# SPEC® CFP2006 Result
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## Huawei

Huawei RH2288 V2 (Intel Xeon E5-2643)

$SPECfp^{®}2006 =$ 83.6

$SPECfp\_base2006 =$ 80.9

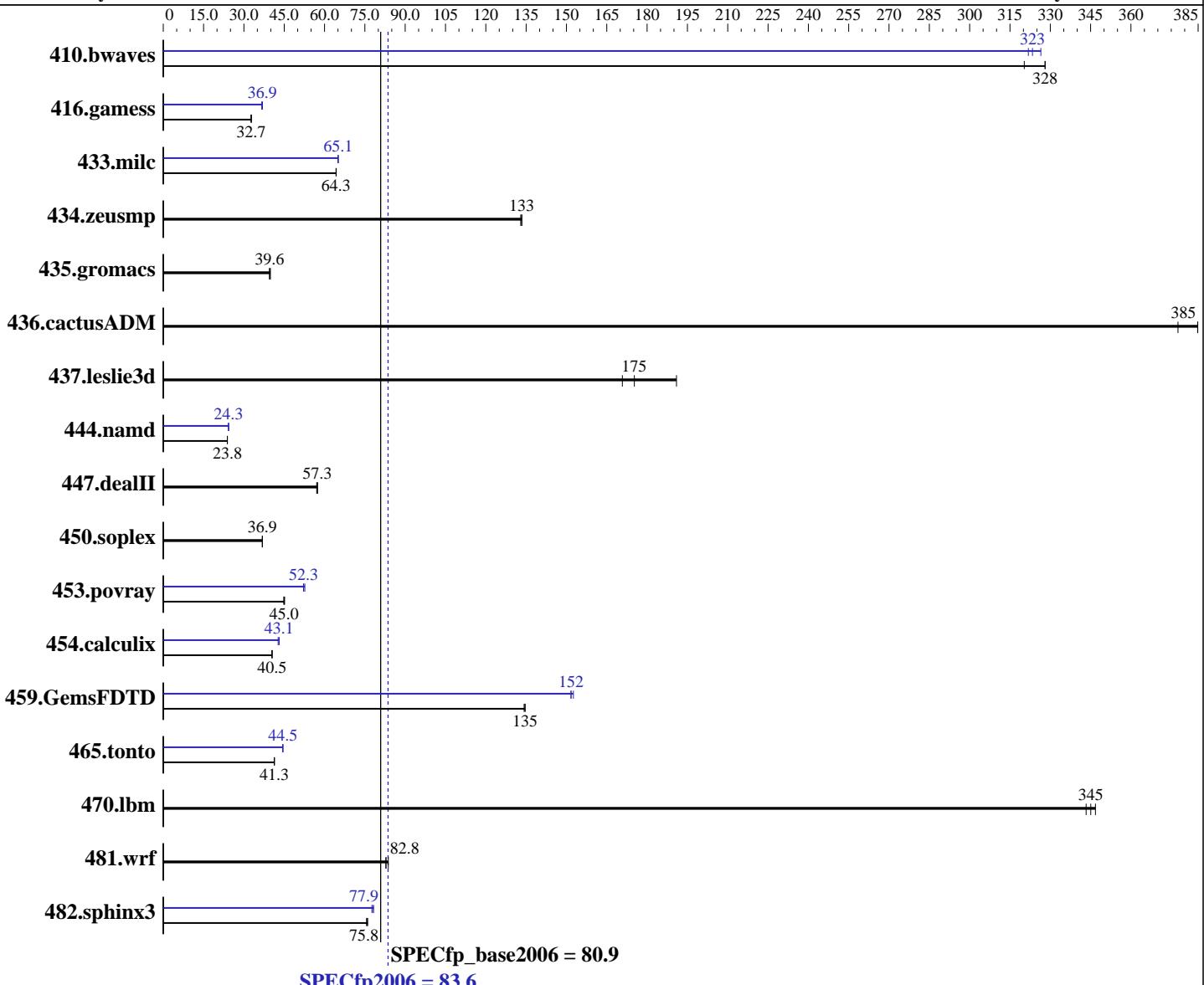| | | | |
|---|---|---|---|
| **CPU2006 license:** | 3175 | **Test date:** | Jul-2012 |
| **Test sponsor:** | Huawei | **Hardware Availability:** | Mar-2012 |
| **Tested by:** | Huawei | **Software Availability:** | Dec-2011 |

| Benchmark | Result (blue = peak, black = base) |
|---|---|
| 410.bwaves | 323 / 328 |
| 416.gamess | 36.9 / 32.7 |
| 433.milc | 65.1 / 64.3 |
| 434.zeusmp | 133 |
| 435.gromacs | 39.6 |
| 436.cactusADM | 385 |
| 437.leslie3d | 175 |
| 444.namd | 24.3 / 23.8 |
| 447.dealII | 57.3 |
| 450.soplex | 36.9 |
| 453.povray | 52.3 / 45.0 |
| 454.calculix | 43.1 / 40.5 |
| 459.GemsFDTD | 152 / 135 |
| 465.tonto | 44.5 / 41.3 |
| 470.lbm | 345 |
| 481.wrf | 82.8 |
| 482.sphinx3 | 77.9 / 75.8 |

