



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = 485

Huawei E9000 CH222 (Intel Xeon E5-2670)

SPECfp_rate_base2006 = 475

CPU2006 license: 3175

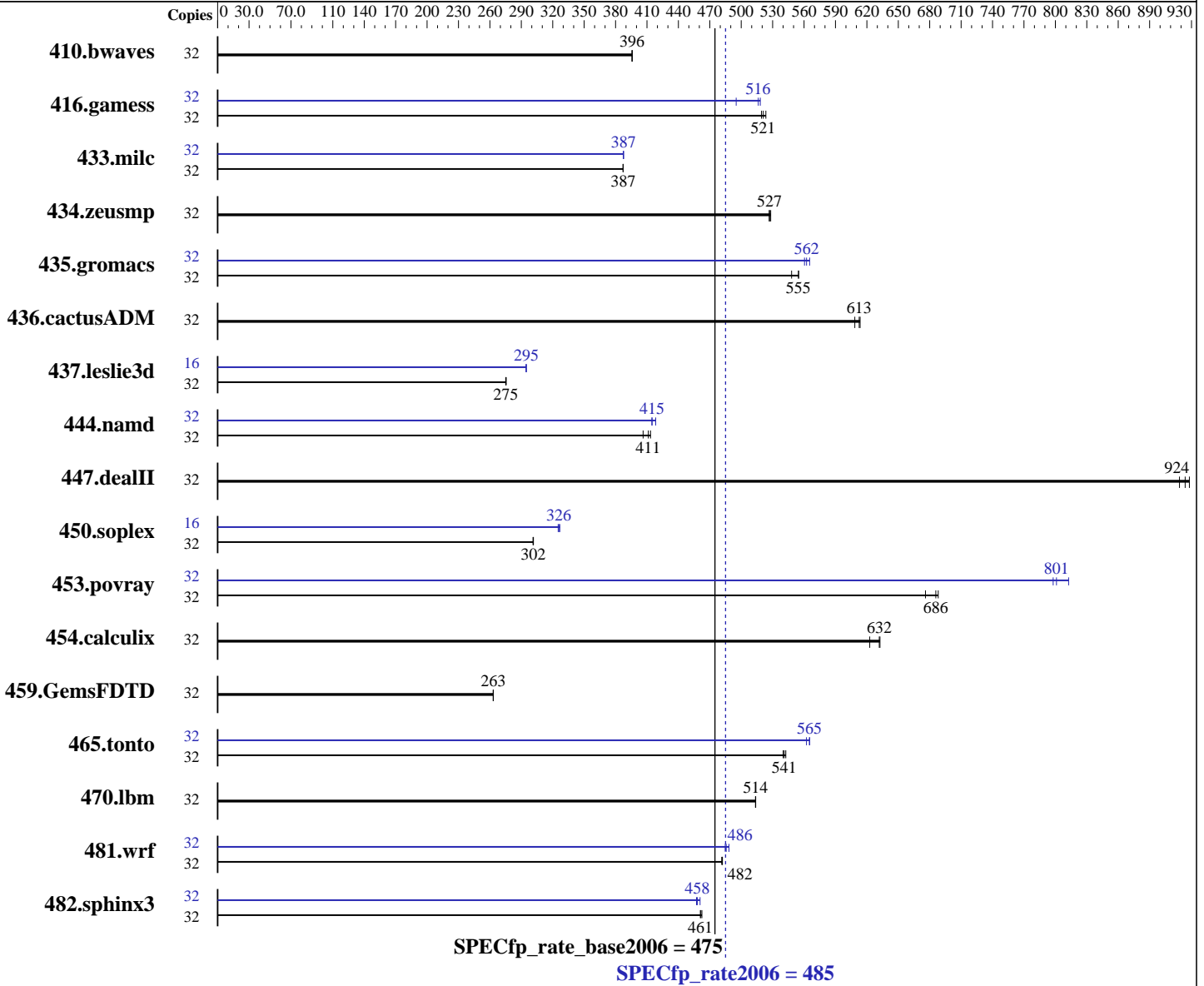
Test sponsor: Huawei

Tested by: Huawei

Test date: Aug-2013

Hardware Availability: Aug-2012

Software Availability: Jun-2013



Hardware

CPU Name: Intel Xeon E5-2670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chips
 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.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: No
 File System: ext4

