei

Software Availability: Sep-2014



### Hardware

CPU Name: Intel Xeon E5-2695 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 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	24.6	552	<b><u>25.8</u></b>	<b><u>527</u></b>	26.0	523	24.6	552	<b><u>25.8</u></b>	<b><u>527</u></b>	26.0	523
416.gamess	584	33.5	<b><u>584</u></b>	<b><u>33.6</u></b>	582	33.6	501	39.0	<b><u>502</u></b>	<b><u>39.0</u></b>	502	39.0
433.milc	136	67.7	135	68.2	<b><u>135</u></b>	<b><u>68.0</u></b>	133	68.9	<b><u>133</u></b>	<b><u>68.9</u></b>	133	69.0
434.zeusmp	<b><u>45.1</u></b>	<b><u>202</u></b>	45.1	202	45.4	200	<b><u>45.1</u></b>	<b><u>202</u></b>	45.1	202	45.4	200
435.gromacs	184	38.7	185	38.7	<b><u>185</u></b>	<b><u>38.7</u></b>	184	38.7	185	38.7	<b><u>185</u></b>	<b><u>38.7</u></b>
436.cactusADM	<b><u>17.1</u></b>	<b><u>697</u></b>	17.0	703	17.6	679	<b><u>17.1</u></b>	<b><u>697</u></b>	17.0	703	17.6	679
437.leslie3d	25.5	369	<b><u>25.5</u></b>	<b><u>369</u></b>	25.2	373	25.5	369	<b><u>25.5</u></b>	<b><u>369</u></b>	25.2	373
444.namd	288	27.9	<b><u>288</u></b>	<b><u>27.9</u></b>	288	27.8	280	28.6	<b><u>280</u></b>	<b><u>28.6</u></b>	280	28.6
447.dealII	218	52.6	<b><u>217</u></b>	<b><u>52.6</u></b>	217	52.6	218	52.6	<b><u>217</u></b>	<b><u>52.6</u></b>	217	52.6
450.soplex	190	43.9	191	43.6	<b><u>190</u></b>	<b><u>43.9</u></b>	190	43.9	191	43.6	<b><u>190</u></b>	<b><u>43.9</u></b>
453.povray	105	50.5	<b><u>105</u></b>	<b><u>50.5</u></b>	108	49.2	93.2	57.1	<b><u>93.0</u></b>	<b><u>57.2</u></b>	92.8	57.3
454.calculix	170	48.6	171	48.4	<b><u>170</u></b>	<b><u>48.6</u></b>	154	53.4	<b><u>155</u></b>	<b><u>53.2</u></b>	155	53.2
459.GemsFDTD	47.2	225	50.0	212	<b><u>48.8</u></b>	<b><u>217</u></b>	41.1	258	<b><u>41.2</u></b>	<b><u>257</u></b>	41.7	254
465.tonto	277	35.5	273	36.0	<b><u>276</u></b>	<b><u>35.7</u></b>	<b><u>209</u></b>	<b><u>47.0</u></b>	209	47.0	210	46.9
470.lbm	19.5	706	20.6	666	<b><u>19.8</u></b>	<b><u>696</u></b>	19.5	706	20.6	666	<b><u>19.8</u></b>	<b><u>696</u></b>
481.wrf	<b><u>133</u></b>	<b><u>83.8</u></b>	131	85.2	133	83.7	<b><u>133</u></b>	<b><u>83.8</u></b>	131	85.2	133	83.7
482.sphinx3	<b><u>290</u></b>	<b><u>67.3</u></b>	290	67.3	289	67.4	<b><u>290</u></b>	<b><u>67.3</u></b>	290	67.3	289	67.4

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  
Set Snoop Mode to HS mode  
Set Patrol Scrub to Disable  
Set Hyper-Threading to Disable  
Sysinfo program /spec15/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Mon Aug 17 14:44:53 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 E5-2695 v3 @ 2.30GHz
 2 "physical id"s (chips)
 28 "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 : 14
siblings : 14
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB
```

From /proc/meminfo

```
MemTotal: 263577984 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 Aug 17 14:43

SPEC is set to: /spec15

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdal ext4 433G 135G 277G 33% /
```

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. 1.50 05/26/2015

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## Platform Notes (Continued)

### Memory:

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz

8x Micron 36ASF2G72PZ-2G1A2 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 = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"

OMP\_NUM\_THREADS = "28"

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

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## 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

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## Base Portability Flags (Continued)

```

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:

```

-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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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