SPECfp_base2006 = 80.9

SPECfp2006 = 83.6

## Hardware
CPU Name: Intel Xeon E5-2643
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Continued on next page

## Software
Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
2.6.32-220.el6.x86_64
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

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| | |
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| | |
|---|---|
| L3 Cache: | 10 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC) |
| Disk Subsystem: | 1 x 300 GB SAS, 10K RPM |
| Other Hardware: | None |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | None |

## Results Table

| Benchmark | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410.bwaves | 41.4 | 328 | **41.4** | **328** | 42.4 | 320 | 42.2 | 322 | **42.0** | **323** | 41.6 | 326 |
| 416.gamess | **599** | **32.7** | 599 | 32.7 | 597 | 32.8 | **531** | **36.9** | 530 | 36.9 | 534 | 36.6 |
| 433.milc | 143 | 64.4 | 143 | 64.3 | **143** | **64.3** | 141 | 65.0 | **141** | **65.1** | 141 | 65.1 |
| 434.zeusmp | 68.2 | 133 | **68.2** | **133** | 68.4 | 133 | 68.2 | 133 | **68.2** | **133** | 68.4 | 133 |
| 435.gromacs | **181** | **39.6** | 179 | 39.9 | 181 | 39.6 | **181** | **39.6** | 179 | 39.9 | 181 | 39.6 |
| 436.cactusADM | **31.1** | **385** | 31.0 | 385 | 31.7 | 378 | **31.1** | **385** | 31.0 | 385 | 31.7 | 378 |
| 437.leslie3d | 49.2 | 191 | 55.0 | 171 | **53.6** | **175** | 49.2 | 191 | 55.0 | 171 | **53.6** | **175** |
| 444.namd | **336** | **23.8** | 336 | 23.9 | 337 | 23.8 | 330 | 24.3 | **330** | **24.3** | 330 | 24.3 |
| 447.dealII | 199 | 57.4 | 200 | 57.1 | **200** | **57.3** | 199 | 57.4 | 200 | 57.1 | **200** | **57.3** |
| 450.soplex | 226 | 36.9 | **226** | **36.9** | 226 | 36.9 | 226 | 36.9 | **226** | **36.9** | 226 | 36.9 |
| 453.povray | 119 | 44.8 | 118 | 45.1 | **118** | **45.0** | 102 | 52.2 | 101 | 52.7 | **102** | **52.3** |
| 454.calculix | 204 | 40.5 | **204** | **40.5** | 204 | 40.5 | 191 | 43.1 | **192** | **43.1** | 193 | 42.7 |
| 459.GemsFDTD | 79.0 | 134 | **78.8** | **135** | 78.8 | 135 | 69.9 | 152 | **69.9** | **152** | 69.5 | 153 |
| 465.tonto | **238** | **41.3** | 238 | 41.3 | 238 | 41.4 | 221 | 44.5 | 221 | 44.4 | **221** | **44.5** |
| 470.lbm | 40.0 | 343 | 39.6 | 347 | **39.8** | **345** | 40.0 | 343 | 39.6 | 347 | **39.8** | **345** |
| 481.wrf | 135 | 82.8 | **135** | **82.8** | 133 | 83.7 | 135 | 82.8 | **135** | **82.8** | 133 | 83.7 |
| 482.sphinx3 | **257** | **75.8** | 258 | 75.6 | 256 | 76.1 | 249 | 78.3 | 251 | 77.6 | **250** | **77.9** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Select only test related files when installing the operating system
```

## Platform Notes

```
BIOS configuration:
Intel Hyper-Threading set to Disabled
Set Power Efficiency Mode to Performance
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH62-rebuild Wed Jul  4 09:20:25 2012
```

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**Test sponsor:** Huawei
**Tested by:** Huawei

**Test date:** Jul-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011

## Platform Notes (Continued)

```
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 E5-2643 0 @ 3.30GHz
      2 "physical id"s (chips)
      8 "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 : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       132124032 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

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 RH62-rebuild 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 Jul 3 15:42

SPEC is set to: /spec
   Filesystem      Type      Size   Used Avail Use% Mounted on
   /dev/sda1       ext4      289G    74G  201G  27% /

Additional information from dmidecode:
  Memory:
   16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "8"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

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## 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
      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:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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**Tested by:** Huawei

**Test date:** Jul-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011

## Peak Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

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

## Peak Portability Flags

```
Same as Base Portability Flags
```

## Peak Optimization Flags

C benchmarks:

```
433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
          -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
          -parallel
```

C++ benchmarks:

```
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
          -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
          -static
```

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$SPECfp\_base2006 =$    80.9

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**Test sponsor:** Huawei
**Tested by:** Huawei

**Test date:** Jul-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011

# Peak Optimization Flags (Continued)

```
   416.gamess: -xAVX(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: -xAVX(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 -opt-prefetch -parallel

    465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
               -opt-malloc-options=3 -auto -unroll4
```

Benchmarks using both Fortran and C:

```
   435.gromacs: basepeak = yes

  436.cactusADM: basepeak = yes

   454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

      481.wrf: basepeak = yes
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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