# SPEC® CFP2006 Result



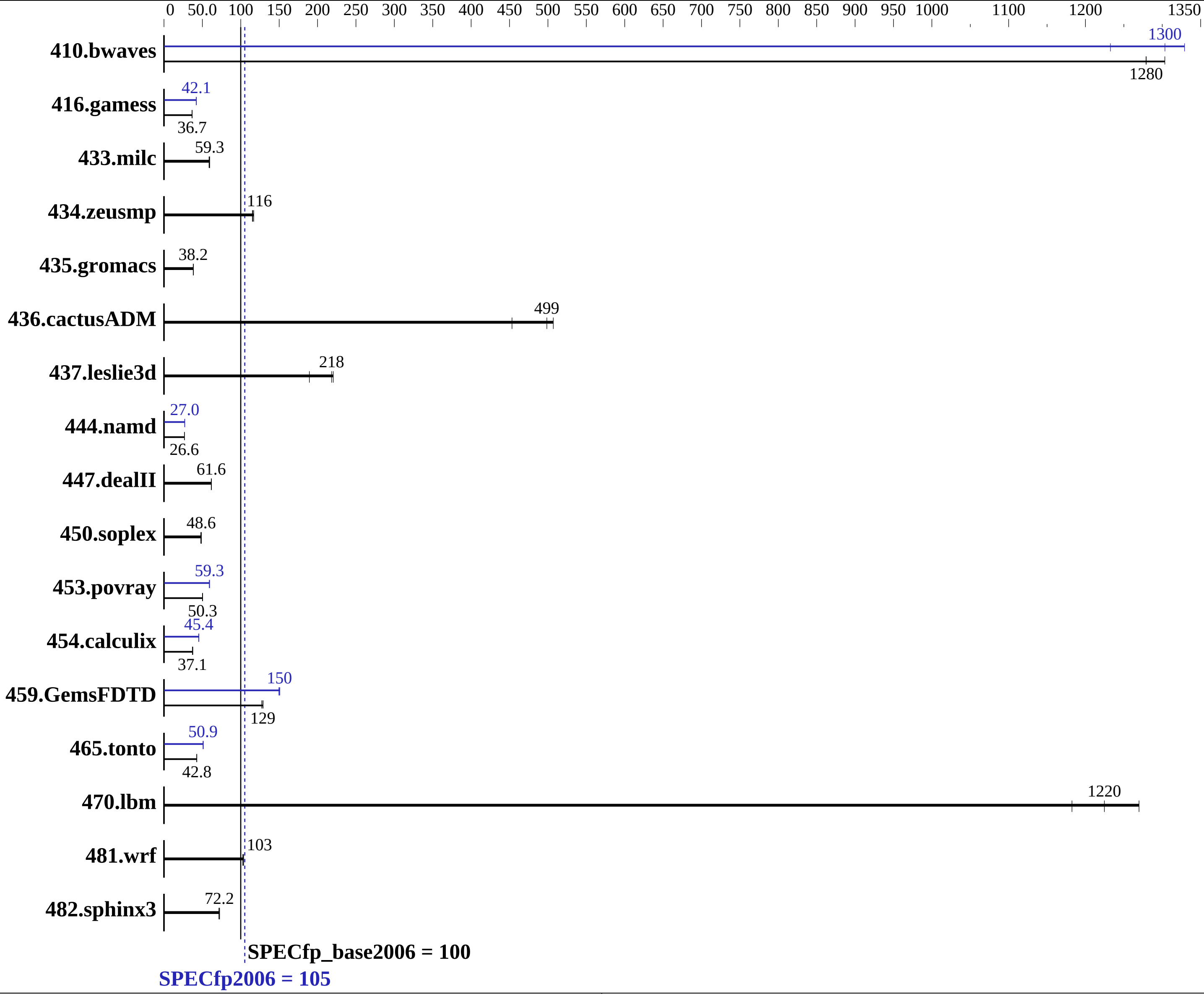
## Huawei

Huawei RH8100 V3 (Intel Xeon E7-8891 v2)

SPECfp®2006 = 105

SPECfp_base2006 = 100

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 3175 | **Test date:** | Oct-2014 |
| **Test sponsor:** | Huawei | **Hardware Availability:** | Feb-2014 |
| **Tested by:** | Huawei | **Software Availability:** | Nov-2013 |




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7-8891 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 3200 |
| FPU: | Integrated |
| CPU(s) enabled: | 80 cores, 8 chips, 10 cores/chip |
| CPU(s) orderable: | 4,8 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 6.5 (Santiago) 2.6.32-431.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 |

Continued on next page

## Huawei

Huawei RH8100 V3 (Intel Xeon E7-8891 v2)

