# SPEC® CFP2006 Result
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## Huawei
## Huawei BH640 V2

$SPECfp^{®}2006 =$    45.0

$SPECfp\_base2006 =$    42.5
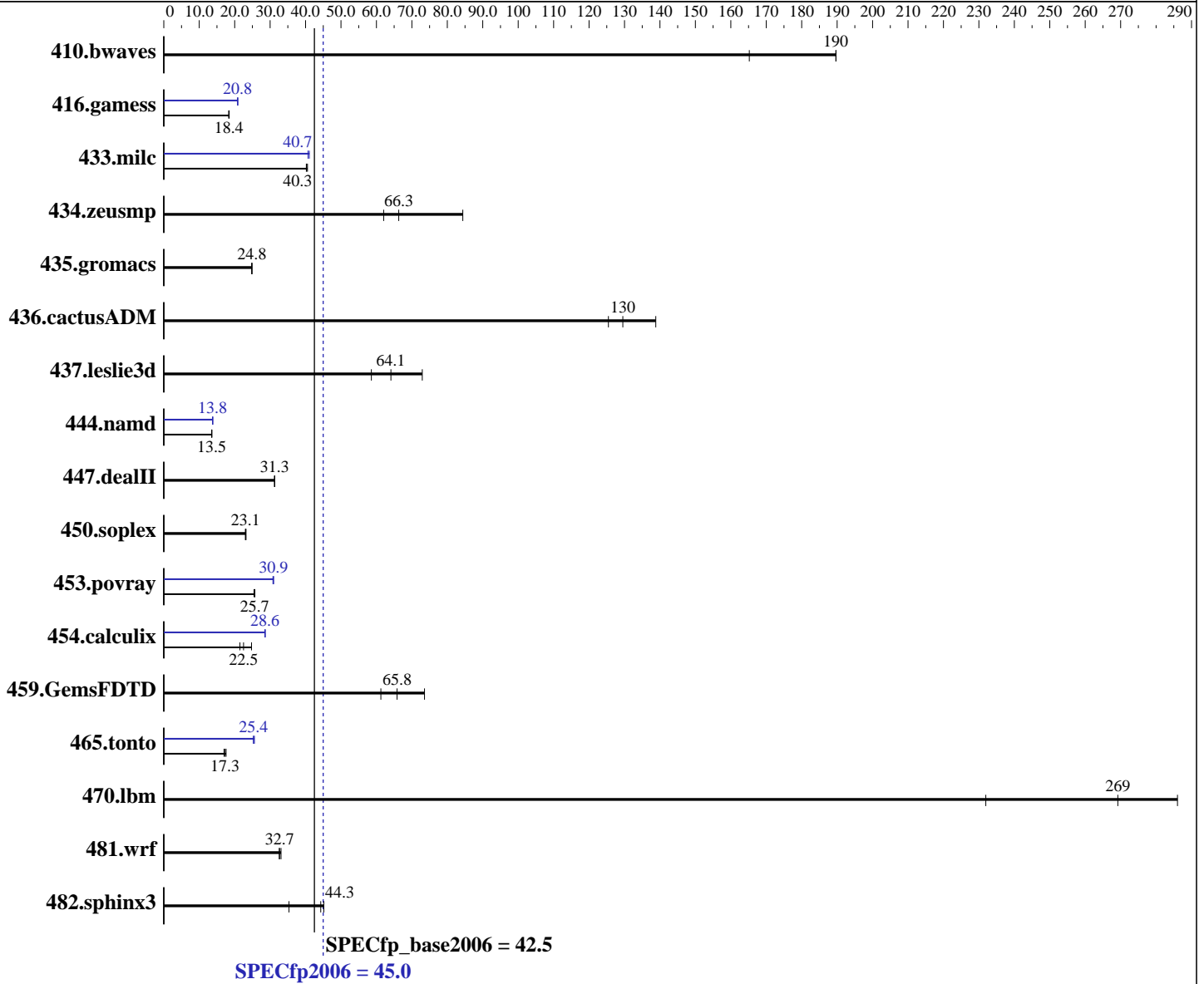
| Benchmark | Base | Peak |
|---|---|---|
| 410.bwaves | 190 | |
| 416.gamess | 18.4 | 20.8 |
| 433.milc | 40.3 | 40.7 |
| 434.zeusmp | 66.3 | |
| 435.gromacs | 24.8 | |
| 436.cactusADM | 130 | |
| 437.leslie3d | 64.1 | |
| 444.namd | 13.5 | 13.8 |
| 447.dealII | 31.3 | |
| 450.soplex | 23.1 | |
| 453.povray | 25.7 | 30.9 |
| 454.calculix | 22.5 | 28.6 |
| 459.GemsFDTD | 65.8 | |
| 465.tonto | 17.3 | 25.4 |
| 470.lbm | 269 | |
| 481.wrf | 32.7 | |
| 482.sphinx3 | 44.3 | |

SPECfp_base2006 = 42.5
SPECfp2006 = 45.0

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-4603 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 4 chips, 4 cores/chip |
| CPU(s) orderable: | 2,4 chip |
| 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 6.5 (Santiago) 2.6.32-431.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |

