



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = 102

Huawei E9000 CH121 (Intel Xeon E5-2697 v2)

SPECfp_base2006 = 98.1

CPU2006 license: 3175

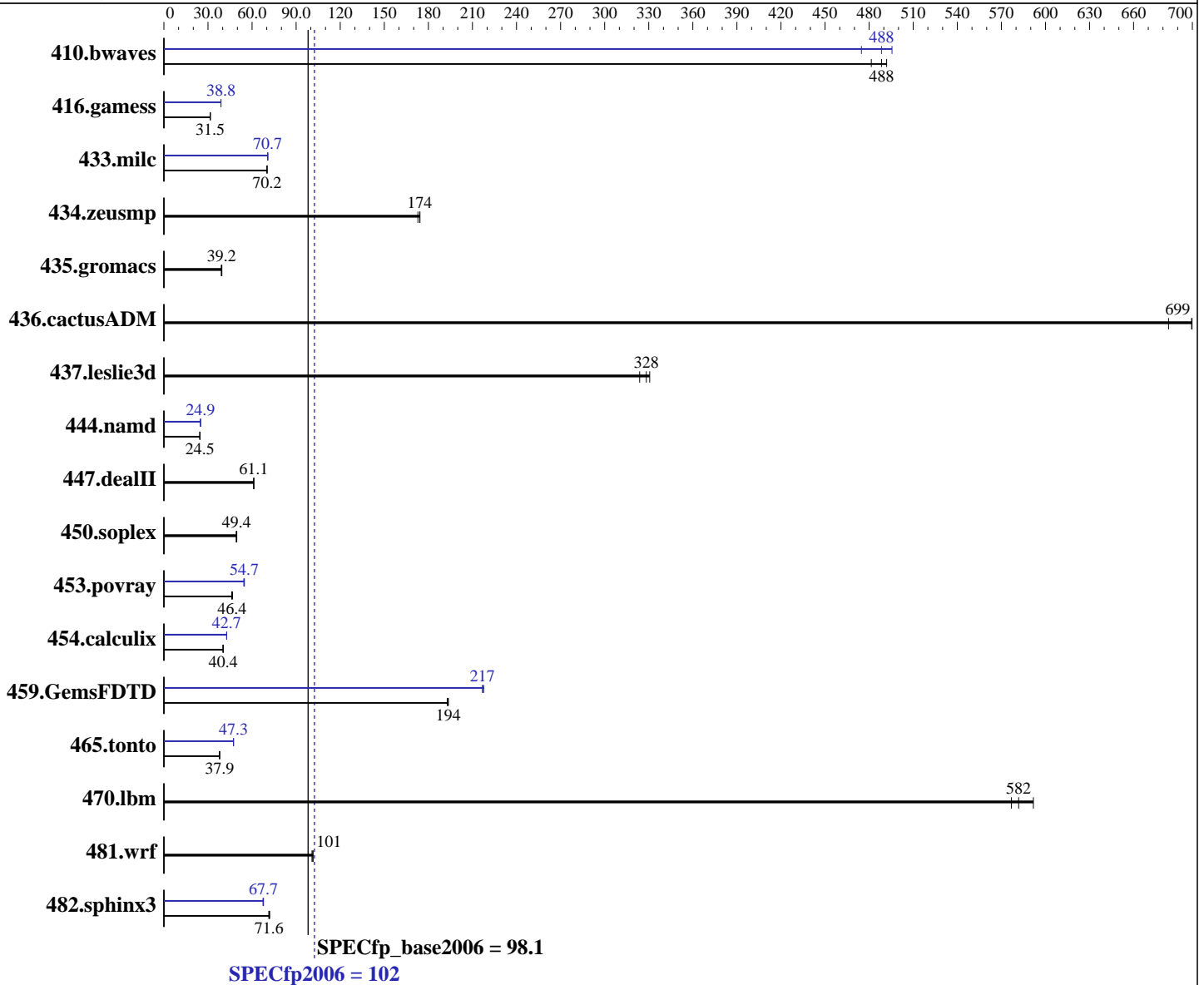
Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2013

