



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 106

Huawei BH622 v2 (Intel Xeon E5-2690 v2)

SPECfp_base2006 = 102

CPU2006 license: 3175

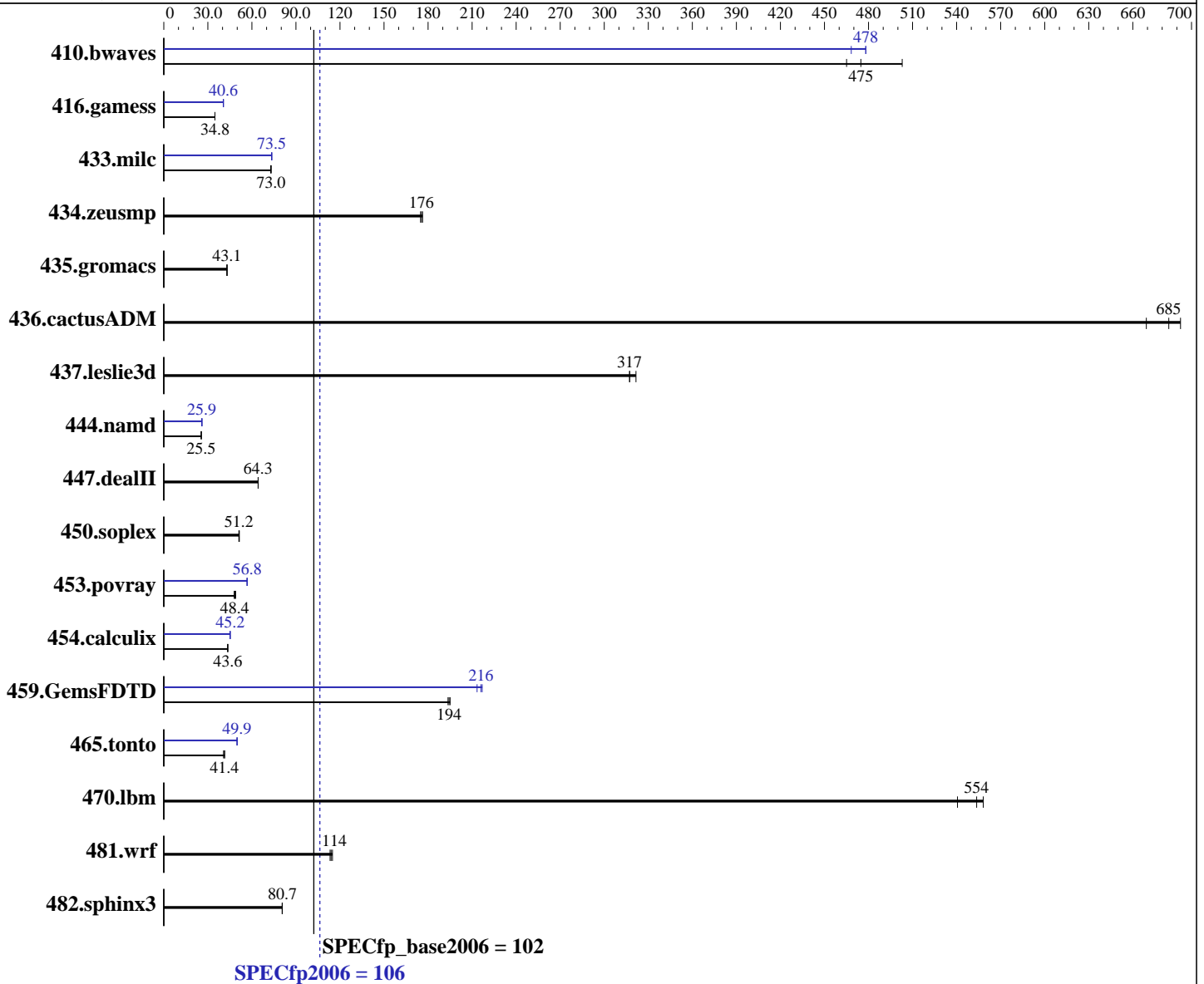
Test sponsor: Huawei

Tested by: Huawei

Test date: Aug-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2690 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3000
 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 | 29.2 | 465 | 27.0 | 503 | <u>28.6</u> | <u>475</u> | 29.0 | 468 | <u>28.4</u> | <u>478</u> | 28.4 | 478 |
| 416.gamess | 562 | 34.8 | <u>562</u> | <u>34.8</u> | 562 | 34.8 | 482 | 40.6 | <u>482</u> | <u>40.6</u> | 483 | 40.5 |
| 433.milc | 126 | 73.1 | <u>126</u> | <u>73.0</u> | 126 | 72.8 | 125 | 73.5 | 125 | 73.5 | <u>125</u> | <u>73.5</u> |
| 434.zeusmp | <u>51.8</u> | <u>176</u> | 51.6 | 176 | 52.0 | 175 | <u>51.8</u> | <u>176</u> | 51.6 | 176 | 52.0 | 175 |
| 435.gromacs | <u>166</u> | <u>43.1</u> | 166 | 43.1 | 166 | 43.0 | <u>166</u> | <u>43.1</u> | 166 | 43.1 | 166 | 43.0 |
| 436.cactusADM | 17.3 | 693 | <u>17.5</u> | <u>685</u> | 17.9 | 669 | 17.3 | 693 | <u>17.5</u> | <u>685</u> | 17.9 | 669 |
| 437.leslie3d | 29.2 | 322 | <u>29.6</u> | <u>317</u> | 29.6 | 317 | 29.2 | 322 | <u>29.6</u> | <u>317</u> | 29.6 | 317 |
| 444.namd | 314 | 25.5 | <u>314</u> | <u>25.5</u> | 314 | 25.5 | <u>309</u> | <u>25.9</u> | 309 | 25.9 | 309 | 26.0 |
| 447.dealII | 178 | 64.3 | 178 | 64.2 | <u>178</u> | <u>64.3</u> | 178 | 64.3 | 178 | 64.2 | <u>178</u> | <u>64.3</u> |
| 450.soplex | 163 | 51.1 | 162 | 51.5 | <u>163</u> | <u>51.2</u> | 163 | 51.1 | 162 | 51.5 | <u>163</u> | <u>51.2</u> |