Continued on next page



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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 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	32	1099	396	1098	396	<u>1099</u>	<u>396</u>	32	1099	396	1098	396	<u>1099</u>	<u>396</u>
416.gamess	32	<u>1203</u>	<u>521</u>	1197	524	1206	519	32	<u>1214</u>	<u>516</u>	1265	495	1209	518
433.milc	32	759	387	759	387	<u>759</u>	<u>387</u>	32	<u>758</u>	<u>387</u>	758	388	758	387
434.zeusmp	32	<u>552</u>	<u>527</u>	551	528	553	527	32	<u>552</u>	<u>527</u>	551	528	553	527
435.gromacs	32	417	548	<u>412</u>	<u>555</u>	412	555	32	408	560	<u>406</u>	<u>562</u>	404	565
436.cactusADM	32	623	614	628	608	<u>624</u>	<u>613</u>	32	623	614	628	608	<u>624</u>	<u>613</u>
437.leslie3d	32	<u>1093</u>	<u>275</u>	1093	275	1092	276	16	510	295	<u>510</u>	<u>295</u>	510	295
444.namd	32	632	406	621	413	<u>624</u>	<u>411</u>	32	<u>619</u>	<u>415</u>	613	418	619	415
447.dealII	32	399	919	394	928	<u>396</u>	<u>924</u>	32	399	919	394	928	<u>396</u>	<u>924</u>
450.soplex	32	<u>885</u>	<u>302</u>	885	302	886	301	16	<u>409</u>	<u>326</u>	410	325	408	327
453.povray	32	252	676	247	688	<u>248</u>	<u>686</u>	32	213	798	209	813	<u>213</u>	<u>801</u>
454.calculix	32	<u>418</u>	<u>632</u>	417	633	424	623	32	<u>418</u>	<u>632</u>	417	633	424	623
459.GemsFDTD	32	1290	263	<u>1290</u>	<u>263</u>	1289	263	32	1290	263	<u>1290</u>	<u>263</u>	1289	263
465.tonto	32	<u>582</u>	<u>541</u>	583	540	580	543	32	<u>557</u>	<u>565</u>	560	562	557	565
470.lbm	32	856	514	<u>856</u>	<u>514</u>	856	514	32	856	514	<u>856</u>	<u>514</u>	856	514
481.wrf	32	<u>742</u>	<u>482</u>	742	482	743	481	32	732	488	<u>736</u>	<u>486</u>	737	485
482.sphinx3	32	<u>1352</u>	<u>461</u>	1349	462	1353	461	32	<u>1361</u>	<u>458</u>	1354	461	1364	457

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

Sysinfo program /opt/spec/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on e2670.huawei.com Sat Aug 17 00:09:56 2013

Continued on next page



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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 E5-2670 0 @ 2.60GHz
 2 "physical id"s (chips)
 32 "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      : 8
siblings       : 16
physical 0:    : cores 0 1 2 3 4 5 6 7
physical 1:    : cores 0 1 2 3 4 5 6 7
cache size     : 20480 KB
```

From /proc/meminfo

```
MemTotal:      132119764 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 e2670.huawei.com 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Aug 15 16:42

SPEC is set to: /opt/spec

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        ext4      218G  40G  168G  19% /opt
```

Additional information from dmidecode:

BIOS Insyde Corp. OARYV030 04/07/2013

Memory:

```
16x Hynix HMT41GR7MFR8C-PB 8 GB 1600 MHz
8x NO DIMM NO DIMM
```

(End of data from sysinfo program)



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General Notes

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
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>
The Huawei E9000 CH222 and
the Huawei E9000 CH220 and
the Huawei E9000 CH221 and
the Huawei E9000 CH121 models are electronically equivalent.
The results have been measured on a Huawei E9000 CH121 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

Continued on next page



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Base Portability Flags (Continued)

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

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 (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

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

Continued on next page



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Peak Portability Flags (Continued)

```

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
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

```

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

```

C++ benchmarks:

```

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -unroll4 -ansi-alias

```

Fortran benchmarks:

```

410.bwaves: basepeak = yes

```

Continued on next page



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Peak Optimization Flags (Continued)

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: basepeak = yes

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(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revF.20130108.html>

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

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

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revF.20130108.xml>

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

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Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 19:47:07 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 23 October 2013.

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Page 7