



SPEC[®] CFP2006 Result

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Huawei

SPECfp[®]_rate2006 = 1060

Tecal RH5885 V2 (8-sockets, Intel Xeon E7-8860)

SPECfp_rate_base2006 = 1040

CPU2006 license: 3175

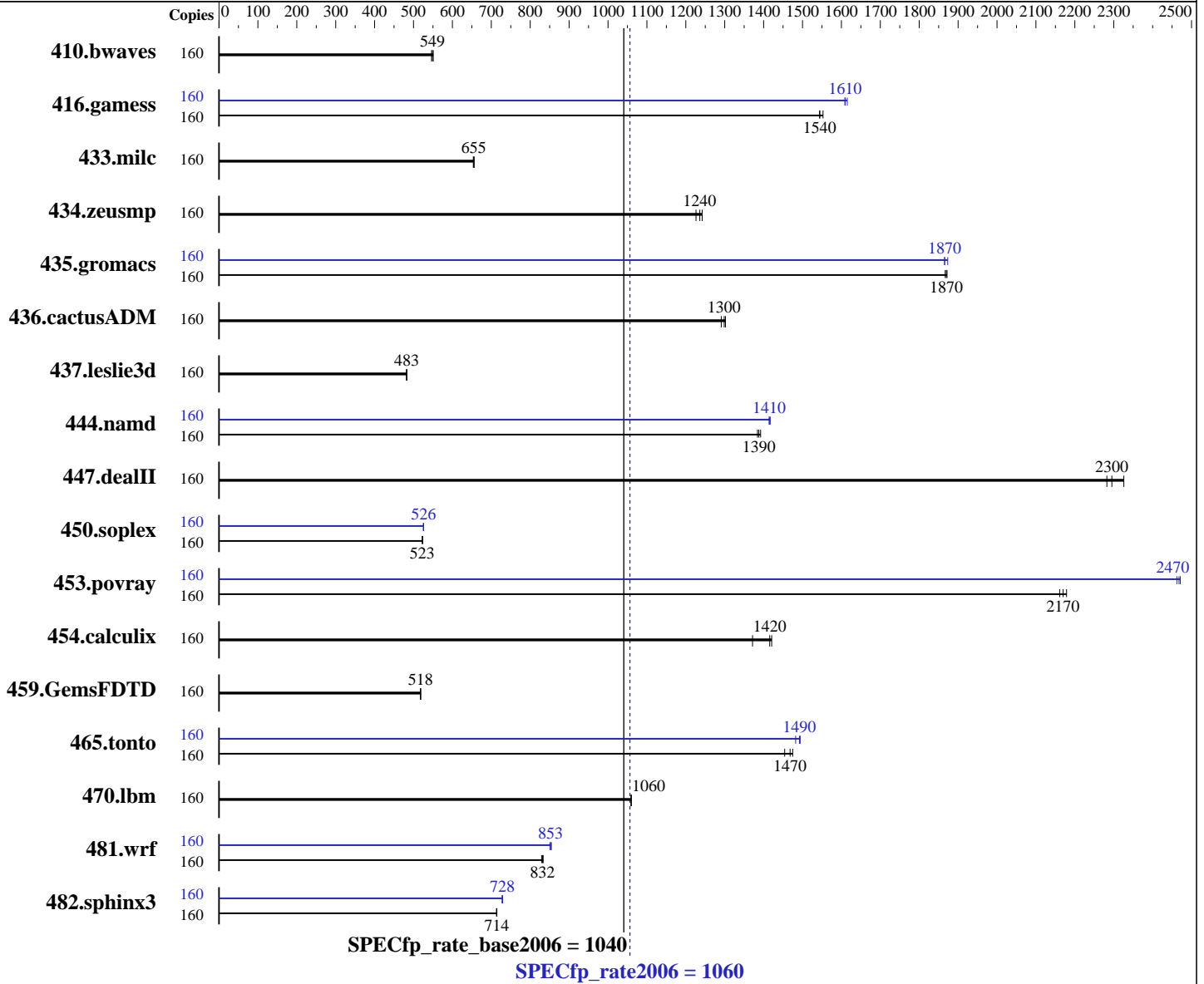
Test sponsor: Huawei

Tested by: Huawei

Test date: Jan-2013

Hardware Availability: Oct-2012

Software Availability: Oct-2012



Hardware

CPU Name: Intel Xeon E7-8860
 CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core
 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	160	3964	549	3948	551	3979	546	160	3964	549	3948	551	3979	546
416.gamess	160	2029	1540	2028	1540	2018	1550	160	1940	1620	1947	1610	1947	1610
433.milc	160	2243	655	2247	654	2239	656	160	2243	655	2247	654	2239	656
434.zeusmp	160	1172	1240	1178	1240	1187	1230	160	1172	1240	1178	1240	1187	1230
435.gromacs	160	611	1870	610	1870	612	1870	160	610	1870	613	1870	612	1870
436.cactusADM	160	1469	1300	1472	1300	1481	1290	160	1469	1300	1472	1300	1481	1290
437.leslie3d	160	3117	483	3117	483	3119	482	160	3117	483	3117	483	3119	482
444.namd	160	927	1380	922	1390	925	1390	160	907	1410	906	1420	907	1410
447.dealII	160	787	2330	802	2280	797	2300	160	787	2330	802	2280	797	2300
450.soplex	160	2552	523	2550	523	2552	523	160	2537	526	2541	525	2537	526
453.povray	160	391	2180	392	2170	394	2160	160	344	2470	345	2470	346	2460
454.calculix	160	929	1420	932	1420	962	1370	160	929	1420	932	1420	962	1370
459.GemsFDTD	160	3278	518	3277	518	3273	519	160	3278	518	3277	518	3273	519
465.tonto	160	1083	1450	1072	1470	1068	1470	160	1062	1480	1055	1490	1054	1490
470.lbm	160	2074	1060	2075	1060	2075	1060	160	2074	1060	2075	1060	2075	1060
481.wrf	160	2145	833	2149	832	2155	829	160	2096	853	2101	851	2092	854
482.sphinx3	160	4372	713	4367	714	4365	714	160	4285	728	4281	728	4277	729

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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Software Availability: Oct-2012

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 22 16:50:29 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- 8860 @ 2.27GHz
 8 "physical id"s (chips)
160 "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       : 20
physical 0:    : cores 0 1 2 3 4 5 6 7 8 9
