



# SPEC<sup>®</sup> CFP2006 Result

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## Huawei Tecal RH5885 V2

SPECfp<sup>®</sup>\_rate2006 = 396

SPECfp\_rate\_base2006 = 391

CPU2006 license: 3175

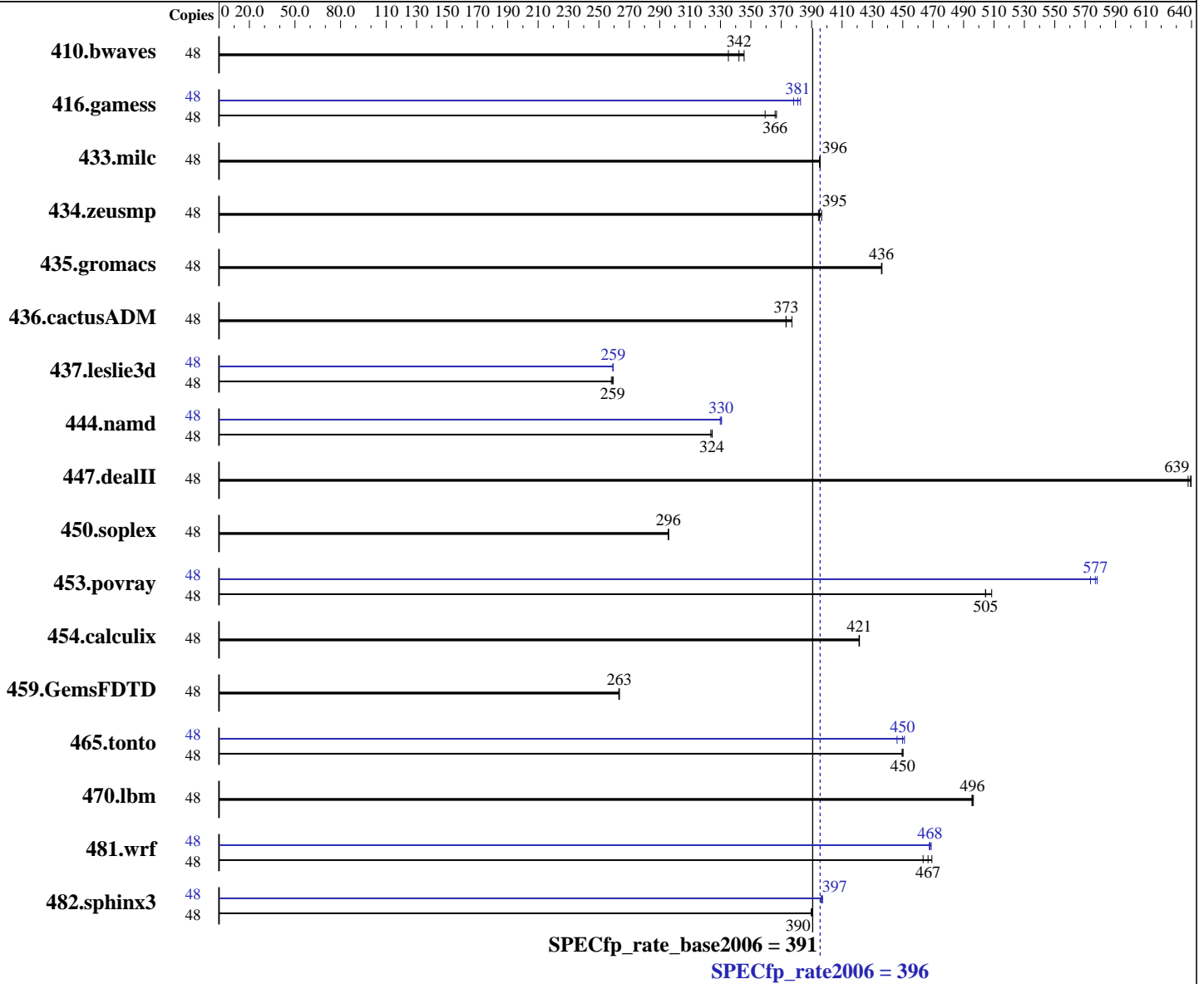
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2012

