SPEC® CFP2006 Result
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HITACHI

BladeSymphony BS520X (Intel Xeon E7-8890 v3)

$SPECfp^{®}\_rate2006 =$ Not Run

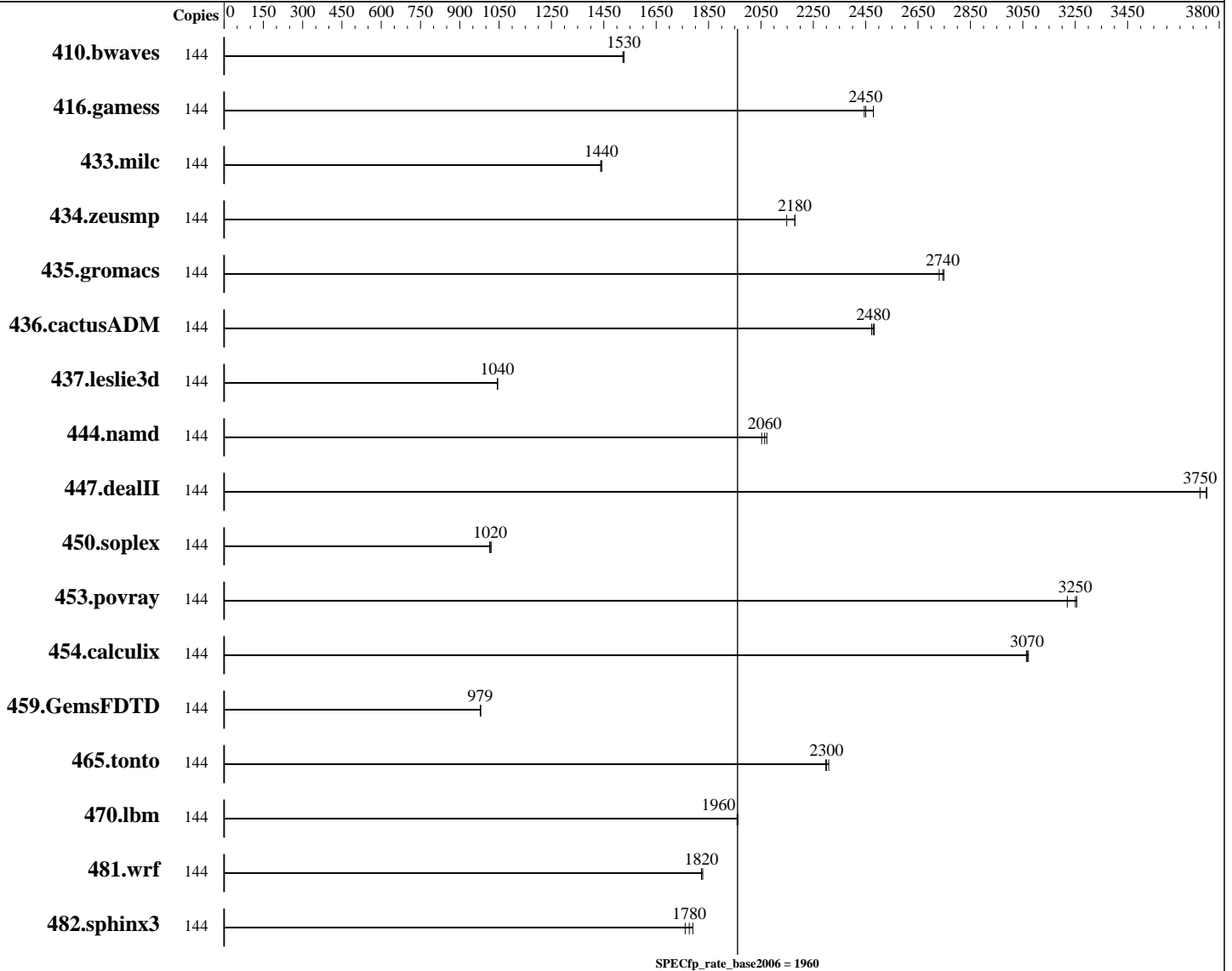$SPECfp\_rate\_base2006 =$ 1960

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

Test date: May-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Benchmark	Copies	Result
410.bwaves	144	1530
416.gamess	144	2450
433.milc	144	1440
434.zeusmp	144	2180
435.gromacs	144	2740
436.cactusADM	144	2480
437.leslie3d	144	1040
444.namd	144	2060
447.dealII	144	3750
450.soplex	144	1020
453.povray	144	3250
454.calculix	144	3070
459.GemsFDTD	144	979
465.tonto	144	2300
470.lbm	144	1960
481.wrf	144	1820
482.sphinx3	144	1780

SPECfp_rate_base2006 = 1960

Hardware
CPU Name: Intel Xeon E7-8890 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 72 cores, 4 chips, 18 cores/chip, 2 threads/core
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 6.6 (Santiago)
2.6.32-504.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: No
File System: ext4
Continued on next page

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L3 Cache:	45 MB I+D on chip per chip	System State:	Run level 5
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)	Peak Pointers:	32/64-bit
		Other Software:	none
Disk Subsystem:	2 x 300 GB SAS, 15000 RPM, RAID1		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	144	1282	1530	**1282**	**1530**	1285	1520							
416.gamess	144	**1151**	**2450**	1137	2480	1153	2440							
433.milc	144	917	1440	**917**	**1440**	919	1440							
434.zeusmp	144	610	2150	601	2180	**601**	**2180**							
435.gromacs	144	374	2750	**375**	**2740**	377	2730							
436.cactusADM	144	696	2470	**694**	**2480**	693	2480							
437.leslie3d	144	1296	1040	**1297**	**1040**	1297	1040							
444.namd	144	**559**	**2060**	563	2050	557	2070							
447.dealII	144	**439**	**3750**	439	3750	442	3730							
450.soplex	144	1178	1020	1185	1010	**1182**	**1020**							
453.povray	144	**236**	**3250**	238	3220	235	3260							
454.calculix	144	**387**	**3070**	387	3070	388	3060							
459.GemsFDTD	144	1559	980	**1561**	**979**	1562	978							
465.tonto	144	**616**	**2300**	617	2300	614	2310							
470.lbm	144	1008	1960	**1010**	**1960**	1010	1960							
481.wrf	144	880	1830	**882**	**1820**	882	1820							
482.sphinx3	144	1568	1790	**1580**	**1780**	1594	1760							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

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Platform Notes

```
BIOS configuration:
