# SPEC® CFP2006 Result



## HITACHI

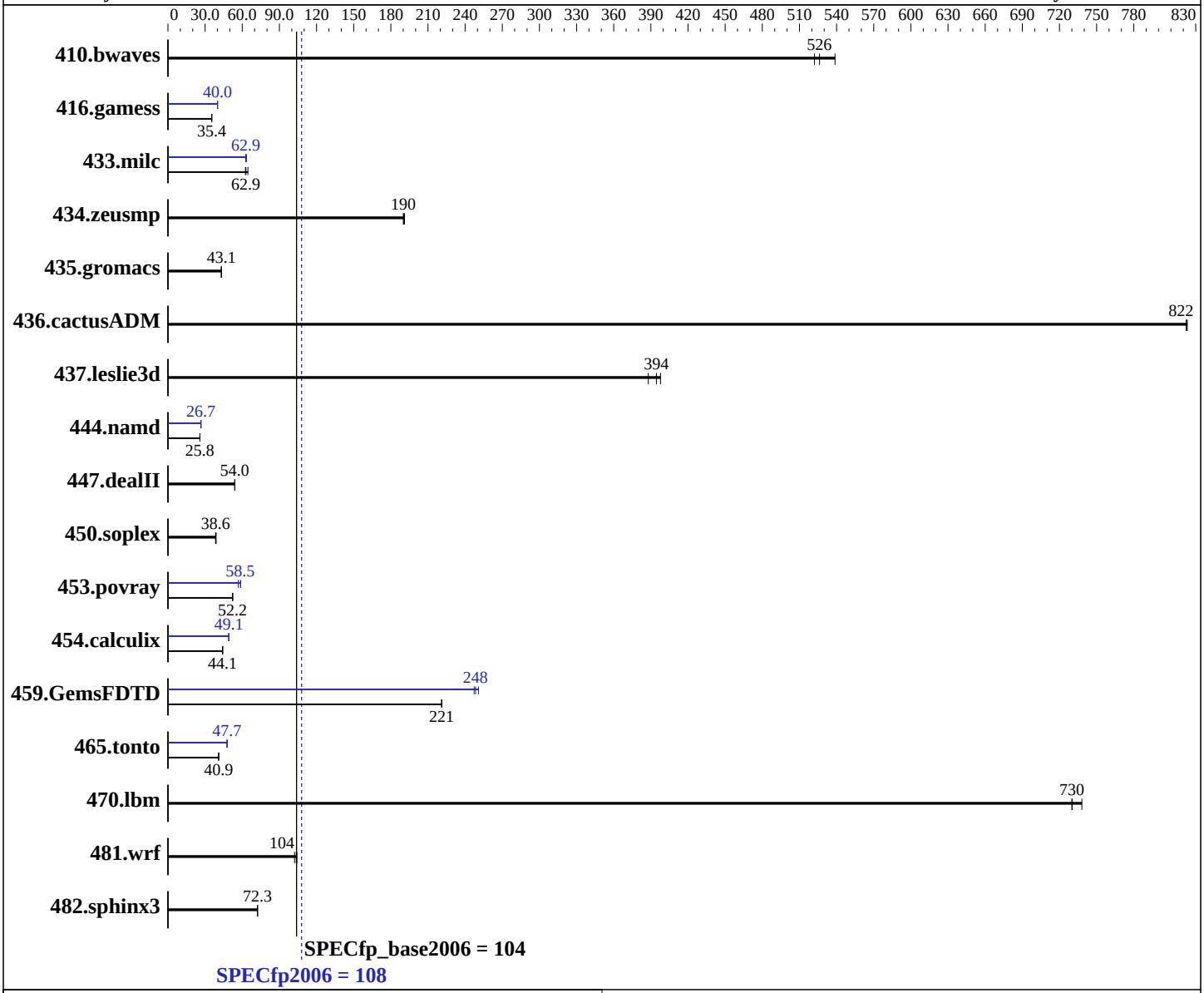
## Compute Blade 520H (Intel Xeon E5-2660 v3)

SPECfp®2006 = 108

SPECfp_base2006 = 104

**CPU2006 license:** 35
**Test sponsor:** HITACHI
**Tested by:** HITACHI

**Test date:** Jan-2015
**Hardware Availability:** Sep-2014
**Software Availability:** Nov-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2660 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.30 GHz |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 cores/chip, 2 threads/core |
| 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 6.5 (Santiago)<br>2.6.32-431.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;<br>Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |

Continued on next page

# SPEC CFP2006 Result



## HITACHI

## Compute Blade 520H (Intel Xeon E5-2660 v3)

SPECfp2006 = 108

SPECfp_base2006 = 104

**CPU2006 license:** 35
**Test sponsor:** HITACHI
**Tested by:** HITACHI

**Test date:** Jan-2015
**Hardware Availability:** Sep-2014
**Software Availability:** Nov-2013

| | | | |
|---|---|---|---|
| L3 Cache: | 25 MB I+D on chip per chip | System State: | Run level 3 (multi-user) |
| Other Cache: | None | Base Pointers: | 64-bit |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R) | Peak Pointers: | 32/64-bit |
| Disk Subsystem: | 2 x 600 GB SAS, 10000 RPM, RAID1 | 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 | 25.2 | 539 | **25.8** | **526** | 26.0 | 522 | 25.2 | 539 | **25.8** | **526** | 26.0 | 522 |
| 416.gamess | **554** | **35.4** | 553 | 35.4 | 554 | 35.3 | **489** | **40.0** | 489 | 40.0 | 489 | 40.1 |
| 433.milc | 142 | 64.6 | **146** | **62.9** | 147 | 62.6 | 145 | 63.5 | **146** | **62.9** | 146 | 62.8 |
| 434.zeusmp | 47.6 | 191 | 47.8 | 190 | **47.8** | **190** | 47.6 | 191 | 47.8 | 190 | **47.8** | **190** |
| 435.gromacs | 166 | 43.1 | 165 | 43.2 | **166** | **43.1** | 166 | 43.1 | 165 | 43.2 | **166** | **43.1** |
| 436.cactusADM | 14.5 | 823 | 14.5 | 822 | **14.5** | **822** | 14.5 | 823 | 14.5 | 822 | **14.5** | **822** |
| 437.leslie3d | 24.2 | 388 | 23.6 | 398 | **23.8** | **394** | 24.2 | 388 | 23.6 | 398 | **23.8** | **394** |
| 444.namd | 310 | 25.8 | **311** | **25.8** | 311 | 25.8 | 301 | 26.7 | **301** | **26.7** | 301 | 26.7 |
| 447.dealII | 212 | 54.0 | **212** | **54.0** | 212 | 54.0 | 212 | 54.0 | **212** | **54.0** | 212 | 54.0 |
| 450.soplex | **216** | **38.6** | 217 | 38.5 | 214 | 38.9 | **216** | **38.6** | 217 | 38.5 | 214 | 38.9 |
| 453.povray | 102 | 52.4 | **102** | **52.2** | 102 | 52.1 | 90.5 | 58.8 | **91.0** | **58.5** | 93.8 | 56.7 |
| 454.calculix | 188 | 44.0 | **187** | **44.1** | 186 | 44.3 | 168 | 49.2 | **168** | **49.1** | 168 | 49.1 |
| 459.GemsFDTD | 48.0 | 221 | 48.0 | 221 | **48.0** | **221** | 42.3 | 251 | **42.7** | **248** | 42.9 | 247 |
| 465.tonto | 241 | 40.9 | **240** | **40.9** | 240 | 40.9 | **206** | **47.7** | 207 | 47.6 | 206 | 47.9 |
| 470.lbm | 18.8 | 730 | **18.8** | **730** | 18.6 | 738 | 18.8 | 730 | **18.8** | **730** | 18.6 | 738 |
| 481.wrf | 109 | 102 | 107 | 104 | **108** | **104** | 109 | 102 | 107 | 104 | **108** | **104** |
| 482.sphinx3 | **269** | **72.3** | 270 | 72.3 | 269 | 72.4 | **269** | **72.3** | 270 | 72.3 | 269 | 72.4 |

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:
 Patrol Scrub = Disable
 Per Core P-state = Disable

 Sysinfo program /home/speccpu2006/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on 520Hx36564 Sun Jan 25 23:30:54 2015

 This section contains SUT (System Under Test) info as seen by
 some common utilities.  To remove or add to this section, see:
```

Continued on next page

## Platform Notes (Continued)

```
      http://www.spec.org/cpu2006/Docs/config.html#sysinfo

    From /proc/cpuinfo
       model name : Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz
          2 "physical id"s (chips)
          40 "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  : 20
          physical 0: cores 0 1 2 3 4 8 9 10 11 12
          physical 1: cores 0 1 2 3 4 8 9 10 11 12
       cache size : 25600 KB

    From /proc/meminfo
       MemTotal:       263989936 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 520Hx36564 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 Jan 25 17:49

    SPEC is set to: /home/speccpu2006/cpu2006
       Filesystem                     Type  Size  Used Avail Use% Mounted on
       /dev/mapper/vg_520hx36564-lv_home ext4  485G  5.5G  455G   2% /home

    Additional information from dmidecode:
      BIOS HITACHI 08-20 01/06/2015
      Memory:
       8x NO DIMM Unknown
       16x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

    (End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/speccpu2006/cpu2006/libs/32:/home/speccpu2006/cpu2006/libs/64:/home/speccpu2006/cpu2006/sh"
```

Continued on next page

## General Notes (Continued)

```
OMP_NUM_THREADS = "20"

 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>
BladeSymphony BS520H, Hitachi Compute Blade 520H and BladeSymphony BS2500 HC0A1 are electronically equivalent.
 The results have been measured on a Hitachi Compute Blade 520H.
```

## 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:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -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: `-xCORE-AVX2`(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`

Continued on next page

## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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-revC.html
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.20150127.html

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

http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.20150127.xml



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

Tested with SPEC CPU2006 v1.2.
Report generated on Wed Feb 25 11:31:47 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 February 2015.