



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = 1070

Tecal RH5885 V2 (8-sockets, Intel Xeon E7-8837)

SPECfp_rate_base2006 = 1050

CPU2006 license: 3175

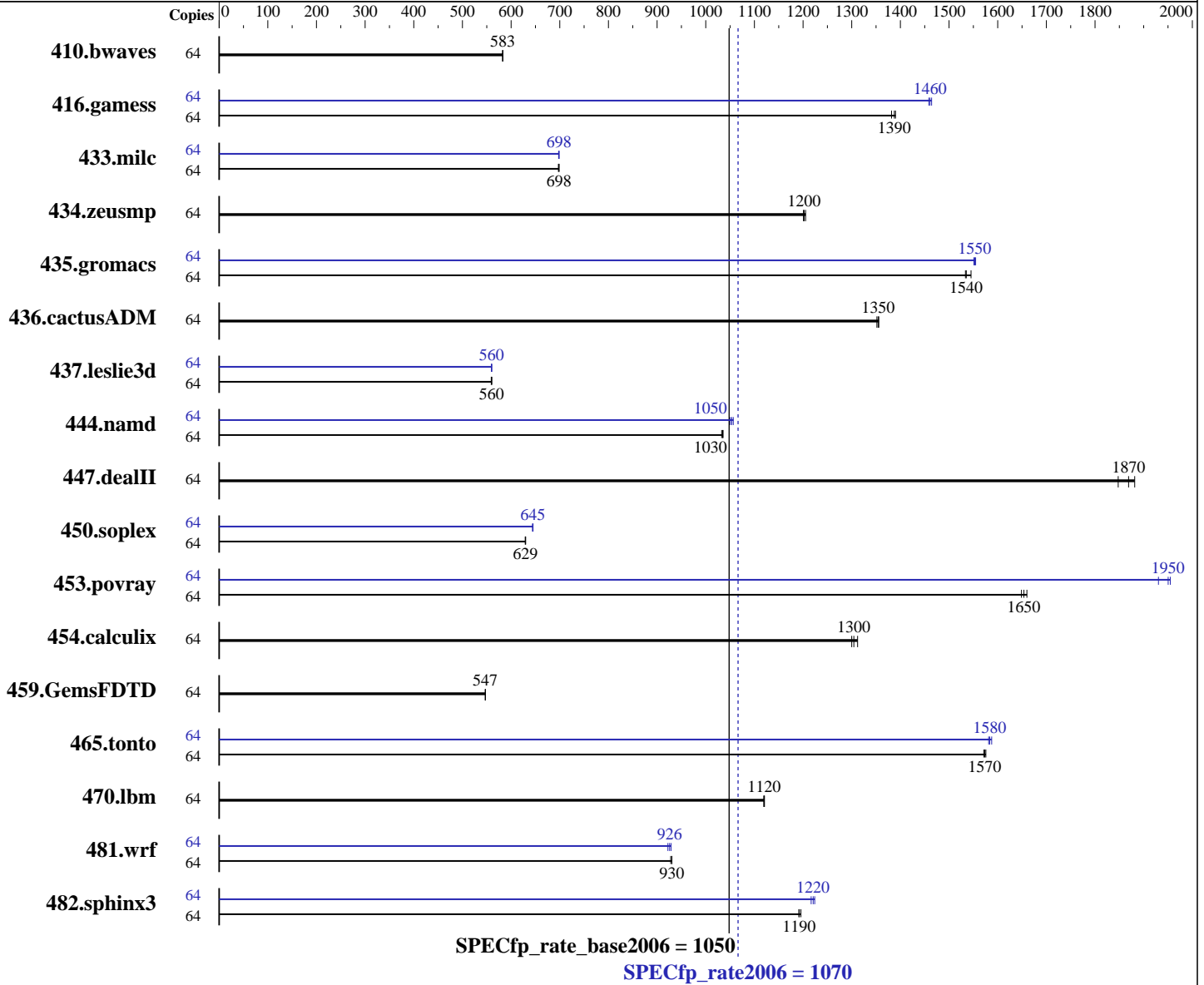
Test sponsor: Huawei

Tested by: Huawei

Test date: Jan-2013

Hardware Availability: Dec-2012

Software Availability: Oct-2012



Hardware

CPU Name: Intel Xeon E7-8837
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2667
 FPU: Integrated
 CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip
 CPU(s) orderable: 8 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 6.2 (Santiago)
 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 13.0.0.079 of Intel C++ Studio XE for Linux;
 Fortran: Version 13.0.0.079 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