 C-State = Disable
 C1 Enhanced Mode = Disable
 Active Energy Manager = Capping Disabled
 Platform Controlled Type = Maximum Performance
 Memory Power Management = Disable
 Patrol Scrub = Disable

 Sysinfo program /home/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on localhost Wed May 13 23:40:46 2015

 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 E7-8890 v3 @ 2.50GHz
       4 "physical id"s (chips)
       144 "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 : 18
       siblings  : 36
       physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
       physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
       physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
       physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
    cache size : 46080 KB

 From /proc/meminfo
    MemTotal:       1058391176 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.6 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.6 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.6 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux localhost 2.6.32-504.el6.x86_64 #1 SMP Tue Sep 16 01:56:35 EDT 2014
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 5 May 13 16:10

 SPEC is set to: /home/cpu2006
    Filesystem          Type   Size  Used Avail Use% Mounted on
```
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Platform Notes (Continued)

```
      /dev/mapper/vg_rhel6-lv_home
                           ext4   221G   66G  144G  32% /home

   Additional information from dmidecode:
     BIOS HITACHI 09-07 04/28/2015
     Memory:
     32x NO DIMM Unknown
     64x Samsung M393A2G40DB0-CPB 16 GB 1600 MHz 2 rank

   (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

  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
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
  BladeSymphony BS520X, BladeSymphony BS2500 and Hitachi Compute Blade 520X are electronically equivalent.
  The results have been measured on a Hitachi Compute Blade 520X.
```

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
```

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Base Portability Flags (Continued)

```
   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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

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-V1.2.20150602.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-V1.2.20150602.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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