



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]2006 = 68.9

Huawei RH2288A V2 (Intel Xeon E5-2650L v2)

SPECfp_base2006 = 66.4

CPU2006 license: 3175

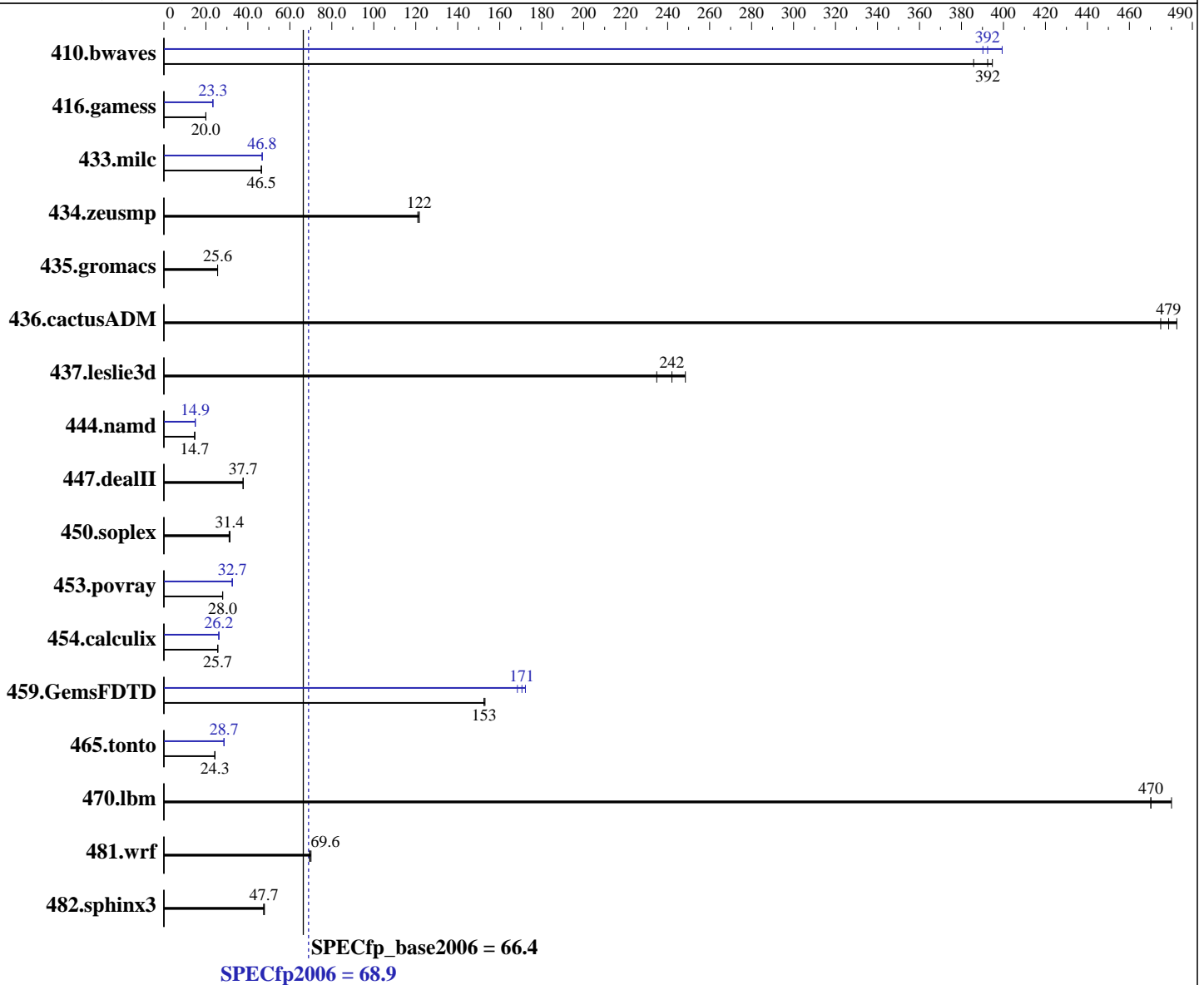
Test date: Sep-2014

Test sponsor: Huawei

Hardware Availability: Sep-2013

Tested by: Huawei

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2650L v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.10 GHz
 CPU MHz: 1700
 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: 64 GB (8 x 8 GB 2Rx4 PC3-14900R-11, ECC, running at 1600 MHz)
 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 | 34.6 | 392 | 35.2 | 386 | 34.4 | 395 | 34.8 | 390 | 34.0 | 399 | 34.6 | 392 |
| 416.gamess | 980 | 20.0 | 980 | 20.0 | 979 | 20.0 | 839 | 23.3 | 840 | 23.3 | 839 | 23.3 |
| 433.milc | 198 | 46.5 | 198 | 46.5 | 198 | 46.4 | 196 | 46.8 | 196 | 46.8 | 196 | 46.8 |
| 434.zeusmp | 74.8 | 122 | 74.8 | 122 | 75.2 | 121 | 74.8 | 122 | 74.8 | 122 | 75.2 | 121 |
| 435.gromacs | 279 | 25.6 | 279 | 25.6 | 279 | 25.6 | 279 | 25.6 | 279 | 25.6 | 279 | 25.6 |
| 436.cactusADM | 25.2 | 475 | 24.8 | 483 | 25.0 | 479 | 25.2 | 475 | 24.8 | 483 | 25.0 | 479 |
| 437.leslie3d | 38.8 | 242 | 40.0 | 235 | 37.8 | 248 | 38.8 | 242 | 40.0 | 235 | 37.8 | 248 |
| 444.namd | 546 | 14.7 | 546 | 14.7 | 546 | 14.7 | 537 | 14.9 | 537 | 14.9 | 537 | 14.9 |
| 447.dealII | 303 | 37.7 | 303 | 37.7 | 303 | 37.8 | 303 | 37.7 | 303 | 37.7 | 303 | 37.8 |
| 450.soplex | 265 | 31.5 | 268 | 31.1 | 266 | 31.4 | 265 | 31.5 | 268 | 31.1 | 266 | 31.4 |
| 453.povray | 190 | 27.9 | 190 | 28.0 | 190 | 28.0 | 163 | 32.7 | 164 | 32.4 | 163 | 32.7 |
| 454.calculix | 321 | 25.7 | 322 | 25.7 | 322 | 25.6 | 315 | 26.2 | 315 | 26.2 | 315 | 26.2 |
| 459.GemsFDTD | 69.6 | 153 | 69.3 | 153 | 69.5 | 153 | 62.2 | 171 | 63.0 | 168 | 61.6 | 172 |
