



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 108

Huawei XH622 V3 (Intel Xeon E5-2660 v3)

SPECfp_base2006 = 103

CPU2006 license: 3175

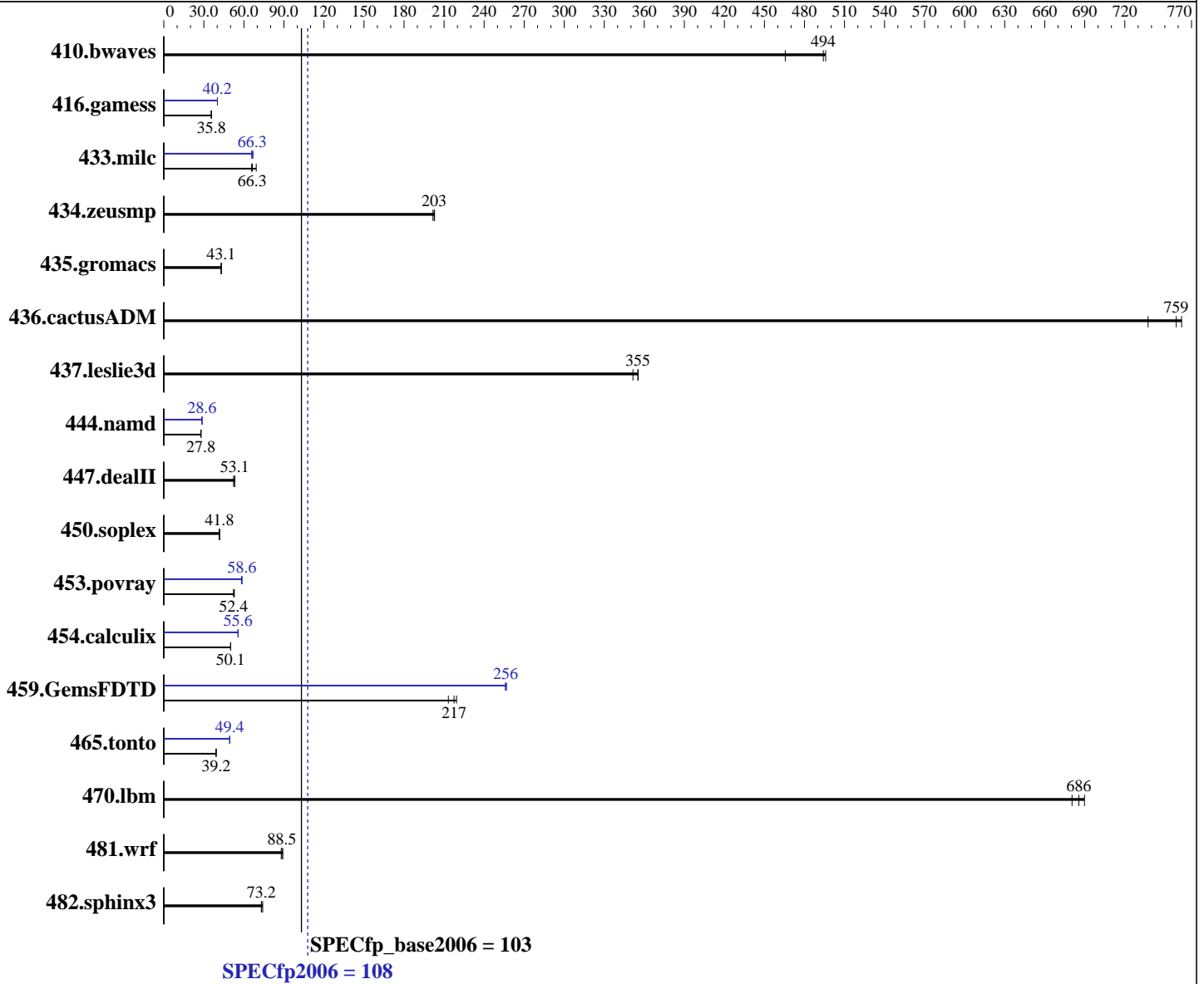
Test sponsor: Huawei

Tested by: Huawei

Test date: Feb-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014



Hardware		Software	
CPU Name:	Intel Xeon E5-2660 v3	Operating System:	Red Hat Enterprise Linux Server release 7.0 (Maipo)
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz		3.10.0-123.el7.x86_64
CPU MHz:	2600	Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
FPU:	Integrated		Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
CPU(s) enabled:	20 cores, 2 chips, 10 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: 25 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	27.4	496	<u>27.5</u>	<u>494</u>	29.2	466	27.4	496	<u>27.5</u>	<u>494</u>	29.2	466
416.gamess	553	35.4	<u>547</u>	<u>35.8</u>	547	35.8	488	40.2	<u>488</u>	<u>40.2</u>	487	40.2
433.milc	133	69.3	<u>138</u>	<u>66.3</u>	139	65.8	137	66.9	<u>138</u>	<u>66.3</u>	139	65.8
434.zeusmp	<u>44.9</u>	<u>203</u>	45.1	202	44.9	203	<u>44.9</u>	<u>203</u>	45.1	202	44.9	203
435.gromacs	166	43.0	165	43.1	<u>166</u>	<u>43.1</u>	166	43.0	165	43.1	<u>166</u>	<u>43.1</u>
436.cactusADM	15.7	763	16.2	737	<u>15.8</u>	<u>759</u>	15.7	763	16.2	737	<u>15.8</u>	<u>759</u>
437.leslie3d	<u>26.5</u>	<u>355</u>	26.7	352	26.4	355	<u>26.5</u>	<u>355</u>	26.7	352	26.4	355
444.namd	288	27.8	288	27.9	<u>288</u>	<u>27.8</u>	280	28.6	280	28.6	<u>280</u>	<u>28.6</u>
447.dealII	215	53.1	<u>216</u>	<u>53.1</u>	219	52.3	215	53.1	<u>216</u>	<u>53.1</u>	219	52.3
450.soplex	200	41.6	200	41.8	<u>200</u>	<u>41.8</u>	200	41.6	200	41.8	<u>200</u>	<u>41.8</u>
453.povray	102	52.3	<u>102</u>	<u>52.4</u>	101	52.9	<u>90.9</u>	<u>58.6</u>	91.4	58.2	90.7	58.6