Hardware Availability: Oct-2012

Software Availability: Oct-2012



### Hardware

CPU Name: Intel Xeon E7-4807  
 CPU Characteristics:  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: 18 MB I+D on chip per chip  
Other Cache: None  
Memory: 1 TB (64 x 16 GB 4Rx4 PC3-10600R-9, ECC, running at 800 MHz)  
Disk Subsystem: 1 x 300GB 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	48	1946	335	1888	346	<b>1906</b>	<b>342</b>	48	1946	335	1888	346	<b>1906</b>	<b>342</b>
416.gamess	48	<b>2568</b>	<b>366</b>	2615	359	2562	367	48	<b>2467</b>	<b>381</b>	2485	378	2456	383
433.milc	48	1115	395	1114	396	<b>1114</b>	<b>396</b>	48	1115	395	1114	396	<b>1114</b>	<b>396</b>
434.zeusmp	48	<b>1106</b>	<b>395</b>	1101	397	1107	394	48	<b>1106</b>	<b>395</b>	1101	397	1107	394
435.gromacs	48	786	436	785	436	<b>786</b>	<b>436</b>	48	786	436	785	436	<b>786</b>	<b>436</b>
436.cactusADM	48	1521	377	<b>1537</b>	<b>373</b>	1537	373	48	1521	377	<b>1537</b>	<b>373</b>	1537	373
437.leslie3d	48	<b>1742</b>	<b>259</b>	1747	258	1739	259	48	1739	259	<b>1739</b>	<b>259</b>	1741	259
444.namd	48	1186	325	1190	324	<b>1187</b>	<b>324</b>	48	<b>1165</b>	<b>330</b>	1167	330	1164	331
447.dealII	48	<b>859</b>	<b>639</b>	858	640	861	638	48	<b>859</b>	<b>639</b>	858	640	861	638
450.soplex	48	<b>1354</b>	<b>296</b>	1353	296	1354	296	48	<b>1354</b>	<b>296</b>	1353	296	1354	296
453.povray	48	506	504	502	509	<b>506</b>	<b>505</b>	48	<b>443</b>	<b>577</b>	445	574	442	578
454.calculix	48	940	421	940	421	<b>940</b>	<b>421</b>	48	940	421	940	421	<b>940</b>	<b>421</b>
459.GemsFDTD	48	1936	263	<b>1933</b>	<b>263</b>	1933	263	48	1936	263	<b>1933</b>	<b>263</b>	1933	263
465.tonto	48	<b>1049</b>	<b>450</b>	1049	450	1051	450	48	<b>1050</b>	<b>450</b>	1059	446	1047	451
470.lbm	48	1328	496	1331	496	<b>1330</b>	<b>496</b>	48	1328	496	1331	496	<b>1330</b>	<b>496</b>
481.wrf	48	<b>1149</b>	<b>467</b>	1157	463	1143	469	48	<b>1146</b>	<b>468</b>	1144	469	1147	467
482.sphinx3	48	<b>2398</b>	<b>390</b>	2395	391	2401	390	48	2361	396	<b>2359</b>	<b>397</b>	2355	397

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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**Tested by:** Huawei

**Test date:** Oct-2012  
**Hardware Availability:** Oct-2012  
**Software Availability:** Oct-2012

## Platform Notes

BIOS configuration:  
Set Power Efficiency Mode to Performance  
Sysinfo program /root/benchmark/cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ 5569a0425e2ad530534e4c79a46e4d28  
running on Huawei-RH5885 Wed Oct 31 18:42:34 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 E7- 4807 @ 1.87GHz
 4 "physical id"s (chips)
 48 "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      : 6
  siblings       : 12
  physical 0:    cores 0 8 9 16 17 25
  physical 1:    cores 0 1 2 18 24 25
  physical 2:    cores 0 1 2 18 24 25
  physical 3:    cores 1 8 9 16 17 24
cache size      : 18432 KB
```

```
From /proc/meminfo
MemTotal:       1058609944 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 Huawei-RH5885 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 Oct 30 20:07
```

```
SPEC is set to: /root/benchmark/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdal       ext4      274G  48G  213G  19% /root/benchmark
```

Additional information from dmidecode:  
BIOS American Megatrends Inc. RGPUC-BIOS-V018 08/29/2012  
Memory:  
64x 16 GB

Continued on next page



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## Platform Notes (Continued)

64x Hyundai HMT42GR7BMR4C-H9 16 GB 800 MHz 4 rank

(End of data from sysinfo program)

Descriptions about memory generated by sysinfo are not correct, only 64 DIMMs are installed not 128, see descriptions below.

Memory:

64x 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 = "/root/benchmark/cpu2006/libs/32:/root/benchmark/cpu2006/libs/64"

Binaries compiled on a system with 4x Xeon E7-4807 CPU + 512 GB 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

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

Continued on next page



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## Base Portability Flags (Continued)

```
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:  
icpc -m64

Fortran benchmarks:  
ifort -m64

Benchmarks using both Fortran and C:  
icc -m64 ifort -m64



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## 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  
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  
450.soplex: basepeak = yes  
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

Continued on next page



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Software Availability: Oct-2012

## Peak Optimization Flags (Continued)

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) -unroll14 -auto  
-inline-alloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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/Huawei-Platform-Settings-revF.html>

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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