



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = 100

Huawei RH2288E v2 (Intel Xeon E5-2670 v2)

SPECfp_base2006 = 95.9

CPU2006 license: 3175

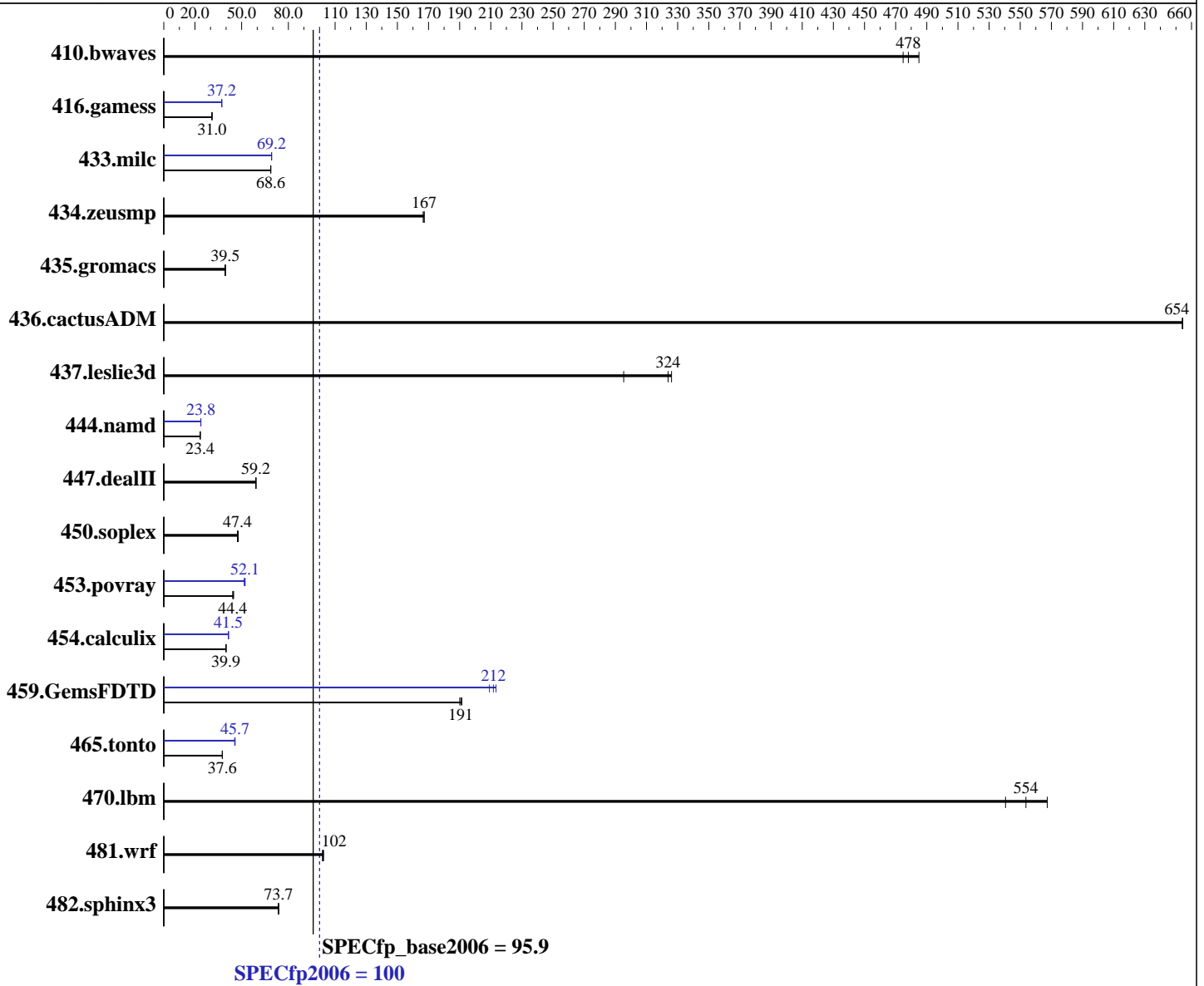
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2670 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 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 6.5 (Santiago)
 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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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 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 10000 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	28.6	475	28.0	485	<u>28.4</u>	<u>478</u>	28.6	475	28.0	485	<u>28.4</u>	<u>478</u>
416.gamess	633	30.9	632	31.0	<u>632</u>	<u>31.0</u>	526	37.2	526	37.2	<u>526</u>	<u>37.2</u>
433.milc	134	68.6	<u>134</u>	<u>68.6</u>	134	68.8	133	69.3	133	69.2	<u>133</u>	<u>69.2</u>
434.zeusmp	54.4	167	<u>54.4</u>	<u>167</u>	54.6	167	54.4	167	<u>54.4</u>	<u>167</u>	54.6	167
435.gromacs	182	39.3	<u>181</u>	<u>39.5</u>	180	39.6	182	39.3	<u>181</u>	<u>39.5</u>	180	39.6
436.cactusADM	18.3	654	<u>18.3</u>	<u>654</u>	18.3	654	18.3	654	<u>18.3</u>	<u>654</u>	18.3	654
437.leslie3d	<u>29.0</u>	<u>324</u>	31.8	295	28.8	326	<u>29.0</u>	<u>324</u>	31.8	295	28.8	326
444.namd	343	23.4	<u>343</u>	<u>23.4</u>	343	23.4	337	23.8	337	23.8	<u>337</u>	<u>23.8</u>
447.dealII	<u>193</u>	<u>59.2</u>	193	59.1	193	59.2	<u>193</u>	<u>59.2</u>	193	59.1	193	59.2
450.soplex	174	47.8	176	47.3	<u>176</u>	<u>47.4</u>	174	47.8	176	47.3	<u>176</u>	<u>47.4</u>
453.povray	119	44.9	120	44.3	<u>120</u>	<u>44.4</u>	102	52.2	103	51.6	<u>102</u>	<u>52.1</u>
454.calculix	206	40.0	<u>207</u>	<u>39.9</u>	207	39.9	199	41.5	<u>199</u>	<u>41.5</u>	199	41.5
459.GemsFDTD	55.8	190	55.4	191	<u>55.6</u>	<u>191</u>	50.7	209	<u>50.1</u>	<u>212</u>	49.7	213
465.tonto	262	37.5	261	37.7	<u>262</u>	<u>37.6</u>	<u>215</u>	<u>45.7</u>	216	45.5	215	45.8
470.lbm	24.2	567	<u>24.8</u>	<u>554</u>	25.4	541	24.2	567	<u>24.8</u>	<u>554</u>	25.4	541
481.wrf	109	103	<u>109</u>	<u>102</u>	110	102	109	103	<u>109</u>	<u>102</u>	110	102
482.sphinx3	264	73.8	265	73.6	<u>264</u>	<u>73.7</u>	264	73.8	265	73.6	<u>264</u>	<u>73.7</u>

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
 Baseboard Management Controller used to adjust the fan speed to 100%
 Set Hyper-Threading to Disabled
 Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on localhost.localdomain Wed Mar 26 05:14:25 2014

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 E5-2670 v2 @ 2.50GHz
 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:      264478184 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

/usr/bin/lsb_release -d

```
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

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

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Mar 24 09:00

SPEC is set to: /spec

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  254G   15G  227G   7% /
```

Additional information from dmidecode:

Memory:

```
16x Samsung M393B2G70DB0-CMA 16 GB 1867 MHz 2 rank
```

(End of data from sysinfo program)

General Notes

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

```
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "20"
```

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General Notes (Continued)

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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
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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -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

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(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

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(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: -xAVX(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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(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: -xAVX(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

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.html>
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>
<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>



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