



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei

SPECfp<sup>®</sup>\_rate2006 = 1000

Teecal Huawei RH5885 V2 (Intel Xeon E7-8850)

SPECfp\_rate\_base2006 = 990

CPU2006 license: 3175

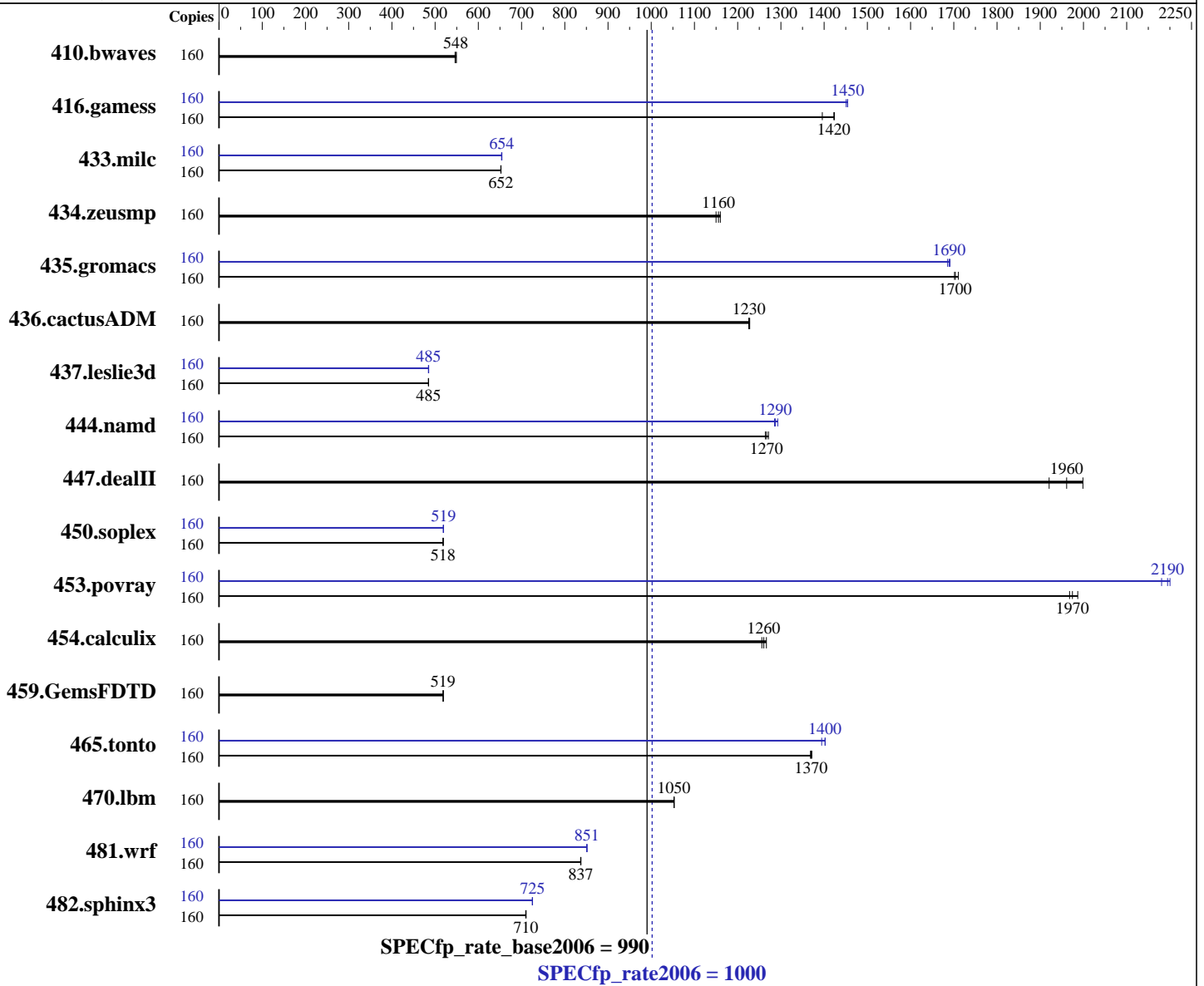
Test sponsor: Huawei

Tested by: Huawei

Test date: Aug-2013

Hardware Availability: Oct-2012

Software Availability: Oct-2012



### Hardware

CPU Name: Intel Xeon E7-8850  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz  
 CPU MHz: 2000  
 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 6.4 (Santiago)  
 2.6.32-358.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 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	160	<b>3970</b>	<b>548</b>	3959	549	3981	546	160	<b>3970</b>	<b>548</b>	3959	549	3981	546
416.gamess	160	2200	1420	<b>2202</b>	<b>1420</b>	2244	1400	160	2154	1450	<b>2154</b>	<b>1450</b>	2159	1450
433.milc	160	2251	653	2253	652	<b>2252</b>	<b>652</b>	160	2244	655	<b>2246</b>	<b>654</b>	2246	654
434.zeusmp	160	1266	1150	1255	1160	<b>1260</b>	<b>1160</b>	160	1266	1150	1255	1160	<b>1260</b>	<b>1160</b>
435.gromacs	160	668	1710	<b>671</b>	<b>1700</b>	671	1700	160	675	1690	<b>676</b>	<b>1690</b>	678	1690
436.cactusADM	160	<b>1559</b>	<b>1230</b>	1557	1230	1560	1230	160	<b>1559</b>	<b>1230</b>	1557	1230	1560	1230
437.leslie3d	160	<b>3102</b>	<b>485</b>	3104	484	3102	485	160	3100	485	3104	485	<b>3102</b>	<b>485</b>
444.namd	160	1009	1270	<b>1013</b>	<b>1270</b>	1015	1260	160	993	1290	<b>997</b>	<b>1290</b>	998	1290
447.dealII	160	916	2000	953	1920	<b>933</b>	<b>1960</b>	160	916	2000	953	1920	<b>933</b>	<b>1960</b>
450.soplex	160	<b>2574</b>	<b>518</b>	2574	518	2571	519	160	2569	519	2572	519	<b>2569</b>	<b>519</b>
453.povray	160	<b>431</b>	<b>1970</b>	428	1990	433	1970	160	387	2200	<b>388</b>	<b>2190</b>	390	2180
454.calculix	160	<b>1047</b>	<b>1260</b>	1051	1260	1042	1270	160	<b>1047</b>	<b>1260</b>	1051	1260	1042	1270
459.GemsFDTD	160	3272	519	<b>3273</b>	<b>519</b>	3274	519	160	3272	519	<b>3273</b>	<b>519</b>	3274	519
465.tonto	160	1148	1370	1151	1370	<b>1149</b>	<b>1370</b>	160	1129	1390	<b>1123</b>	<b>1400</b>	1123	1400
470.lbm	160	2089	1050	<b>2088</b>	<b>1050</b>	2087	1050	160	2089	1050	<b>2088</b>	<b>1050</b>	2087	1050
481.wrf	160	2134	837	<b>2135</b>	<b>837</b>	2136	837	160	2099	852	<b>2099</b>	<b>851</b>	2101	851
482.sphinx3	160	4389	711	4395	710	<b>4391</b>	<b>710</b>	160	4301	725	<b>4300</b>	<b>725</b>	4299	725

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

BIOS configuration:  