SPECfp2006 = 105

SPECfp_base2006 = 100

**CPU2006 license:** 3175
**Test sponsor:** Huawei
**Tested by:** Huawei
**Test date:** Oct-2014
**Hardware Availability:** Feb-2014
**Software Availability:** Nov-2013

| | |
|---|---|
| L3 Cache: | 37.5 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 1 TB (128 x 8 GB 2Rx8 PC3-12800R-11, ECC, running at 1333 MHz and CL9) |
| Disk Subsystem: | 1 x 600 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

| | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Benchmark** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** |
| 410.bwaves | 10.4 | 1300 | 10.6 | 1280 | **10.6** | **1280** | 10.2 | 1330 | **10.4** | **1300** | 11.0 | 1230 |
| 416.gamess | **534** | **36.7** | 535 | 36.6 | 534 | 36.7 | 465 | 42.1 | 465 | 42.1 | **465** | **42.1** |
| 433.milc | 154 | 59.5 | **155** | **59.3** | 156 | 58.7 | 154 | 59.5 | **155** | **59.3** | 156 | 58.7 |
| 434.zeusmp | **78.7** | **116** | 77.9 | 117 | 79.1 | 115 | **78.7** | **116** | 77.9 | 117 | 79.1 | 115 |
| 435.gromacs | 187 | 38.2 | 187 | 38.2 | **187** | **38.2** | 187 | 38.2 | 187 | 38.2 | **187** | **38.2** |
| 436.cactusADM | 23.6 | 507 | **24.0** | **499** | 26.4 | 453 | 23.6 | 507 | **24.0** | **499** | 26.4 | 453 |
| 437.leslie3d | 49.6 | 189 | **43.0** | **218** | 42.6 | 220 | 49.6 | 189 | **43.0** | **218** | 42.6 | 220 |
| 444.namd | 302 | 26.6 | **302** | **26.6** | 302 | 26.6 | 297 | 27.0 | 297 | 27.0 | **297** | **27.0** |
| 447.dealII | 186 | 61.6 | 185 | 61.7 | **186** | **61.6** | 186 | 61.6 | 185 | 61.7 | **186** | **61.6** |
| 450.soplex | 174 | 47.9 | 171 | 48.7 | **172** | **48.6** | 174 | 47.9 | 171 | 48.7 | **172** | **48.6** |
| 453.povray | **106** | **50.3** | 106 | 50.0 | 106 | 50.4 | **89.7** | **59.3** | 89.5 | 59.4 | 90.2 | 59.0 |
| 454.calculix | 219 | 37.6 | 223 | 37.0 | **223** | **37.1** | 182 | 45.4 | 182 | 45.4 | **182** | **45.4** |
| 459.GemsFDTD | 82.2 | 129 | 83.4 | 127 | **82.4** | **129** | **70.5** | **150** | 70.3 | 151 | 70.9 | 150 |
| 465.tonto | 230 | 42.8 | **230** | **42.8** | 231 | 42.6 | 193 | 50.9 | **193** | **50.9** | 192 | 51.3 |
| 470.lbm | 11.6 | 1180 | **11.2** | **1220** | 10.8 | 1270 | 11.6 | 1180 | **11.2** | **1220** | 10.8 | 1270 |
| 481.wrf | 109 | 103 | **108** | **103** | 108 | 104 | 109 | 103 | **108** | **103** | 108 | 104 |
| 482.sphinx3 | 269 | 72.4 | **270** | **72.2** | 273 | 71.5 | 269 | 72.4 | **270** | **72.2** | 273 | 71.5 |

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 Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
C-State disabled
Set Intel Hyper Threading to disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH8100V3 Wed Oct 22 11:37:04 2014
```

Continued on next page

## 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 E7-8891 v2 @ 3.20GHz
      8 "physical id"s (chips)
      80 "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  : 10
      physical 0: cores 2 3 4 5 6 7 8 10 11 12
      physical 1: cores 2 3 4 5 6 7 8 10 11 12
      physical 2: cores 2 3 4 5 6 7 8 10 11 12
      physical 3: cores 2 3 4 5 6 7 8 10 11 12
      physical 4: cores 2 3 4 5 6 7 8 10 11 12
      physical 5: cores 2 3 4 5 6 7 8 10 11 12
      physical 6: cores 2 3 4 5 6 7 8 10 11 12
      physical 7: cores 2 3 4 5 6 7 8 10 11 12
   cache size : 38400 KB

From /proc/meminfo
   MemTotal:       1058598780 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 RH8100V3 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 Oct 22 06:28

SPEC is set to: /spec
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext4  533G   30G  477G   6% /

Additional information from dmidecode:
  Memory:
   128x Hynix HMT41GR7AFR8C-PB 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

Continued on next page

## Platform Notes (Continued)

```
memory is 1 TB and the dmidecode description should have one line reading as:
   128x Hynix HMT41GR7AFR8C-PB 8 GB 1600 MHz 2 rank
Dmidecode mistakenly believes the memory was running at 1600 MHz, when it
should only run at 1333 MHz
This benchmark result is intended to provide perspective on past
performance using the historical software described on this result page.
The system as described on this result page was formerly generally available(Oct-2014).
But at the time of this publication (November 2014), the compiler specified
(Intel Compiler 12) was not listed as supported per
 https://software.intel.com/en-us/articles/intel-compilers-supported-compiler-versions
This measured result may not be representative of the result that would be measured
were this benchmark run with hardware and software available as of the publication date.
```

## 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 = "80"

 Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
 using RHEL 6.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

## 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

Continued on next page

## Base Portability Flags (Continued)

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

## 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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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

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:

Continued on next page

## Peak Optimization Flags (Continued)

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-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml




Tested with SPEC CPU2006 v1.2.
Report generated on Tue Nov 18 16:32:11 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 18 November 2014.