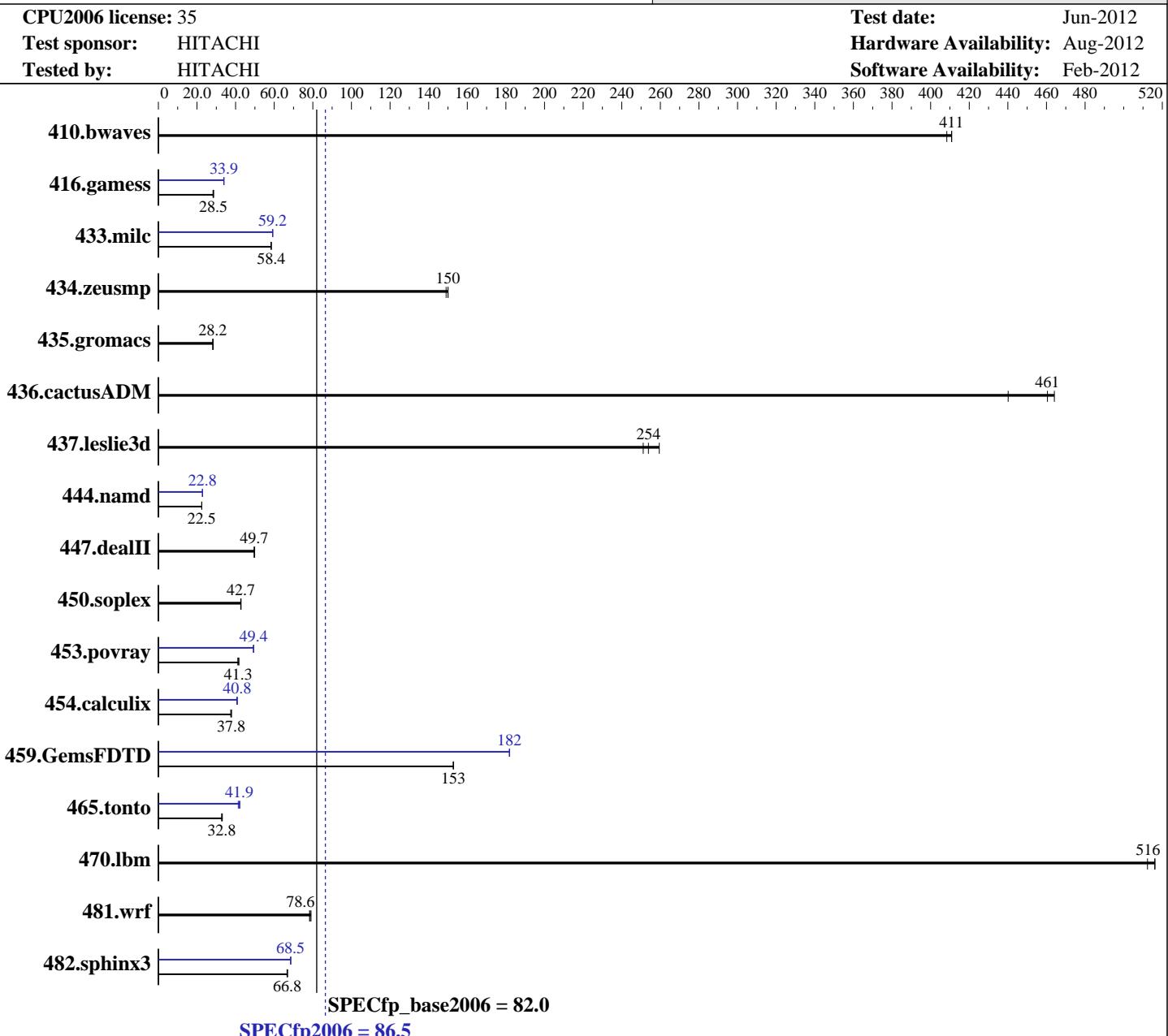# SPEC® CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

HITACHI

Compute Blade 2000 (Intel Xeon E5-2670)

$SPECfp^{®}2006 =$ 86.5

$SPECfp\_base2006 =$ 82.0

CPU2006 license: 35	**Test date:** Jun-2012
Test sponsor: HITACHI	**Hardware Availability:** Aug-2012
Tested by: HITACHI	**Software Availability:** Feb-2012

Results chart (scale 0 to 520):

- 410.bwaves: 411
- 416.gamess: 33.9 / 28.5
- 433.milc: 59.2 / 58.4
- 434.zeusmp: 150
- 435.gromacs: 28.2
- 436.cactusADM: 461
- 437.leslie3d: 254
- 444.namd: 22.8 / 22.5
- 447.dealII: 49.7
- 450.soplex: 42.7
- 453.povray: 49.4 / 41.3
- 454.calculix: 40.8 / 37.8
- 459.GemsFDTD: 182 / 153
- 465.tonto: 41.9 / 32.8
- 470.lbm: 516
- 481.wrf: 78.6
- 482.sphinx3: 68.5 / 66.8