Hardware Availability: Sep-2013

Software Availability: Feb-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 6.4 (Santiago)
 2.6.32-358.14.1.el6.x86_64
 Compiler: C/C++: Version 13.0.1.117 of Intel C++ Studio XE for Linux;
 Fortran: Version 13.0.1.117 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: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 10K 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 | 28.2 | 481 | <u>27.8</u> | <u>488</u> | <u>27.8</u> | <u>488</u> | 28.6 | 475 | 27.4 | 496 |
| 416.gamess | 621 | 31.5 | <u>621</u> | <u>31.5</u> | 620 | 31.6 | 504 | 38.8 | <u>504</u> | <u>38.8</u> | 504 | 38.8 |
| 433.milc | 131 | 70.2 | 131 | 70.2 | <u>131</u> | <u>70.2</u> | 130 | 70.7 | <u>130</u> | <u>70.7</u> | 130 | 70.6 |
| 434.zeusmp | 52.6 | 173 | <u>52.2</u> | <u>174</u> | 52.2 | 174 | 52.6 | 173 | <u>52.2</u> | <u>174</u> | 52.2 | 174 |
| 435.gromacs | <u>182</u> | <u>39.2</u> | 183 | 39.1 | 181 | 39.5 | <u>182</u> | <u>39.2</u> | 183 | 39.1 | 181 | 39.5 |
| 436.cactusADM | 17.1 | 700 | 17.5 | 684 | <u>17.1</u> | <u>699</u> | 17.1 | 700 | 17.5 | 684 | <u>17.1</u> | <u>699</u> |
| 437.leslie3d | 28.4 | 331 | 29.0 | 324 | <u>28.6</u> | <u>328</u> | 28.4 | 331 | 29.0 | 324 | <u>28.6</u> | <u>328</u> |
| 444.namd | <u>328</u> | <u>24.5</u> | 328 | 24.5 | 328 | 24.5 | <u>322</u> | <u>24.9</u> | 322 | 24.9 | 322 | 24.9 |
| 447.dealII | <u>187</u> | <u>61.1</u> | 187 | 61.2 | 187 | 61.1 | <u>187</u> | <u>61.1</u> | 187 | 61.2 | 187 | 61.1 |
| 450.soplex | <u>169</u> | <u>49.4</u> | 168 | 49.6 | 169 | 49.3 | <u>169</u> | <u>49.4</u> | 168 | 49.6 | 169 | 49.3 |
| 453.povray | 115 | 46.2 | 114 | 46.8 | <u>115</u> | <u>46.4</u> | 97.9 | 54.4 | 97.1 | 54.8 | <u>97.3</u> | <u>54.7</u> |
| 454.calculix | 205 | 40.2 | 204 | 40.4 | <u>204</u> | <u>40.4</u> | 193 | 42.7 | 193 | 42.8 | <u>193</u> | <u>42.7</u> |
| 459.GemsFDTD | 55.0 | 193 | <u>54.8</u> | <u>194</u> | 54.8 | 194 | 48.7 | 218 | <u>48.9</u> | <u>217</u> | 48.9 | 217 |
| 465.tonto | 261 | 37.7 | <u>260</u> | <u>37.9</u> | 259 | 38.0 | <u>208</u> | <u>47.3</u> | 208 | 47.3 | 208 | 47.4 |
| 470.lbm | <u>23.6</u> | <u>582</u> | 23.2 | 592 | 23.8 | 577 | <u>23.6</u> | <u>582</u> | 23.2 | 592 | 23.8 | 577 |
| 481.wrf | 110 | 102 | 111 | 101 | <u>110</u> | <u>101</u> | 110 | 102 | 111 | 101 | <u>110</u> | <u>101</u> |
| 482.sphinx3 | 273 | 71.4 | 271 | 72.0 | <u>272</u> | <u>71.6</u> | 289 | 67.4 | <u>288</u> | <u>67.7</u> | 288 | 67.7 |

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 Configurations:
 VT Support set to Disabled
 Memory Power Saving set to Disabled
 ISOCH set to Disabled
 C3 and C6 set to Enabled
 HT Support set to Disabled
 Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on RH64-spec Mon Sep 2 23:46:49 2013

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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 E5-2697 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:      132103952 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux RH64-spec 2.6.32-358.14.1.el6.x86_64 #1 SMP Tue Jul 16 23:51:20 UTC
2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Sep 2 16:44
```

```
SPEC is set to: /spec
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2       ext4      289G   40G  234G  15% /
```

Additional information from dmidecode:

```
Memory:
6x Samsung M393B1K70CH0-CH9 8 GB 1867 MHz 2 rank
10x Samsung M393B1K70DH0-CH9 8 GB 1867 MHz 2 rank
```

(End of data from sysinfo program)



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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"
```

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
```



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Base Optimization Flags

C benchmarks:

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

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: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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Peak Optimization Flags (Continued)

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

447.dealIII: 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/Huawei-Platform-Settings-revG.20131009.html>

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html>



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

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revG.20131009.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 17:11:31 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 October 2013.