SPEC® CFP2006 Result

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HITACHI

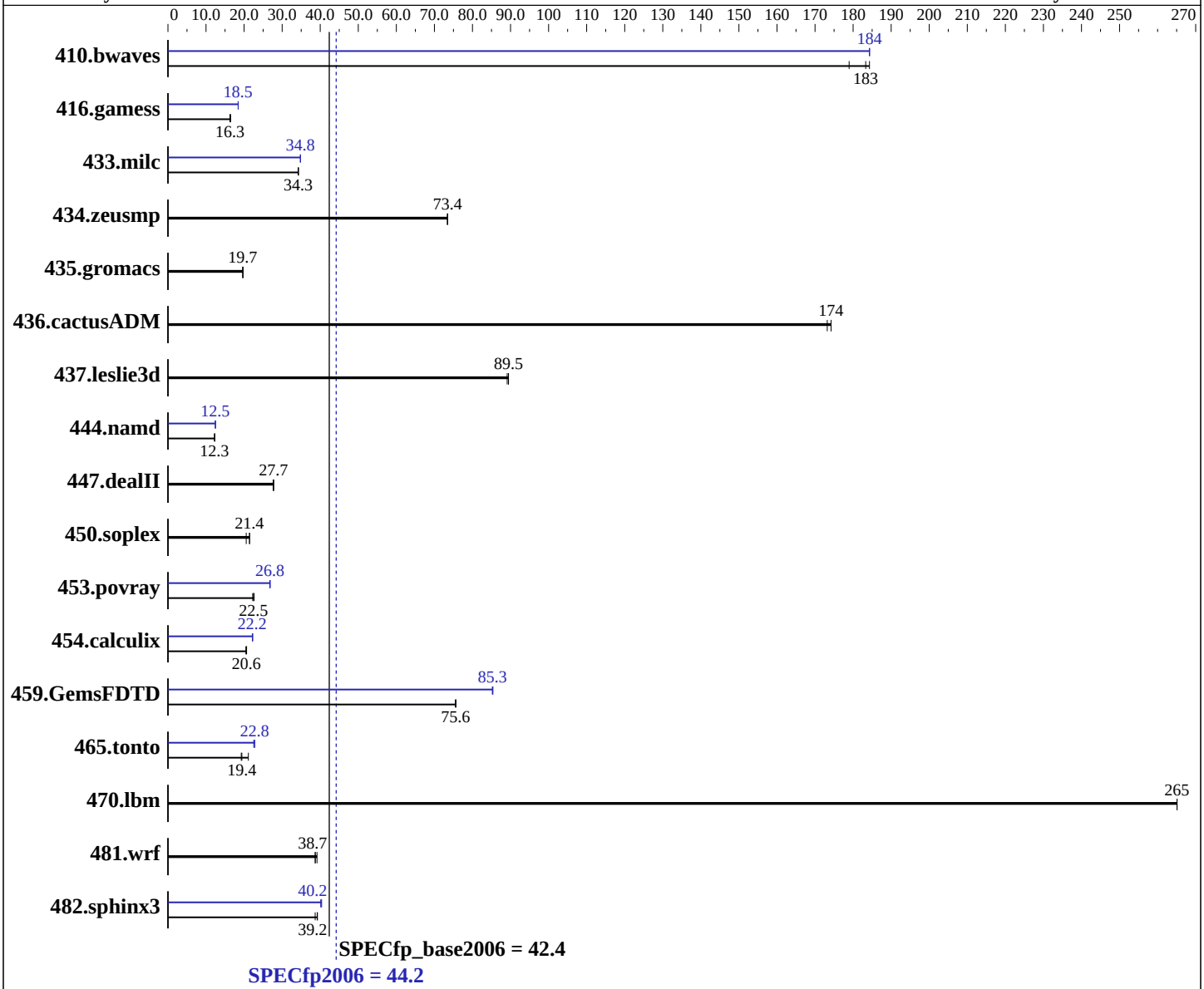
BladeSymphony BS520A (Intel Xeon E5-2403)

SPECfp®2006 = 44.2

SPECfp_base2006 = 42.4

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

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



Hardware

CPU Name:	Intel Xeon E5-2403
CPU Characteristics:	
CPU MHz:	1800
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

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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)

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3L-10600R-9, ECC, running at 1066 MHz)
Disk Subsystem: 2 x 147 GB SAS, 15000 RPM RAID1 configuration
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	75.9	179	**74.1**	**183**	73.7	184	73.7	184	**73.7**	**184**	73.7	184
416.gamess	**1199**	**16.3**	1201	16.3	1189	16.5	1060	18.5	**1061**	**18.5**	1062	18.4
433.milc	268	34.2	**268**	**34.3**	268	34.3	**264**	**34.8**	264	34.8	264	34.8
434.zeusmp	**124**	**73.4**	124	73.4	124	73.4	**124**	**73.4**	124	73.4	124	73.4
435.gromacs	362	19.7	363	19.7	**363**	**19.7**	362	19.7	363	19.7	**363**	**19.7**
436.cactusADM	**68.6**	**174**	69.0	173	68.6	174	**68.6**	**174**	69.0	173	68.6	174
437.leslie3d	105	89.1	**105**	**89.5**	105	89.5	105	89.1	**105**	**89.5**	105	89.5
444.namd	654	12.3	654	12.3	**654**	**12.3**	**644**	**12.5**	644	12.5	643	12.5
447.dealII	414	27.6	412	27.8	**413**	**27.7**	414	27.6	412	27.8	**413**	**27.7**
450.soplex	406	20.6	389	21.4	**389**	**21.4**	406	20.6	389	21.4	**389**	**21.4**
453.povray	239	22.3	235	22.6	**237**	**22.5**	**199**	**26.8**	198	26.9	199	26.7
454.calculix	399	20.7	**401**	**20.6**	403	20.5	372	22.2	**372**	**22.2**	370	22.3
459.GemsFDTD	140	75.7	140	75.6	**140**	**75.6**	124	85.2	**124**	**85.3**	124	85.4
465.tonto	**507**	**19.4**	466	21.1	511	19.3	432	22.8	437	22.5	**432**	**22.8**
470.lbm	51.8	265	51.8	265	**51.8**	**265**	51.8	265	51.8	265	**51.8**	**265**
481.wrf	289	38.7	**289**	**38.7**	285	39.2	289	38.7	**289**	**38.7**	285	39.2
482.sphinx3	504	38.7	**497**	**39.2**	496	39.3	483	40.4	**485**	**40.2**	485	40.2

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

```
Sysinfo program /home/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Fri Jul  6 07:36:50 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

From /proc/cpuinfo
```

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Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E5-2403 0 @ 1.80GHz
         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:       99046424 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 Jul 5 23:43

   (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 = "8"

  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 BS520A and HITACHI Compute Blade 520A are electronically equivalent.
 The results have been measured on a HITACHI BladeSymphony BS520A.
```

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

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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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-linux64.20120829.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-linux64.20120829.xml
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.xml

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