454.calculix	165	50.1	165	50.0	<u>165</u>	<u>50.1</u>	<u>148</u>	<u>55.6</u>	148	55.7	148	55.6
459.GemsFDTD	48.4	219	49.8	213	<u>48.8</u>	<u>217</u>	41.3	257	<u>41.4</u>	<u>256</u>	41.5	256
465.tonto	<u>251</u>	<u>39.2</u>	251	39.2	251	39.2	200	49.3	<u>199</u>	<u>49.4</u>	199	49.5
470.lbm	20.2	680	<u>20.0</u>	<u>686</u>	19.9	690	20.2	680	<u>20.0</u>	<u>686</u>	19.9	690
481.wrf	<u>126</u>	<u>88.5</u>	125	89.2	127	88.0	<u>126</u>	<u>88.5</u>	125	89.2	127	88.0
482.sphinx3	263	74.1	<u>266</u>	<u>73.2</u>	267	73.1	263	74.1	<u>266</u>	<u>73.2</u>	267	73.1

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 ES
 Set HT to Disable
 Sysinfo program /spec15/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on localhost.localdomain Tue Feb 3 06:41:07 2015

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

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Platform Notes (Continued)

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

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz
 2 "physical id"s (chips)
 20 "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 : 10
siblings   : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      263721024 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 Feb 3 06:04

SPEC is set to: /spec15

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  458G   35G  400G   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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Platform Notes (Continued)

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 = "20"

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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Base Portability Flags (Continued)

```

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:

```

-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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