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L3 Cache: 24 MB I+D on chip per chip
 Other Cache: None
 Memory: 2 TB (128 x 16 GB 4Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 2 x 500 GB (SATA, 7200RPM, RAID1)
 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	64	1493	583	1492	583	1492	583	64	1493	583	1492	583	1492	583
416.gamess	64	907	1380	902	1390	903	1390	64	859	1460	856	1460	858	1460
433.milc	64	841	698	843	697	841	698	64	841	699	842	698	841	698
434.zeusmp	64	484	1200	485	1200	483	1210	64	484	1200	485	1200	483	1210
435.gromacs	64	298	1540	296	1550	298	1530	64	294	1550	295	1550	294	1550
436.cactusADM	64	566	1350	564	1360	565	1350	64	566	1350	564	1360	565	1350
437.leslie3d	64	1076	559	1074	560	1074	560	64	1075	559	1074	560	1074	560
444.namd	64	497	1030	496	1030	496	1040	64	489	1050	487	1050	486	1060
447.dealII	64	389	1880	392	1870	396	1850	64	389	1880	392	1870	396	1850
450.soplex	64	848	629	847	630	848	629	64	829	644	827	645	828	645
453.povray	64	207	1650	205	1660	206	1650	64	175	1950	176	1930	174	1950
454.calculix	64	406	1300	402	1310	405	1300	64	406	1300	402	1310	405	1300
459.GemsFDTD	64	1241	547	1242	547	1241	547	64	1241	547	1242	547	1241	547
465.tonto	64	400	1580	400	1570	401	1570	64	397	1590	398	1580	398	1580
470.lbm	64	785	1120	786	1120	785	1120	64	785	1120	786	1120	785	1120
481.wrf	64	768	930	768	930	770	928	64	770	929	775	922	772	926
482.sphinx3	64	1043	1200	1047	1190	1046	1190	64	1022	1220	1025	1220	1019	1220

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"



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Platform Notes

BIOS configuration:

Power Technology set to Custom, Performance/Watt set to Traditional
Sysinfo program /home/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ 5569a0425e2ad530534e4c79a46e4d28
running on 5885-8P-15 Tue Jan 29 20:48:49 2013

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 E7- 8837 @ 2.67GHz
 8 "physical id"s (chips)
64 "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       : 8
physical 0:    cores 0 1 2 9 16 18 24 25
physical 1:    cores 0 1 2 8 17 18 24 25
physical 2:    cores 0 1 2 8 17 18 24 25
physical 3:    cores 0 1 2 8 17 18 24 25
physical 4:    cores 0 1 2 8 17 18 24 25
physical 5:    cores 0 1 2 8 17 18 24 25
physical 6:    cores 0 1 2 8 17 18 24 25
physical 7:    cores 0 1 2 8 17 18 24 25
cache size     : 24576 KB
```

From /proc/meminfo

```
MemTotal:      2117601240 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

/usr/bin/lsc_release -d

```
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

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 5885-8P-15 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 Jan 29 11:21

SPEC is set to: /home/cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_58858p15-lv_home
  ext4          434G     69G  344G  17% /home
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```



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Platform Notes (Continued)

Additional information from dmidecode:

BIOS American Megatrends Inc. RGPUC-BIOS-V052 01/16/2013

Memory:

128x 16 GB

128x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

(End of data from sysinfo program)

Descriptions about memory generated by sysinfo are not correct, only 128 DIMMs are installed not 256, see descriptions below.

Memory:

128x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

Binaries compiled on a system with 4x Xeon E7-8870 CPU + 1024GB memory using RHEL6.2

Transparent Huge Pages disabled with:

echo never > /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>

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

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Base Portability Flags (Continued)

```

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:

```

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xSSE4.2 -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

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Software Availability: Oct-2012

Peak Compiler Invocation (Continued)

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
 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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
 -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(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

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Peak Optimization Flags (Continued)

453.povray: -xSSE4.2(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

416.gamess: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -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/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-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-linux64.20111122.xml>

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



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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:11:25 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 February 2013.