



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 104

Huawei RH2288 V3 (Intel Xeon E5-2695 v3)

SPECfp_base2006 = 99.0

CPU2006 license: 3175

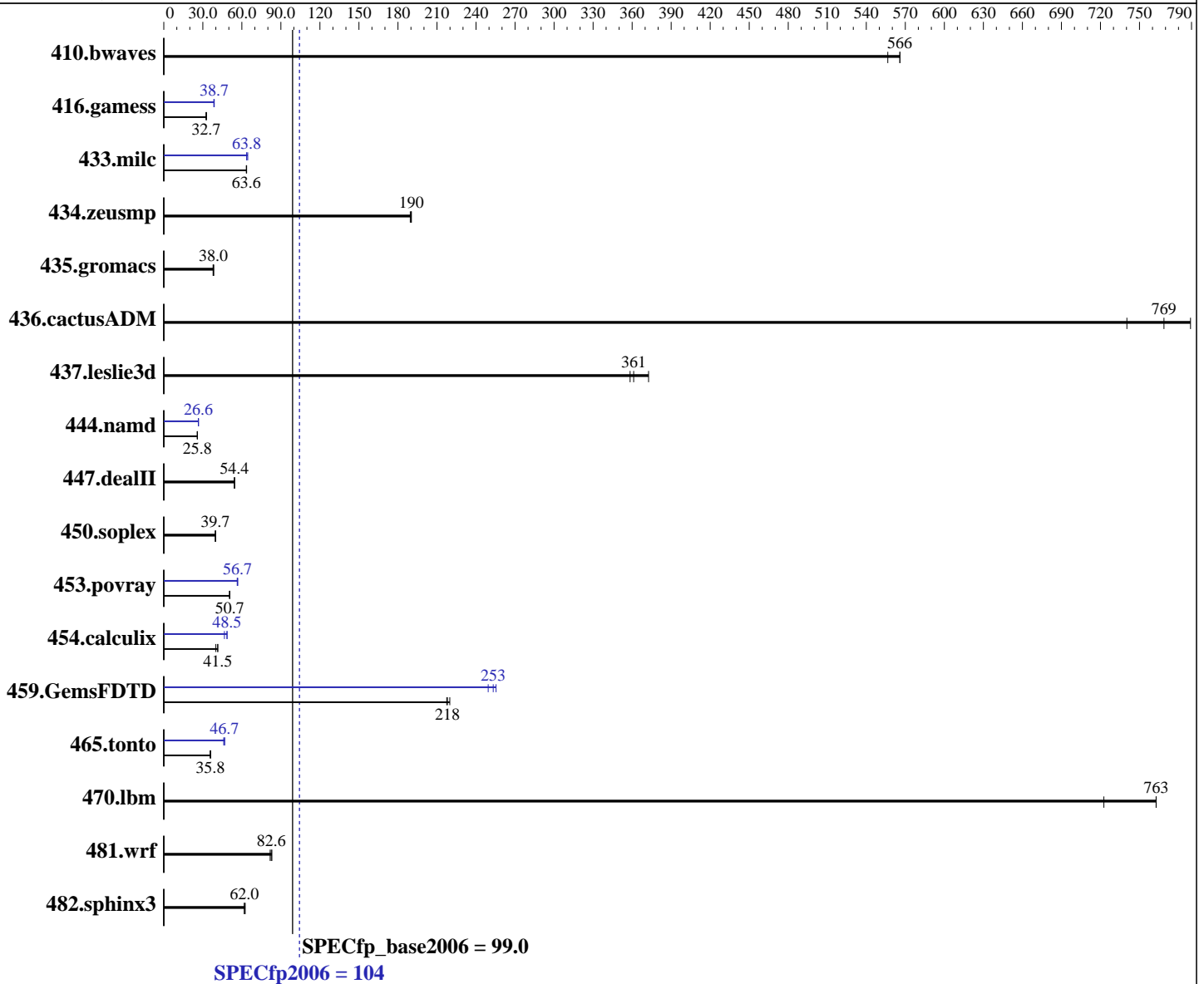
Test date: Dec-2014

Test sponsor: Huawei

Hardware Availability: Sep-2014

Tested by: Huawei

Software Availability: Jun-2014



Hardware

CPU Name: Intel Xeon E5-2695 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 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 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs

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L3 Cache: 35 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>24.0</u>	<u>566</u>	24.0	566	24.4	557	<u>24.0</u>	<u>566</u>	24.0	566	24.4	557
416.gamess	603	32.5	597	32.8	<u>599</u>	<u>32.7</u>	<u>506</u>	<u>38.7</u>	505	38.8	509	38.4
433.milc	145	63.4	144	63.7	<u>144</u>	<u>63.6</u>	144	63.7	142	64.5	<u>144</u>	<u>63.8</u>
434.zeusmp	48.0	189	<u>47.8</u>	<u>190</u>	47.8	190	48.0	189	<u>47.8</u>	<u>190</u>	47.8	190
435.gromacs	189	37.9	186	38.4	<u>188</u>	<u>38.0</u>	189	37.9	186	38.4	<u>188</u>	<u>38.0</u>
436.cactusADM	<u>15.5</u>	<u>769</u>	16.1	740	15.1	789	<u>15.5</u>	<u>769</u>	16.1	740	15.1	789
437.leslie3d	26.2	358	<u>26.0</u>	<u>361</u>	25.2	373	26.2	358	<u>26.0</u>	<u>361</u>	25.2	373
444.namd	<u>311</u>	<u>25.8</u>	311	25.8	311	25.8	301	26.6	<u>301</u>	<u>26.6</u>	301	26.6
447.dealII	210	54.4	<u>210</u>	<u>54.4</u>	211	54.3	210	54.4	<u>210</u>	<u>54.4</u>	211	54.3
450.soplex	211	39.6	210	39.8	<u>210</u>	<u>39.7</u>	211	39.6	210	39.8	<u>210</u>	<u>39.7</u>
453.povray	<u>105</u>	<u>50.7</u>	105	50.7	105	50.4	93.6	56.8	<u>93.9</u>	<u>56.7</u>	94.3	56.4
454.calculix	206	40.0	199	41.5	<u>199</u>	<u>41.5</u>	170	48.6	177	46.6	<u>170</u>	<u>48.5</u>
459.GemsFDTD	<u>48.7</u>	<u>218</u>	48.3	220	48.8	217	<u>41.9</u>	<u>253</u>	42.6	249	41.5	255
465.tonto	276	35.6	<u>275</u>	<u>35.8</u>	273	36.1	210	46.8	214	46.0	<u>211</u>	<u>46.7</u>
470.lbm	19.0	723	<u>18.0</u>	<u>763</u>	18.0	763	19.0	723	<u>18.0</u>	<u>763</u>	18.0	763
481.wrf	<u>135</u>	<u>82.6</u>	137	81.7	134	83.1	<u>135</u>	<u>82.6</u>	137	81.7	134	83.1
482.sphinx3	315	61.9	<u>315</u>	<u>62.0</u>	311	62.6	315	61.9	<u>315</u>	<u>62.0</u>	311	62.6

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 ES
 Set Hyper-Threading to Disabled
 Set Patrol Scrub to Disable
 Baseboard Management Controller used to adjust the fan speed to 100%
 Sysinfo program /spec14/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Wed Dec 24 16:36:40 2014

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Platform Notes (Continued)

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 E5-2695 v3 @ 2.30GHz
 2 "physical id"s (chips)
 28 "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    : 14
  siblings     : 14
  physical 0   : cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1   : cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size     : 35840 KB

```

```

From /proc/meminfo
MemTotal:      263720104 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 Dec 24 08:32

```

SPEC is set to: /spec14
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       xfs   98G   17G   81G   18% /

```

```

Additional information from dmidecode:
BIOS Insyde Corp. 1.16 09/02/2014
Memory:
8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

```

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Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

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

```
LD_LIBRARY_PATH = "/spec14/libs/32:/spec14/libs/64:/spec14/sh"
OMP_NUM_THREADS = "28"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_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.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
```

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Base Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

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.dealII: 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

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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Peak Optimization Flags (Continued)

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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.2.xml>

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