





# SPEC CFP2006 Result

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## Huawei

SPECfp2006 = **64.1**

Huawei XH628 V3 (Intel Xeon E5-2609 v3)

SPECfp\_base2006 = **62.0**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Mar-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014

L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)  
 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	<b>49.7</b>	<b>273</b>	50.1	271	48.9	278	<b>49.7</b>	<b>273</b>	50.1	271	48.9	278
416.gamess	867	22.6	863	22.7	<b>864</b>	<b>22.7</b>	808	24.2	805	24.3	<b>805</b>	<b>24.3</b>
433.milc	214	42.9	<b>212</b>	<b>43.2</b>	212	43.2	<b>211</b>	<b>43.6</b>	210	43.7	211	43.5
434.zeusmp	<b>72.5</b>	<b>126</b>	72.5	125	72.5	126	<b>72.5</b>	<b>126</b>	72.5	125	72.5	126
435.gromacs	254	28.1	<b>255</b>	<b>28.0</b>	256	27.9	254	28.1	<b>255</b>	<b>28.0</b>	256	27.9
436.cactusADM	<b>29.1</b>	<b>410</b>	29.3	408	29.0	411	<b>29.1</b>	<b>410</b>	29.3	408	29.0	411
437.leslie3d	<b>59.5</b>	<b>158</b>	59.4	158	60.5	155	<b>59.5</b>	<b>158</b>	59.4	158	60.5	155
444.namd	500	16.0	<b>500</b>	<b>16.0</b>	501	16.0	487	16.5	487	16.5	<b>487</b>	<b>16.5</b>
447.dealII	<b>360</b>	<b>31.8</b>	358	32.0	363	31.5	<b>360</b>	<b>31.8</b>	358	32.0	363	31.5
450.soplex	<b>340</b>	<b>24.5</b>	341	24.4	339	24.6	<b>340</b>	<b>24.5</b>	341	24.4	339	24.6
453.povray	<b>165</b>	<b>32.2</b>	165	32.3	165	32.2	147	36.1	<b>148</b>	<b>36.0</b>	149	35.8
454.calculix	259	31.8	260	31.7	<b>260</b>	<b>31.8</b>	244	33.8	<b>245</b>	<b>33.7</b>	245	33.6
459.GemsFDTD	77.4	137	77.4	137	<b>77.4</b>	<b>137</b>	67.8	156	<b>67.9</b>	<b>156</b>	68.5	155
465.tonto	380	25.9	<b>380</b>	<b>25.9</b>	379	26.0	325	30.3	325	30.3	<b>325</b>	<b>30.3</b>
470.lbm	36.3	378	35.2	391	<b>35.5</b>	<b>387</b>	36.3	378	35.2	391	<b>35.5</b>	<b>387</b>
481.wrf	<b>198</b>	<b>56.5</b>	198	56.5	197	56.8	<b>198</b>	<b>56.5</b>	198	56.5	197	56.8
482.sphinx3	403	48.4	404	48.2	<b>403</b>	<b>48.3</b>	403	48.4	404	48.2	<b>403</b>	<b>48.3</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  
 Sysinfo program /spec15/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on localhost.localdomain Wed Mar 11 13:42:00 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page



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Hardware Availability: Sep-2014

Software Availability: Sep-2014

## Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

```

model name : Intel(R) Xeon(R) CPU E5-2609 v3 @ 1.90GHz
 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 : 15360 KB

```

From /proc/meminfo

```

MemTotal:      263721952 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 Mar 11 13:37

SPEC is set to: /spec15

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext4  458G   38G  397G   9% /

```

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. 1.17 09/03/2014

Memory:

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Software Availability: Sep-2014

## Platform Notes (Continued)

8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1600 MHz  
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1600 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 = "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

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

The Huawei XH622 V3 and Huawei XH628 V3

are electronically equivalent.

The results have been measured on a Huawei XH622 V3 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

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Test date: Mar-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014

## Base Portability Flags (Continued)

```

447.deallI: -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:
-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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CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Mar-2015

Hardware Availability: Sep-2014

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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