



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = 168

Huawei RH2288 V2 (Intel Xeon E5-2643)

SPECfp_rate_base2006 = 164

CPU2006 license: 3175

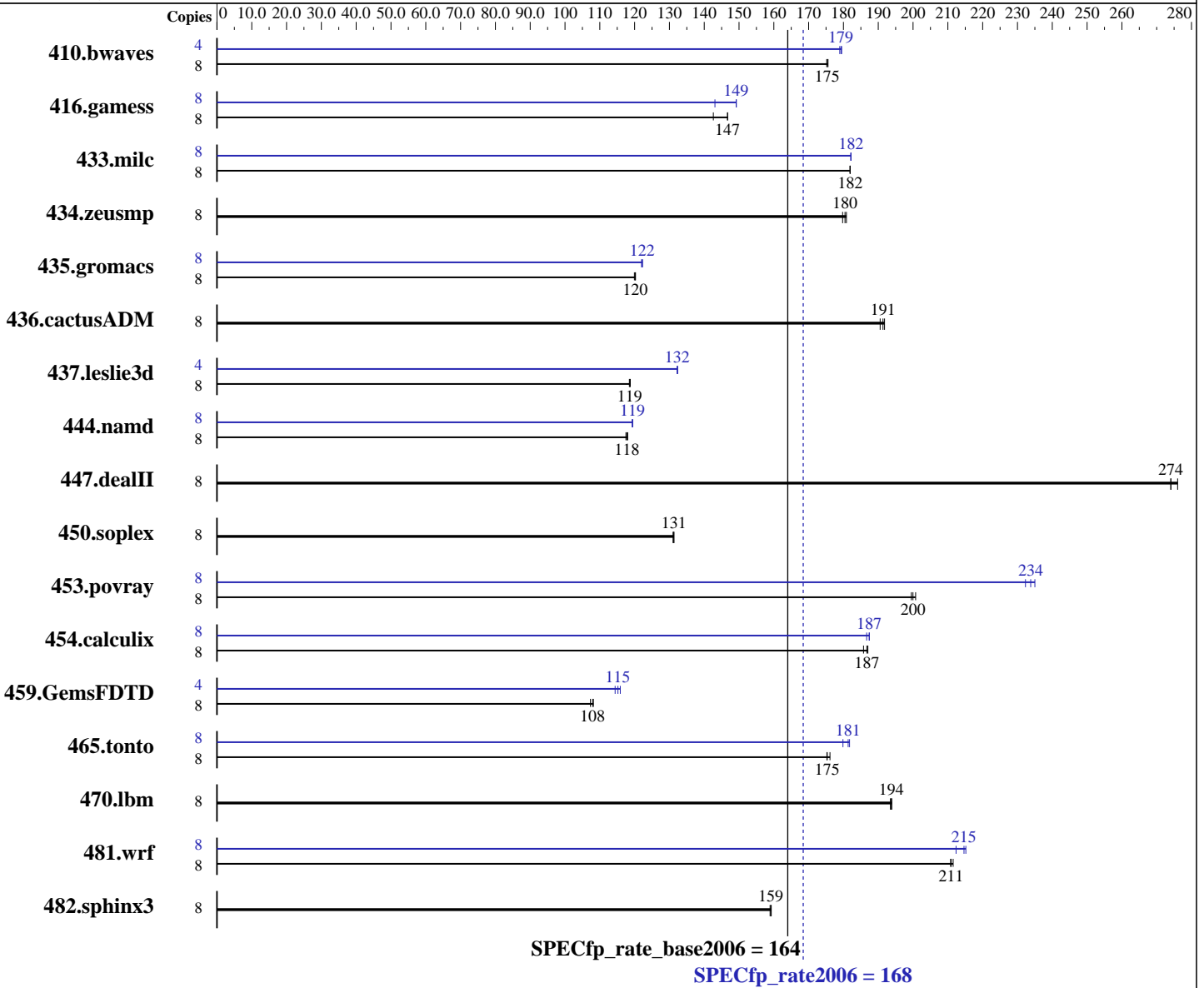
Test sponsor: Huawei

Tested by: Huawei

Test date: Jul-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2643
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
 2.6.32-220.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: No
 File System: ext4

