



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = 778

Huawei RH5885 V3 (Intel Xeon E7-4809 v3)

SPECfp_rate_base2006 = 758

CPU2006 license: 3175

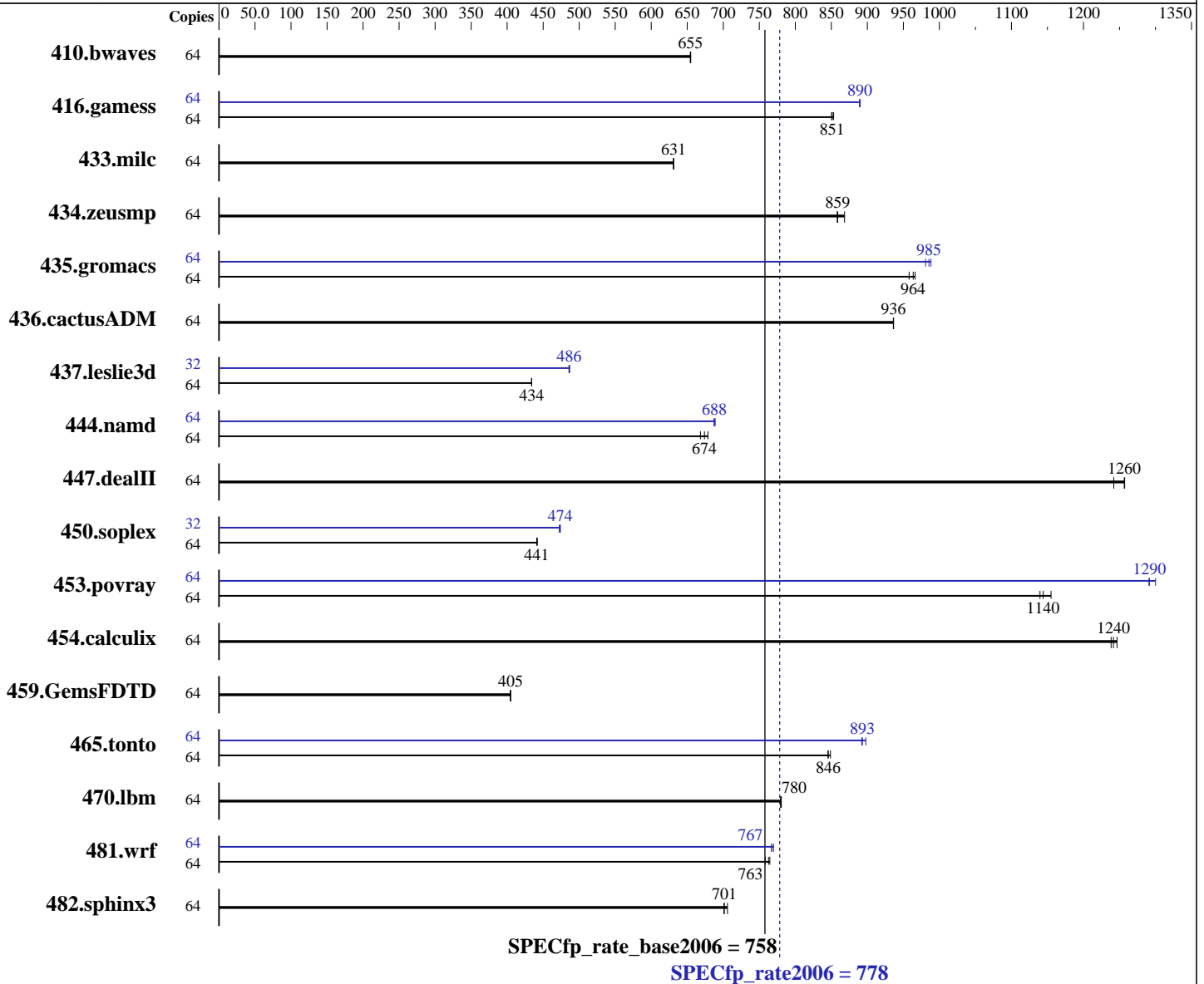
Test sponsor: Huawei

Tested by: Huawei

Test date: Nov-2015

Hardware Availability: May-2015

Software Availability: Oct-2014



Hardware

CPU Name: Intel Xeon E7-4809 v3
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 12 (x86_64)
 3.12.28-4-default
 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: No
 File System: ext4
 System State: Run level 3 (multi-user)

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L3 Cache: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)
 Disk Subsystem: 2 x 300 GB SAS, 10K RPM
 Other Hardware: None

Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	1328	655	<u>1329</u>	<u>655</u>	1330	654	64	1328	655	<u>1329</u>	<u>655</u>	1330	654
416.gamess	64	1469	853	<u>1472</u>	<u>851</u>	1474	850	64	1409	889	1408	890	<u>1409</u>	<u>890</u>
433.milc	64	931	631	931	631	<u>931</u>	<u>631</u>	64	931	631	931	631	<u>931</u>	<u>631</u>
434.zeusmp	64	679	858	671	868	<u>678</u>	<u>859</u>	64	679	858	671	868	<u>678</u>	<u>859</u>
435.gromacs	64	477	958	473	966	<u>474</u>	<u>964</u>	64	466	981	462	988	<u>464</u>	<u>985</u>
436.cactusADM	64	817	936	<u>817</u>	<u>936</u>	817	936	64	817	936	<u>817</u>	<u>936</u>	817	936
437.leslie3d	64	1386	434	1387	434	<u>1386</u>	<u>434</u>	32	<u>619</u>	<u>486</u>	619	486	618	487
444.namd	64	756	679	768	668	<u>762</u>	<u>674</u>	64	745	689	<u>746</u>	<u>688</u>	747	687
447.dealII	64	582	1260	589	1240	<u>583</u>	<u>1260</u>	64	582	1260	589	1240	<u>583</u>	<u>1260</u>
450.soplex	64	1208	442	<u>1210</u>	<u>441</u>	1210	441	32	<u>563</u>	<u>474</u>	565	472	563	474
453.povray	64	299	1140	295	1160	<u>298</u>	<u>1140</u>	64	264	1290	262	1300	<u>264</u>	<u>1290</u>
454.calculix	64	<u>425</u>	<u>1240</u>	424	1250	426	1240	64	<u>425</u>	<u>1240</u>	424	1250	426	1240
459.GemsFDTD	64	1679	404	<u>1678</u>	<u>405</u>	1678	405	64	1679	404	<u>1678</u>	<u>405</u>	1678	405
465.tonto	64	745	845	<u>745</u>	<u>846</u>	742	849	64	706	892	<u>705</u>	<u>893</u>	701	898
470.lbm	64	<u>1127</u>	<u>780</u>	1127	781	1128	779	64	<u>1127</u>	<u>780</u>	1127	781	1128	779
481.wrf	64	935	765	943	758	<u>937</u>	<u>763</u>	64	929	770	932	767	<u>931</u>	<u>767</u>
482.sphinx3	64	<u>1778</u>	<u>701</u>	1779	701	1767	706	64	<u>1778</u>	<u>701</u>	1779	701	1767	706

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"



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Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

Set Lock_step to disabled

Baseboard Management Controller used to adjust the fan speed to 100%

Set Memory Power Saving to disabled

Sysinfo program /zsn/spec1/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 # \$ e3fbb8667b5a285932ceab81e28219e1

running on RH5885V3 Thu Nov 5 15:54:36 2015

This section contains SUT (System Under Test) info as seen by 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 E7-4809 v3 @ 2.00GHz

4 "physical id"s (chips)

64 "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 : 8

siblings : 16

physical 0: cores 0 1 2 3 4 5 6 7

physical 1: cores 0 1 2 3 4 5 6 7

physical 2: cores 0 1 2 3 4 5 6 7

physical 3: cores 0 1 2 3 4 5 6 7

cache size : 20480 KB

From /proc/meminfo

MemTotal: 529114412 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 0

This file is deprecated and will be removed in a future service pack or release.

Please check /etc/os-release for details about this release.

os-release:

NAME="SLES"

VERSION="12"

VERSION_ID="12"

PRETTY_NAME="SUSE Linux Enterprise Server 12"

ID="sles"

ANSI_COLOR="0;32"

CPE_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux RH5885V3 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014

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Platform Notes (Continued)

(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 5 10:04

SPEC is set to: /zsn/spec1

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb1	ext4	823G	7.5G	773G	1%	/zsn

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 American Megatrends Inc. BLISQ954 09/19/2015

Memory:

32x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1333 MHz
16x NO DIMM NO DIMM

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 512 GB and the dmidecode description should have two lines reading as:

32x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1333 MHz
16x NO DIMM NO DIMM

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/zsn/spec1/libs/32:/zsn/spec1/libs/64:/zsn/spec1/sh"

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

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop_caches

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

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Base Compiler Invocation (Continued)

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
 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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:

icc -m64

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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak 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.deall: -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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

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)
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
 -auto-ilp32

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Peak Optimization Flags (Continued)

447.deallI: basepeak = yes

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-malloc-options=3

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll14
-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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

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) -unroll14
-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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-V1.2-HSW-RevG.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-V1.2-HSW-RevG.xml>



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