| 465.tonto | 404 | 24.3 | 405 | 24.3 | 406 | 24.2 | 343 | 28.7 | 343 | 28.7 | 344 | 28.6 |
| 470.lbm | 29.2 | 470 | 28.6 | 480 | 29.2 | 470 | 29.2 | 470 | 28.6 | 480 | 29.2 | 470 |
| 481.wrf | 161 | 69.4 | 161 | 69.6 | 159 | 70.1 | 161 | 69.4 | 161 | 69.6 | 159 | 70.1 |
| 482.sphinx3 | 410 | 47.5 | 409 | 47.7 | 407 | 47.9 | 410 | 47.5 | 409 | 47.7 | 407 | 47.9 |

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 RH2288A Sat Sep 20 03:08:57 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 E5-2650L v2 @ 1.70GHz

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: 66118696 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 RH2288A 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 19 18:15

SPEC is set to: /spec

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sda2 | ext4 | 272G | 96G | 163G | 37% | / |

Additional information from dmidecode:

Memory:

8x Hynix HMT41GR7AFR8C-RD 8 GB 1867 MHz 2 rank

(End of data from sysinfo program)

Dmidecode mistakenly believes the memory was running at 1866 MHz, when it should only run at 1600 MHz

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 2x Xeon X5645 CPU + 16GB memory using RHEL 6.1

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

The Huawei RH2288A V2 and Huawei RH1288A V2

are electronically equivalent.

The results have been measured on a Huawei RH2288A V2 model

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: basepeak = yes

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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.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>



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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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