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|---|---|
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| SPECfp_base2006 = | 42.5 |

| | | | |
|---|---|---|---|
| **CPU2006 license:** 3175 | | **Test date:** | Apr-2014 |
| **Test sponsor:** Huawei | | **Hardware Availability:** | May-2012 |
| **Tested by:** Huawei | | **Software Availability:** | Nov-2013 |

| | | | |
|---|---|---|---|
| L3 Cache: | 10 MB I+D on chip per chip | System State: | Run level 3 (multi-user) |
| Other Cache: | None | Base Pointers: | 64-bit |
| Memory: | 128 GB (16 x 8 GB 2Rx4 PC3-10600R-9, ECC) | Peak Pointers: | 32/64-bit |
| Disk Subsystem: | 1 X 300 GB SAS 7200RPM | Other Software: | None |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | **71.7** | **190** | 71.7 | 190 | 82.3 | 165 | **71.7** | **190** | 71.7 | 190 | 82.3 | 165 |
| 416.gamess | 1069 | 18.3 | **1065** | **18.4** | 1061 | 18.5 | 938 | 20.9 | **940** | **20.8** | 940 | 20.8 |
| 433.milc | 228 | 40.2 | **228** | **40.3** | 226 | 40.5 | **225** | **40.7** | 224 | 41.1 | 226 | 40.7 |
| 434.zeusmp | **137** | **66.3** | 147 | 62.0 | 108 | 84.4 | **137** | **66.3** | 147 | 62.0 | 108 | 84.4 |
| 435.gromacs | 287 | 24.9 | **287** | **24.8** | 288 | 24.8 | 287 | 24.9 | **287** | **24.8** | 288 | 24.8 |
| 436.cactusADM | 95.2 | 125 | **92.3** | **130** | 86.1 | 139 | 95.2 | 125 | **92.3** | **130** | 86.1 | 139 |
| 437.leslie3d | **147** | **64.1** | 160 | 58.6 | 129 | 72.9 | **147** | **64.1** | 160 | 58.6 | 129 | 72.9 |
| 444.namd | **593** | **13.5** | 593 | 13.5 | 592 | 13.5 | **581** | **13.8** | 581 | 13.8 | 581 | 13.8 |
| 447.dealII | **366** | **31.3** | 366 | 31.2 | 365 | 31.3 | **366** | **31.3** | 366 | 31.2 | 365 | 31.3 |
| 450.soplex | 362 | 23.0 | **361** | **23.1** | 359 | 23.2 | 362 | 23.0 | **361** | **23.1** | 359 | 23.2 |
| 453.povray | 207 | 25.7 | **207** | **25.7** | 209 | 25.5 | **172** | **30.9** | 172 | 31.0 | 173 | 30.8 |
| 454.calculix | 384 | 21.5 | **367** | **22.5** | 333 | 24.8 | 288 | 28.6 | 289 | 28.6 | **289** | **28.6** |
| 459.GemsFDTD | 144 | 73.6 | 173 | 61.3 | **161** | **65.8** | 144 | 73.6 | 173 | 61.3 | **161** | **65.8** |
| 465.tonto | 579 | 17.0 | 560 | 17.6 | **569** | **17.3** | 385 | 25.6 | 389 | 25.3 | **388** | **25.4** |
| 470.lbm | **51.0** | **269** | 48.0 | 286 | 59.2 | 232 | **51.0** | **269** | 48.0 | 286 | 59.2 | 232 |
| 481.wrf | **342** | **32.7** | 343 | 32.6 | 338 | 33.1 | **342** | **32.7** | 343 | 32.6 | 338 | 33.1 |
| 482.sphinx3 | 432 | 45.2 | 552 | 35.3 | **440** | **44.3** | 432 | 45.2 | 552 | 35.3 | **440** | **44.3** |

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"
```

## Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Performance
Set Intel HT Technology to disabled
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Mon Apr 21 22:45:19 2014

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
```

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**Test date:** Apr-2014
**Hardware Availability:** May-2012
**Software Availability:** Nov-2013

## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-4603 0 @ 2.00GHz
      4 "physical id"s (chips)
      16 "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
      physical 2: cores 0 1 2 3
      physical 3: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       132117028 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
   EST 2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 21 22:38

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext4  265G   68G  184G  27% /

Additional information from dmidecode:
  BIOS Insyde Corp. RMISV060 06/07/2013
  Memory:
   16x Hynix HMT31GR7CFR4C-H9 8 GB 1066 MHz
   8x NO DIMM NO DIMM

(End of data from sysinfo program)
```

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## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "16"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /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
        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
```

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**Software Availability:** Nov-2013  

## Base Optimization Flags

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

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

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

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

## 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) -auto-ilp32
          -ansi-alias
```

```
470.lbm: basepeak = yes
```

```
482.sphinx3: basepeak = yes
```

C++ benchmarks:

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# Peak Optimization Flags (Continued)

```
   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: basepeak = yes

  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-

  434.zeusmp: basepeak = yes

  437.leslie3d: basepeak = yes

 459.GemsFDTD: basepeak = yes

   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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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

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