



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 108

Huawei CH220 V3 (Intel Xeon E5-2698 v3)

SPECfp_base2006 = 102

CPU2006 license: 3175

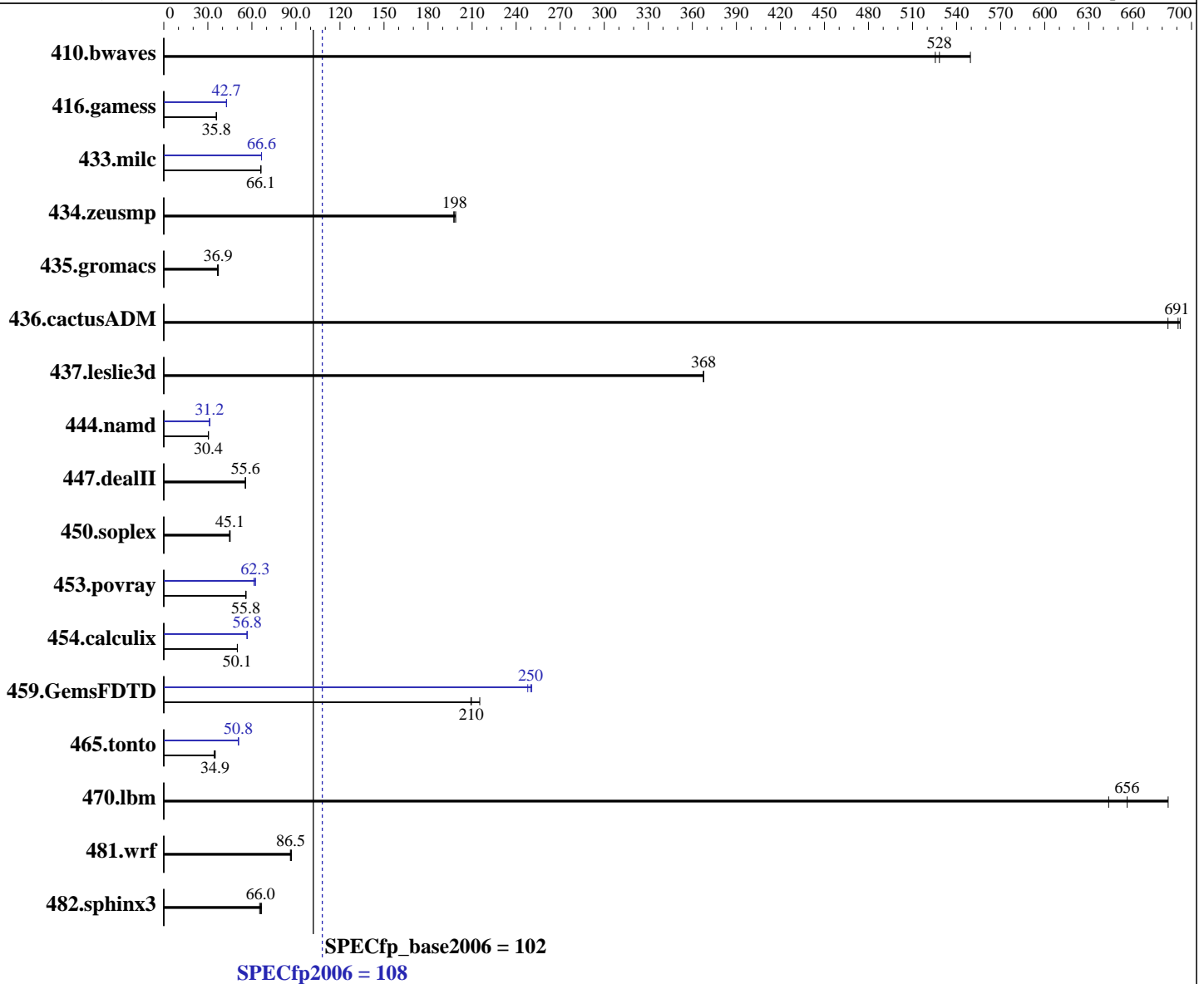
Test date: Mar-2015

Test sponsor: Huawei

Hardware Availability: Sep-2014

Tested by: Huawei

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2698 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 32 cores, 2 chips, 16 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: 40 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	25.9	525	24.7	549	<u>25.7</u>	<u>528</u>	25.9	525	24.7	549	<u>25.7</u>	<u>528</u>
416.gamess	546	35.9	547	35.8	<u>547</u>	<u>35.8</u>	<u>458</u>	<u>42.7</u>	459	42.6	458	42.7
433.milc	139	66.0	<u>139</u>	<u>66.1</u>	139	66.2	138	66.6	<u>138</u>	<u>66.6</u>	138	66.5
434.zeusmp	46.1	197	45.8	199	<u>45.9</u>	<u>198</u>	46.1	197	45.8	199	<u>45.9</u>	<u>198</u>
435.gromacs	196	36.5	<u>193</u>	<u>36.9</u>	192	37.2	196	36.5	<u>193</u>	<u>36.9</u>	192	37.2
436.cactusADM	17.3	692	<u>17.3</u>	<u>691</u>	17.5	684	17.3	692	<u>17.3</u>	<u>691</u>	17.5	684
437.leslie3d	<u>25.6</u>	<u>368</u>	25.6	368	25.6	368	<u>25.6</u>	<u>368</u>	25.6	368	25.6	368
444.namd	<u>264</u>	<u>30.4</u>	264	30.3	264	30.4	257	31.2	<u>257</u>	<u>31.2</u>	257	31.2
447.dealII	206	55.5	<u>206</u>	<u>55.6</u>	206	55.7	206	55.5	<u>206</u>	<u>55.6</u>	206	55.7
450.soplex	186	44.7	<u>185</u>	<u>45.1</u>	185	45.2	186	44.7	<u>185</u>	<u>45.1</u>	185	45.2
453.povray	95.3	55.8	94.9	56.1	<u>95.3</u>	<u>55.8</u>	85.3	62.4	86.6	61.4	<u>85.4</u>	<u>62.3</u>
454.calculix	165	50.1	<u>165</u>	<u>50.1</u>	165	50.1	145	56.9	146	56.6	<u>145</u>	<u>56.8</u>
459.GemsFDTD	50.7	209	49.3	215	<u>50.6</u>	<u>210</u>	42.8	248	42.3	251	<u>42.5</u>	<u>250</u>
465.tonto	<u>282</u>	<u>34.9</u>	287	34.3	281	35.0	193	50.9	194	50.8	<u>194</u>	<u>50.8</u>
470.lbm	<u>20.9</u>	<u>656</u>	20.1	684	21.3	644	<u>20.9</u>	<u>656</u>	20.1	684	21.3	644
481.wrf	<u>129</u>	<u>86.5</u>	128	86.9	130	86.2	<u>129</u>	<u>86.5</u>	128	86.9	130	86.2
482.sphinx3	<u>296</u>	<u>66.0</u>	293	66.6	299	65.3	<u>296</u>	<u>66.0</u>	293	66.6	299	65.3

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 Performance
 Set Snoop Mode to HS mode
 Set Intel Hyper-threading Technology to Disable
 Sysinfo program /spec15/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on localhost.localdomain Wed Mar 25 12:44:26 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 E5-2698 v3 @ 2.30GHz

2 "physical id"s (chips)

32 "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 : 16

siblings : 16

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

cache size : 40960 KB

From /proc/meminfo

MemTotal: 263719632 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 24 06:41

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 = "32"

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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