



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 96.7

Huawei CH222 (Intel Xeon E5-2695 v2)

SPECfp_base2006 = 92.6

CPU2006 license: 3175

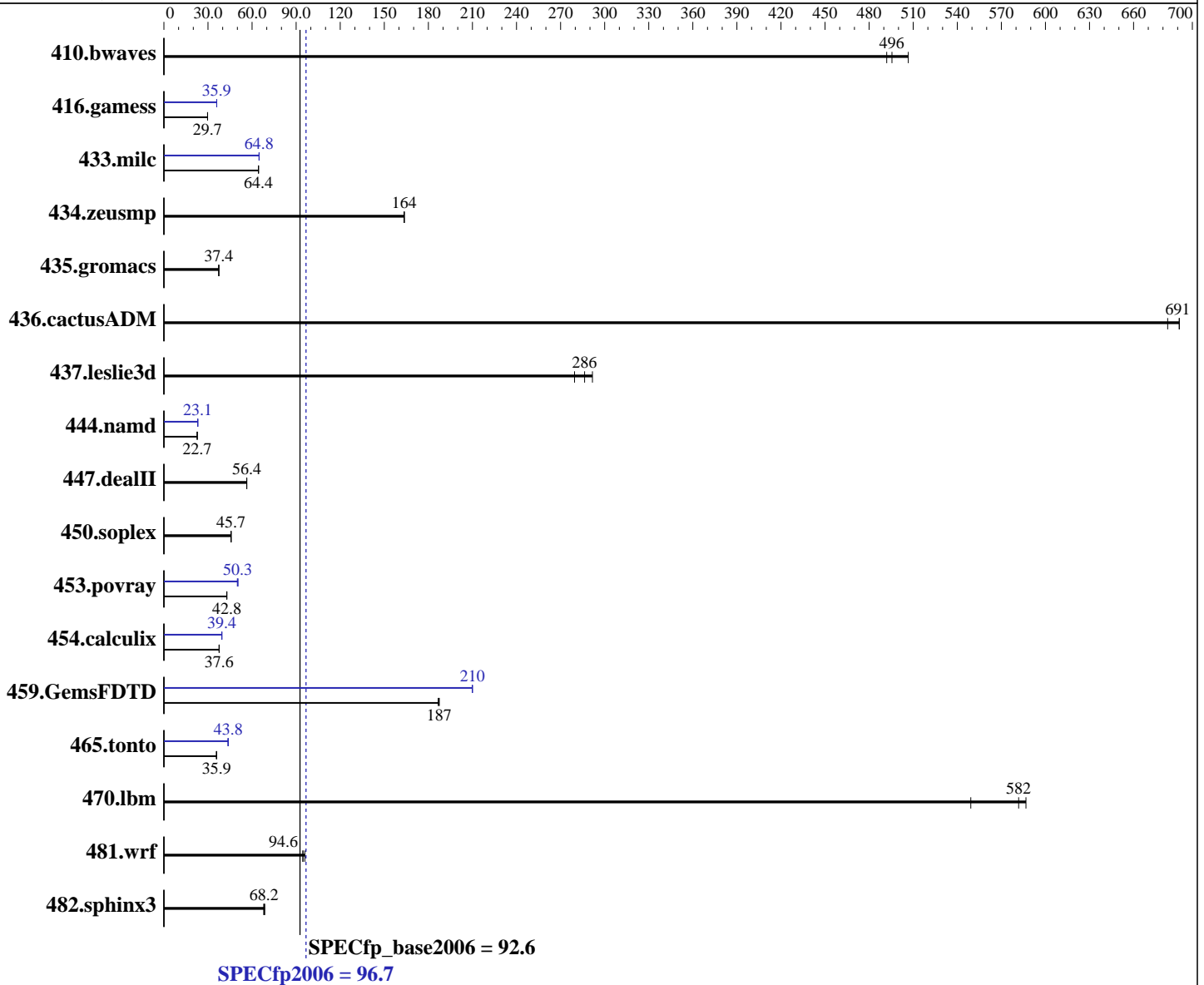
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2695 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2400
 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	27.6	492	26.8	507	<u>27.4</u>	<u>496</u>	27.6	492	26.8	507	<u>27.4</u>	<u>496</u>
416.gamess	659	29.7	<u>659</u>	<u>29.7</u>	658	29.7	<u>545</u>	<u>35.9</u>	544	36.0	545	35.9
433.milc	143	64.3	143	64.4	<u>143</u>	<u>64.4</u>	<u>142</u>	<u>64.8</u>	142	64.8	142	64.8
434.zeusmp	55.6	164	<u>55.6</u>	<u>164</u>	55.6	164	55.6	164	<u>55.6</u>	<u>164</u>	55.6	164
435.gromacs	<u>191</u>	<u>37.4</u>	191	37.4	191	37.4	<u>191</u>	<u>37.4</u>	191	37.4	191	37.4
436.cactusADM	<u>17.3</u>	<u>691</u>	17.3	691	17.5	683	<u>17.3</u>	<u>691</u>	17.3	691	17.5	683
437.leslie3d	<u>32.8</u>	<u>286</u>	33.6	280	32.2	292	<u>32.8</u>	<u>286</u>	33.6	280	32.2	292
444.namd	354	22.7	354	22.7	<u>354</u>	<u>22.7</u>	348	23.1	348	23.1	<u>348</u>	<u>23.1</u>
447.dealII	<u>203</u>	<u>56.4</u>	203	56.4	203	56.4	<u>203</u>	<u>56.4</u>	203	56.4	203	56.4
450.soplex	<u>182</u>	<u>45.7</u>	182	45.8	183	45.6	<u>182</u>	<u>45.7</u>	182	45.8	183	45.6
453.povray	<u>124</u>	<u>42.8</u>	124	42.7	124	42.9	106	50.4	106	50.0	<u>106</u>	<u>50.3</u>
454.calculix	219	37.6	<u>219</u>	<u>37.6</u>	219	37.6	209	39.4	209	39.4	<u>209</u>	<u>39.4</u>
459.GemsFDTD	56.6	187	56.8	187	<u>56.6</u>	<u>187</u>	50.5	210	50.5	210	<u>50.5</u>	<u>210</u>
465.tonto	274	35.9	276	35.7	<u>274</u>	<u>35.9</u>	<u>225</u>	<u>43.8</u>	226	43.6	224	43.8
470.lbm	23.4	587	<u>23.6</u>	<u>582</u>	25.0	549	23.4	587	<u>23.6</u>	<u>582</u>	25.0	549
481.wrf	<u>118</u>	<u>94.6</u>	118	94.6	116	95.9	<u>118</u>	<u>94.6</u>	118	94.6	116	95.9
482.sphinx3	287	67.9	<u>286</u>	<u>68.2</u>	284	68.7	287	67.9	<u>286</u>	<u>68.2</u>	284	68.7

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 Fri Sep 12 02:09:42 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 E5-2695 v2 @ 2.40GHz
    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 Sep 10 21:15

```

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: 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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