# SPEC® CFP2006 Result

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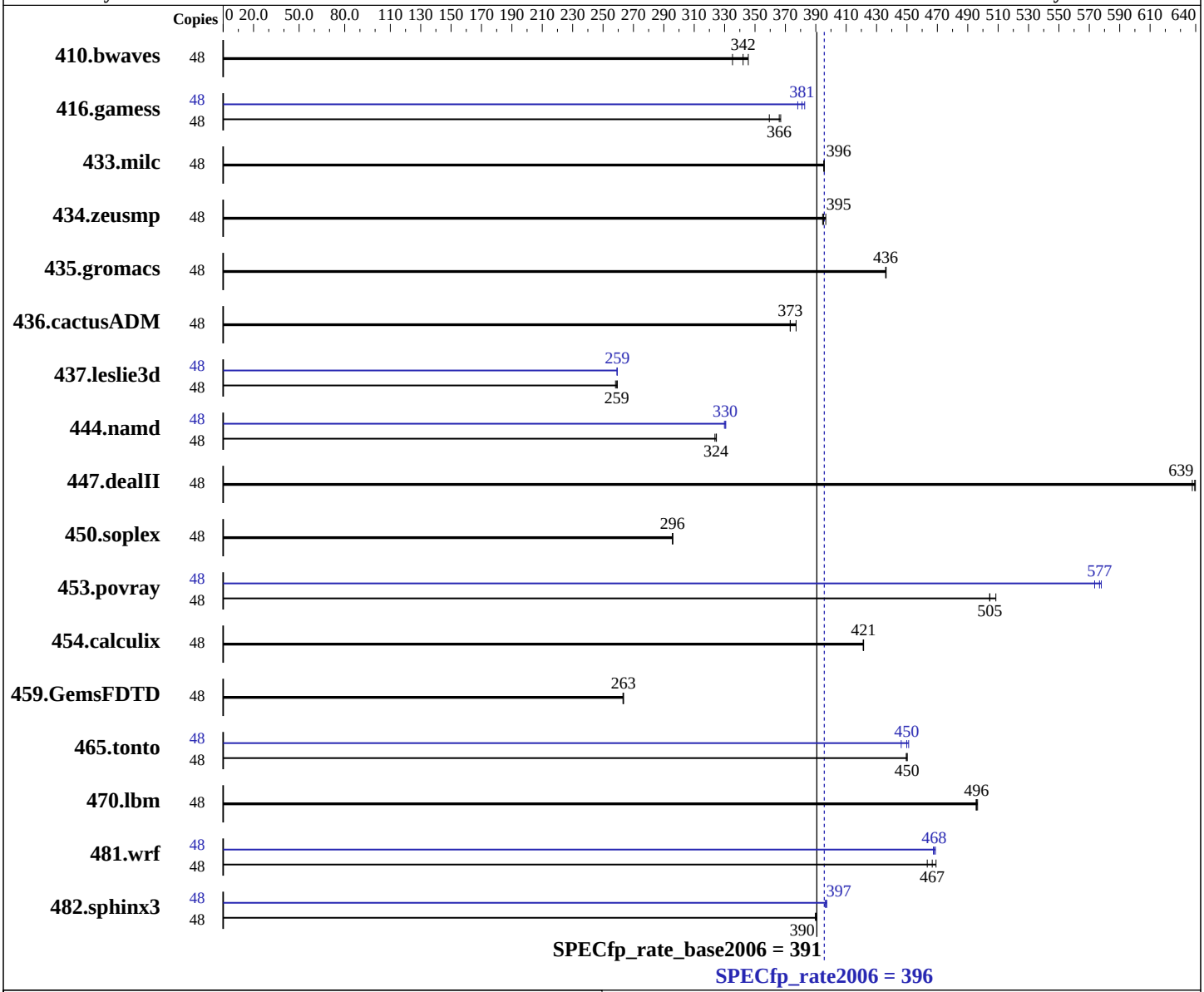
## Huawei
## Tecal RH5885 V2

**SPECfp®_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)<br>2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 13.0.0.079 of Intel C++ Studio XE for Linux;<br>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 | **1906** | **342** | 48 | 1946 | 335 | 1888 | 346 | **1906** | **342** |
| 416.gamess | 48 | **2568** | **366** | 2615 | 359 | 2562 | 367 | 48 | **2467** | **381** | 2485 | 378 | 2456 | 383 |
| 433.milc | 48 | 1115 | 395 | 1114 | 396 | **1114** | **396** | 48 | 1115 | 395 | 1114 | 396 | **1114** | **396** |
| 434.zeusmp | 48 | **1106** | **395** | 1101 | 397 | 1107 | 394 | 48 | **1106** | **395** | 1101 | 397 | 1107 | 394 |
| 435.gromacs | 48 | 786 | 436 | 785 | 436 | **786** | **436** | 48 | 786 | 436 | 785 | 436 | **786** | **436** |
| 436.cactusADM | 48 | 1521 | 377 | **1537** | **373** | 1537 | 373 | 48 | 1521 | 377 | **1537** | **373** | 1537 | 373 |
| 437.leslie3d | 48 | **1742** | **259** | 1747 | 258 | 1739 | 259 | 48 | 1739 | 259 | **1739** | **259** | 1741 | 259 |
| 444.namd | 48 | 1186 | 325 | 1190 | 324 | **1187** | **324** | 48 | **1165** | **330** | 1167 | 330 | 1164 | 331 |
| 447.dealII | 48 | **859** | **639** | 858 | 640 | 861 | 638 | 48 | **859** | **639** | 858 | 640 | 861 | 638 |
| 450.soplex | 48 | **1354** | **296** | 1353 | 296 | 1354 | 296 | 48 | **1354** | **296** | 1353 | 296 | 1354 | 296 |
| 453.povray | 48 | 506 | 504 | 502 | 509 | **506** | **505** | 48 | **443** | **577** | 445 | 574 | 442 | 578 |
| 454.calculix | 48 | 940 | 421 | 940 | 421 | **940** | **421** | 48 | 940 | 421 | 940 | 421 | **940** | **421** |
| 459.GemsFDTD | 48 | 1936 | 263 | **1933** | **263** | 1933 | 263 | 48 | 1936 | 263 | **1933** | **263** | 1933 | 263 |
| 465.tonto | 48 | **1049** | **450** | 1049 | 450 | 1051 | 450 | 48 | **1050** | **450** | 1059 | 446 | 1047 | 451 |
| 470.lbm | 48 | 1328 | 496 | 1331 | 496 | **1330** | **496** | 48 | 1328 | 496 | 1331 | 496 | **1330** | **496** |
| 481.wrf | 48 | **1149** | **467** | 1157 | 463 | 1143 | 469 | 48 | **1146** | **468** | 1144 | 469 | 1147 | 467 |
| 482.sphinx3 | 48 | **2398** | **390** | 2395 | 391 | 2401 | 390 | 48 | 2361 | 396 | **2359** | **397** | 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"
```

## 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/sda1      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
```

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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
```

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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

## 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

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## 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) -unroll4 -auto -inline-calloc -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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For other inquiries, please contact webmaster@spec.org.

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