| 453.povray | 111 | 48.0 | <u>110</u> | <u>48.4</u> | 109 | 48.9 | 93.9 | 56.7 | <u>93.7</u> | <u>56.8</u> | 93.7 | 56.8 |
| 454.calculix | 189 | 43.6 | <u>189</u> | <u>43.6</u> | 190 | 43.5 | <u>182</u> | <u>45.2</u> | 182 | 45.3 | 183 | 45.1 |
| 459.GemsFDTD | 54.4 | 195 | 54.8 | 194 | <u>54.6</u> | <u>194</u> | <u>49.1</u> | <u>216</u> | 49.7 | 213 | 48.9 | 217 |
| 465.tonto | 238 | 41.4 | <u>238</u> | <u>41.4</u> | 242 | 40.7 | 197 | 49.9 | 197 | 49.9 | <u>197</u> | <u>49.9</u> |
| 470.lbm | 24.6 | 558 | 25.4 | 541 | <u>24.8</u> | <u>554</u> | 24.6 | 558 | 25.4 | 541 | <u>24.8</u> | <u>554</u> |
| 481.wrf | 97.2 | 115 | <u>98.0</u> | <u>114</u> | 98.6 | 113 | 97.2 | 115 | <u>98.0</u> | <u>114</u> | 98.6 | 113 |
| 482.sphinx3 | 242 | 80.6 | <u>241</u> | <u>80.7</u> | 241 | 80.7 | 242 | 80.6 | <u>241</u> | <u>80.7</u> | 241 | 80.7 |

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%
 Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on localhost Mon Aug 25 23:29:35 2014

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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2690 v2 @ 3.00GHz
 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 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 Aug 25 08:06

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  272G  31G   228G  12% /

```

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 = "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: -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-linux64.20120912.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-linux64.20120912.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>



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