physical 1:    : cores 0 1 2 3 4 5 6 7 8 9
physical 2:    : cores 0 1 2 3 4 5 6 7 8 9
physical 3:    : cores 0 1 2 3 4 5 6 7 8 9
physical 4:    : cores 0 1 2 3 4 5 6 7 8 9
physical 5:    : cores 0 1 2 3 4 5 6 7 8 9
physical 6:    : cores 0 1 2 3 4 5 6 7 8 9
physical 7:    : cores 0 1 2 3 4 5 6 7 8 9
cache size     : 24576 KB
```

From /proc/meminfo

```
MemTotal:      2117589372 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

/usr/bin/lsb_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 21 18:41

SPEC is set to: /home/cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_58858p15-lv_home
  ext4           434G    149G  263G  37% /home
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```



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Platform Notes (Continued)

Additional information from dmidecode:

BIOS American Megatrends Inc. RGPUC-BIOS-V052 01/09/2013

Memory:

128x 16 GB

64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

1x SamsungD..... 16 GB 1067 MHz 4 rank

62x Samsung M393B2K70CM0-CH9 16 GB 1067 MHz 4 rank

1x Samsung M393B2K70CM0-CH9D. 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:

64x Hyundai HMT42GR7BMR4C-H9 16 GB 1067 MHz 4 rank

1x SamsungD..... 16 GB 1067 MHz 4 rank

62x Samsung M393B2K70CM0-CH9 16 GB 1067 MHz 4 rank

1x Samsung M393B2K70CM0-CH9D. 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



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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

```

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
```

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Tested by: Huawei

Software Availability: Oct-2012

Peak Compiler Invocation (Continued)

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
 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: basepeak = yes

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

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Peak Optimization Flags (Continued)

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

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: basepeak = yes

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>

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