



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 113

Huawei RH1288 V3 (Intel Xeon E5-2643 v3)

SPECfp_base2006 = 109

CPU2006 license: 3175

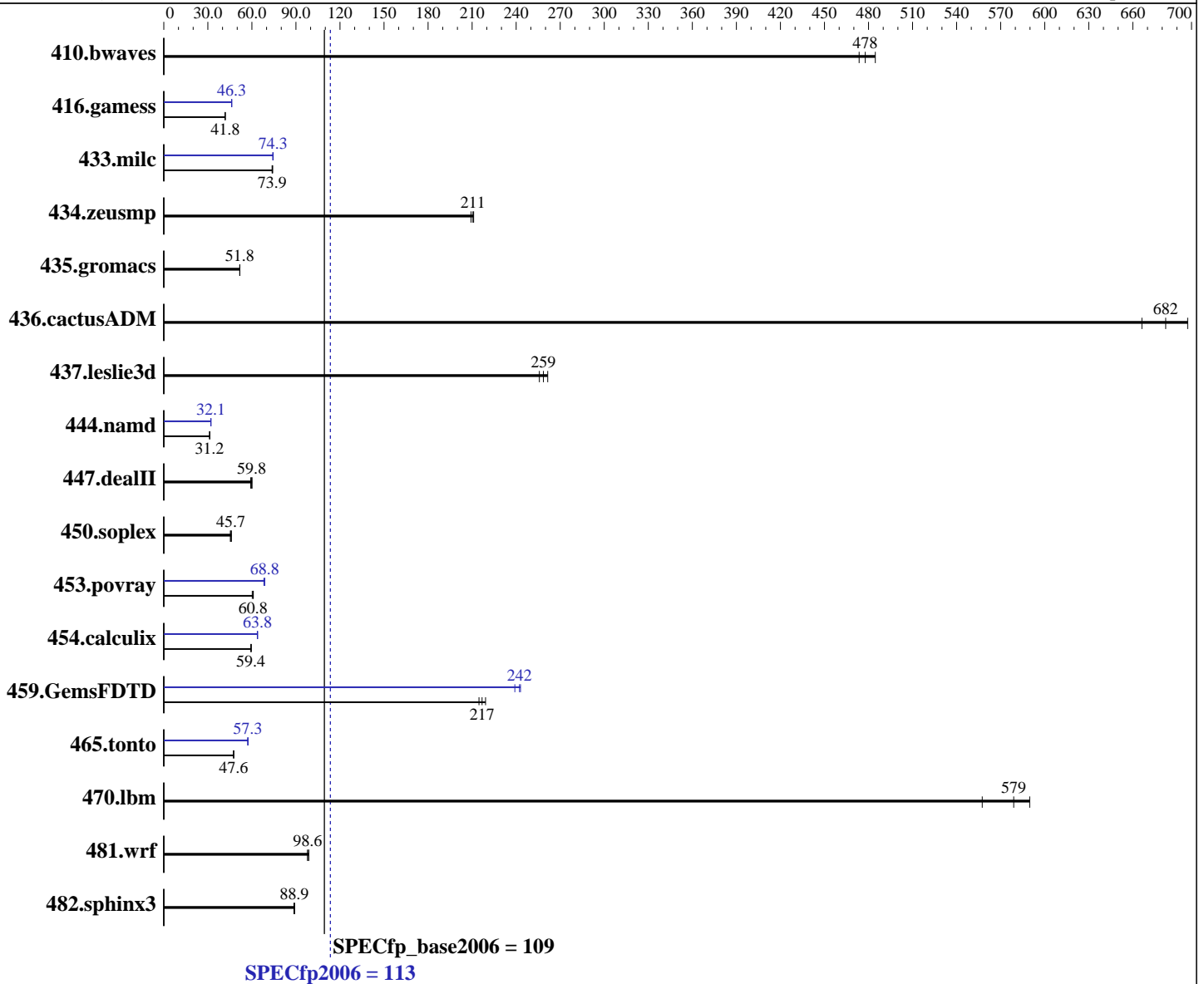
Test sponsor: Huawei

Tested by: Huawei

Test date: Apr-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	<u>28.4</u>	<u>478</u>	28.7	474	28.0	485	<u>28.4</u>	<u>478</u>	28.7	474	28.0	485
416.gamess	469	41.7	<u>468</u>	<u>41.8</u>	468	41.9	423	46.3	424	46.2	<u>423</u>	<u>46.3</u>
433.milc	<u>124</u>	<u>73.9</u>	124	73.8	124	74.2	124	74.3	123	74.5	<u>124</u>	<u>74.3</u>
434.zeusmp	43.1	211	43.5	209	<u>43.2</u>	<u>211</u>	43.1	211	43.5	209	<u>43.2</u>	<u>211</u>
435.gromacs	<u>138</u>	<u>51.8</u>	138	51.7	138	51.8	<u>138</u>	<u>51.8</u>	138	51.7	138	51.8
436.cactusADM	17.9	666	17.1	697	<u>17.5</u>	<u>682</u>	17.9	666	17.1	697	<u>17.5</u>	<u>682</u>
437.leslie3d	<u>36.4</u>	<u>259</u>	36.7	256	35.9	261	<u>36.4</u>	<u>259</u>	36.7	256	35.9	261
444.namd	257	31.3	<u>257</u>	<u>31.2</u>	257	31.2	250	32.1	<u>250</u>	<u>32.1</u>	250	32.1
447.dealII	190	60.1	193	59.2	<u>191</u>	<u>59.8</u>	190	60.1	193	59.2	<u>191</u>	<u>59.8</u>
450.soplex	<u>182</u>	<u>45.7</u>	184	45.3	181	46.1	<u>182</u>	<u>45.7</u>	184	45.3	181	46.1
453.povray	<u>87.5</u>	<u>60.8</u>	88.3	60.2	87.2	61.0	77.3	68.8	78.1	68.1	<u>77.4</u>	<u>68.8</u>
454.calculix	138	59.6	139	59.3	<u>139</u>	<u>59.4</u>	129	63.9	<u>129</u>	<u>63.8</u>	130	63.7
459.GemsFDTD	48.4	219	<u>48.9</u>	<u>217</u>	49.4	215	44.4	239	<u>43.8</u>	<u>242</u>	43.7	243
465.tonto	<u>207</u>	<u>47.6</u>	207	47.5	207	47.6	172	57.3	<u>172</u>	<u>57.3</u>	172	57.3
470.lbm	24.6	557	23.3	590	<u>23.7</u>	<u>579</u>	24.6	557	23.3	590	<u>23.7</u>	<u>579</u>
481.wrf	113	98.7	<u>113</u>	<u>98.6</u>	114	97.8	113	98.7	<u>113</u>	<u>98.6</u>	114	97.8
482.sphinx3	<u>219</u>	<u>88.9</u>	220	88.6	219	89.1	<u>219</u>	<u>88.9</u>	220	88.6	219	89.1

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 HS mode
 Set HT to Disable
 Sysinfo program /spec15/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on localhost.localdomain Wed Apr 8 10:11:00 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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Platform Notes (Continued)

<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: 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 Apr 8 10:09

SPEC is set to: /spec15

Filesystem Type Size Used Avail Use% Mounted on

/dev/sdal ext4 458G 39G 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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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 = "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>

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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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.

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