



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = **101**

Huawei RH2288 v2 (Intel Xeon E5-2697 v2)

SPECfp_base2006 = **96.6**

CPU2006 license: 3175

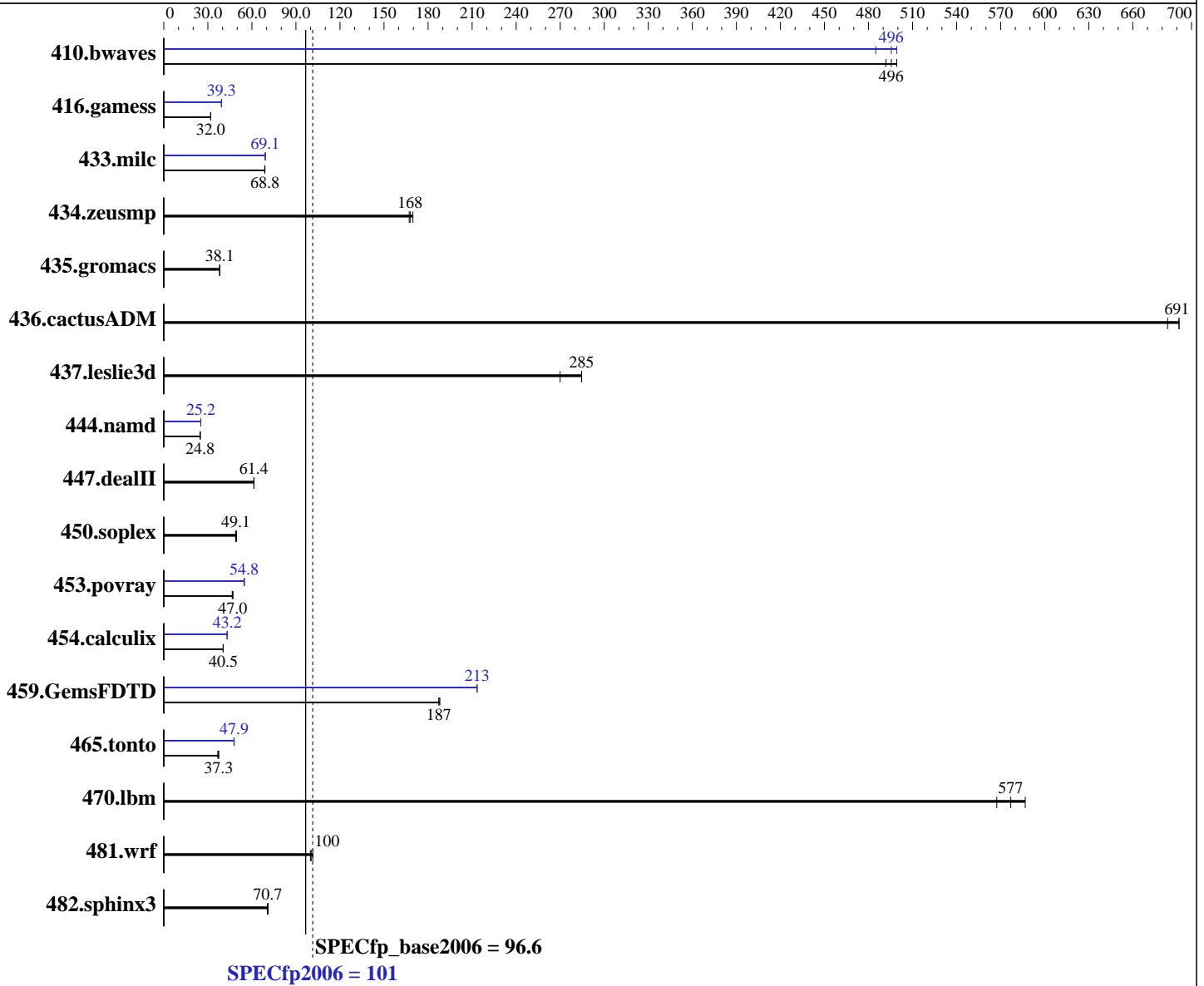
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2697 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 2700
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 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	27.2	499	27.6	492	<u>27.4</u>	<u>496</u>	<u>27.4</u>	<u>496</u>	27.2	499	28.0	485
416.gamess	613	31.9	613	32.0	<u>613</u>	<u>32.0</u>	499	39.3	498	39.3	<u>498</u>	<u>39.3</u>
433.milc	133	68.9	134	68.7	<u>133</u>	<u>68.8</u>	133	69.1	<u>133</u>	<u>69.1</u>	133	69.2
434.zeusmp	53.6	170	<u>54.2</u>	<u>168</u>	54.4	167	53.6	170	<u>54.2</u>	<u>168</u>	54.4	167
435.gromacs	188	38.1	<u>188</u>	<u>38.1</u>	187	38.2	188	38.1	<u>188</u>	<u>38.1</u>	187	38.2
436.cactusADM	17.5	684	<u>17.3</u>	<u>691</u>	17.3	692	17.5	684	<u>17.3</u>	<u>691</u>	17.3	692
437.leslie3d	33.0	285	34.8	270	<u>33.0</u>	<u>285</u>	33.0	285	34.8	270	<u>33.0</u>	<u>285</u>
444.namd	<u>323</u>	<u>24.8</u>	323	24.8	323	24.8	<u>318</u>	<u>25.2</u>	318	25.2	318	25.2
447.dealII	186	61.5	186	61.4	<u>186</u>	<u>61.4</u>	186	61.5	186	61.4	<u>186</u>	<u>61.4</u>
450.soplex	<u>170</u>	<u>49.1</u>	169	49.5	171	48.9	<u>170</u>	<u>49.1</u>	169	49.5	171	48.9
453.povray	114	46.6	<u>113</u>	<u>47.0</u>	113	47.0	97.0	54.9	97.4	54.6	<u>97.0</u>	<u>54.8</u>
454.calculix	204	40.4	204	40.5	<u>204</u>	<u>40.5</u>	<u>191</u>	<u>43.2</u>	191	43.2	191	43.1
459.GemsFDTD	56.4	188	<u>56.6</u>	<u>187</u>	56.6	187	49.7	213	<u>49.7</u>	<u>213</u>	49.7	213
465.tonto	268	36.8	263	37.4	<u>264</u>	<u>37.3</u>	206	47.7	205	48.0	<u>206</u>	<u>47.9</u>
470.lbm	24.2	567	<u>23.8</u>	<u>577</u>	23.4	587	24.2	567	<u>23.8</u>	<u>577</u>	23.4	587
481.wrf	<u>111</u>	<u>100</u>	112	99.9	110	102	<u>111</u>	<u>100</u>	112	99.9	110	102
482.sphinx3	<u>276</u>	<u>70.7</u>	274	71.0	276	70.7	<u>276</u>	<u>70.7</u>	274	71.0	276	70.7

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 Wed Oct 15 22:50:17 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 E5-2697 v2 @ 2.70GHz
 2 "physical id"s (chips)
 24 "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 : 12
siblings   : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 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 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 Oct 13 09:28

SPEC is set to: /spec

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  272G  33G  226G  13% /
```

Additional information from dmidecode:

Memory:

```
4x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
12x 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 = "24"
```

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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.deallI: -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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

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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