SPECfp_base2006 = 82.0

SPECfp2006 = 86.5

Hardware

CPU Name:	Intel Xeon E5-2670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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 6.2, Kernel 2.6.32-220.4.2.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
System State:	Run level 3 (multi-user)

Continued on next page

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L3 Cache:	20 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC)	Other Software:	None
Disk Subsystem:	2 x 300 GB SAS, 10000 RPM RAID1 configuration		
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	33.1	411	33.3	408	**_33.1_**	**_411_**	33.1	411	33.3	408	**_33.1_**	**_411_**
416.gamess	692	28.3	**_687_**	**_28.5_**	685	28.6	**_577_**	**_33.9_**	577	34.0	577	33.9
433.milc	157	58.4	157	58.5	**_157_**	**_58.4_**	155	59.2	**_155_**	**_59.2_**	155	59.2
434.zeusmp	**_60.7_**	**_150_**	60.7	150	61.1	149	**_60.7_**	**_150_**	60.7	150	61.1	149
435.gromacs	254	28.2	251	28.4	**_253_**	**_28.2_**	254	28.2	251	28.4	**_253_**	**_28.2_**
436.cactusADM	27.1	440	**_25.9_**	**_461_**	25.7	464	27.1	440	**_25.9_**	**_461_**	25.7	464
437.leslie3d	37.4	251	36.2	259	**_37.0_**	**_254_**	37.4	251	36.2	259	**_37.0_**	**_254_**
444.namd	357	22.4	**_357_**	**_22.5_**	357	22.5	351	22.8	351	22.8	**_351_**	**_22.8_**
447.dealII	**_230_**	**_49.7_**	231	49.6	229	49.9	**_230_**	**_49.7_**	231	49.6	229	49.9
450.soplex	195	42.8	**_195_**	**_42.7_**	196	42.6	195	42.8	**_195_**	**_42.7_**	196	42.6
453.povray	129	41.2	**_129_**	**_41.3_**	127	41.7	108	49.1	**_108_**	**_49.4_**	108	49.4
454.calculix	220	37.5	**_219_**	**_37.8_**	218	37.9	202	40.9	203	40.6	**_202_**	**_40.8_**
459.GemsFDTD	**_69.4_**	**_153_**	69.4	153	69.4	153	58.3	182	**_58.3_**	**_182_**	58.3	182
465.tonto	**_300_**	**_32.8_**	300	32.8	297	33.1	**_235_**	**_41.9_**	233	42.2	238	41.4
470.lbm	26.6	516	26.8	512	**_26.6_**	**_516_**	26.6	516	26.8	512	**_26.6_**	**_516_**
481.wrf	143	78.3	**_142_**	**_78.6_**	141	79.1	143	78.3	**_142_**	**_78.6_**	141	79.1
482.sphinx3	291	66.9	293	66.6	**_292_**	**_66.8_**	285	68.5	284	68.6	**_285_**	**_68.5_**

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 Settings:
  Adjacent Cache Line Prefetch = Enabled

Sysinfo program /home/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon Jun 18 00:47:26 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
```

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HITACHI

Compute Blade 2000 (Intel Xeon E5-2670)

$SPECfp2006 =$ 86.5

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz
      2 "physical id"s (chips)
      32 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       132147320 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 localhost.localdomain 2.6.32-220.4.2.el6.x86_64 #1 SMP Mon Feb 6
   16:39:28 EST 2012 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 18 00:44

(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/cpu2006/libs/32:/home/cpu2006/libs/64"
OMP_NUM_THREADS = "16"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages disabled with:
 echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled

HITACHI BladeSymphony BS2000 and HITACHI Compute Blade 2000 are electronically equivalent.
The results have been measured on a HITACHI BladeSymphony BS2000.
```

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HITACHI

Compute Blade 2000 (Intel Xeon E5-2670)

$SPECfp2006 =$ 86.5

$SPECfp\_base2006 =$ 82.0

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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HITACHI

Compute Blade 2000 (Intel Xeon E5-2670)

$SPECfp2006 =$ 86.5

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

Test date: Jun-2012
Hardware Availability: Aug-2012
Software Availability: Feb-2012

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: basepeak = yes

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Compute Blade 2000 (Intel Xeon E5-2670)

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

Test date: Jun-2012
Hardware Availability: Aug-2012
Software Availability: Feb-2012

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-linux64.20111122.html
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.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/PlatformHitachi-V1.2.xml

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

Tested with SPEC CPU2006 v1.2.
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