Power Technology set to Custom, Performance/Watt set to Traditional, Disable C3/C6 state  
Sysinfo program /speccpu/config/sysinfo.rev6800  
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## Platform Notes (Continued)

\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on huawei5885 Sat Aug 3 13:48:01 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 E7-8850 @ 2.00GHz
 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 8 9 16 17 18 24 25
physical 1: cores 0 1 2 8 9 16 17 18 24 25
physical 2: cores 0 1 2 8 9 16 17 18 24 25
physical 3: cores 0 1 2 8 9 16 17 18 24 25
physical 4: cores 0 1 2 8 9 16 17 18 24 25
physical 5: cores 0 1 2 8 9 16 17 18 24 25
physical 6: cores 0 1 2 8 9 16 17 18 24 25
physical 7: cores 0 1 2 8 9 16 17 18 24 25
cache size : 24576 KB
```

From /proc/meminfo

```
MemTotal: 2117588376 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 huawei5885 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 2 11:59

SPEC is set to: /speccpu

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 500G 143G 332G 31% /speccpu
```

Additional information from dmidecode:

```
Memory:
128x Samsung M393B2K70CM0-CH9 16 GB 1067 MHz 4 rank
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```



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## Platform Notes (Continued)

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/speccpu/libs/32:/speccpu/libs/64"

Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory using RHEL 6.4

Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches

Transparent Huge Pages disabled with:  
echo never > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
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  
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

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## Base Portability Flags (Continued)

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

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64

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Tested by: Huawei

Software Availability: Oct-2012

## Peak Portability Flags (Continued)

```

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

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

```

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## Peak Optimization Flags (Continued)

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 file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml>

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