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L3 Cache: 10 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---------------|--------|------------|------------|-------------|------------|------------|------------|--------|------------|------------|------------|------------|-------------|------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 621 | 175 | 619 | 176 | 620 | 175 | 4 | 303 | 179 | 303 | 179 | 304 | 179 |
| 416.gamess | 8 | 1068 | 147 | 1068 | 147 | 1098 | 143 | 8 | 1095 | 143 | 1050 | 149 | 1050 | 149 |
| 433.milc | 8 | 404 | 182 | 404 | 182 | 404 | 182 | 8 | 403 | 182 | 403 | 182 | 403 | 182 |
| 434.zeusmp | 8 | 405 | 180 | 403 | 180 | 403 | 181 | 8 | 405 | 180 | 403 | 180 | 403 | 181 |
| 435.gromacs | 8 | 475 | 120 | 476 | 120 | 475 | 120 | 8 | 467 | 122 | 467 | 122 | 468 | 122 |
| 436.cactusADM | 8 | 500 | 191 | 502 | 191 | 498 | 192 | 8 | 500 | 191 | 502 | 191 | 498 | 192 |
| 437.leslie3d | 8 | 635 | 118 | 633 | 119 | 634 | 119 | 4 | 284 | 132 | 284 | 132 | 284 | 132 |
| 444.namd | 8 | 544 | 118 | 546 | 117 | 545 | 118 | 8 | 537 | 119 | 537 | 119 | 538 | 119 |
| 447.dealII | 8 | 334 | 274 | 332 | 276 | 334 | 274 | 8 | 334 | 274 | 332 | 276 | 334 | 274 |
| 450.soplex | 8 | 509 | 131 | 508 | 131 | 508 | 131 | 8 | 509 | 131 | 508 | 131 | 508 | 131 |
| 453.povray | 8 | 213 | 200 | 213 | 200 | 212 | 201 | 8 | 182 | 234 | 183 | 232 | 181 | 235 |
| 454.calculix | 8 | 355 | 186 | 353 | 187 | 353 | 187 | 8 | 352 | 187 | 352 | 187 | 354 | 187 |
| 459.GemsFDTD | 8 | 785 | 108 | 791 | 107 | 786 | 108 | 4 | 366 | 116 | 371 | 114 | 368 | 115 |
| 465.tonto | 8 | 447 | 176 | 449 | 175 | 449 | 175 | 8 | 434 | 181 | 438 | 180 | 433 | 182 |
| 470.lbm | 8 | 568 | 193 | 567 | 194 | 567 | 194 | 8 | 568 | 193 | 567 | 194 | 567 | 194 |
| 481.wrf | 8 | 424 | 211 | 424 | 211 | 422 | 212 | 8 | 421 | 212 | 415 | 215 | 416 | 215 |
| 482.sphinx3 | 8 | 979 | 159 | 981 | 159 | 980 | 159 | 8 | 979 | 159 | 981 | 159 | 980 | 159 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.
For details, please see the config file.

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
Select only test related files when installing the operating system
```



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Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

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 RH62-rebuild Sat Jul 7 20:12:59 2012

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 E5-2643 0 @ 3.30GHz

1 "physical id"s (chips)

8 "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 : 4

siblings : 8

physical 0: cores 0 1 2 3

cache size : 10240 KB

From /proc/meminfo

MemTotal: 65937136 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:

Linux RH62-rebuild 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 7 10:21

SPEC is set to: /spec

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sdal | ext4 | 289G | 78G | 197G | 29% | / |

Additional information from dmidecode:

Memory:

8x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank



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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"

Binaries compiled on a system with 2 x Xeon X5650 CPU + 16GB memory
using RHEL 6.2

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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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

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
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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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
-opt-mem-layout-trans=3

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

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) -auto-ilp32
-opt-mem-layout-trans=3

Fortran benchmarks:

410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo -O3 -no-prec-div
-prof-use(pass 2) -xSSE4.2 -opt-prefetch -static
-auto-ilp32 -opt-mem-layout-trans=3

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

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-revE.20120703.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-revE.20120703.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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