



# SPEC® CINT2006 Result

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## HITACHI

**SPECint®\_rate2006 = 4500**

BladeSymphony BS520X (Intel Xeon E7-8890 v2)

**SPECint\_rate\_base2006 = 4360**

CPU2006 license: 35

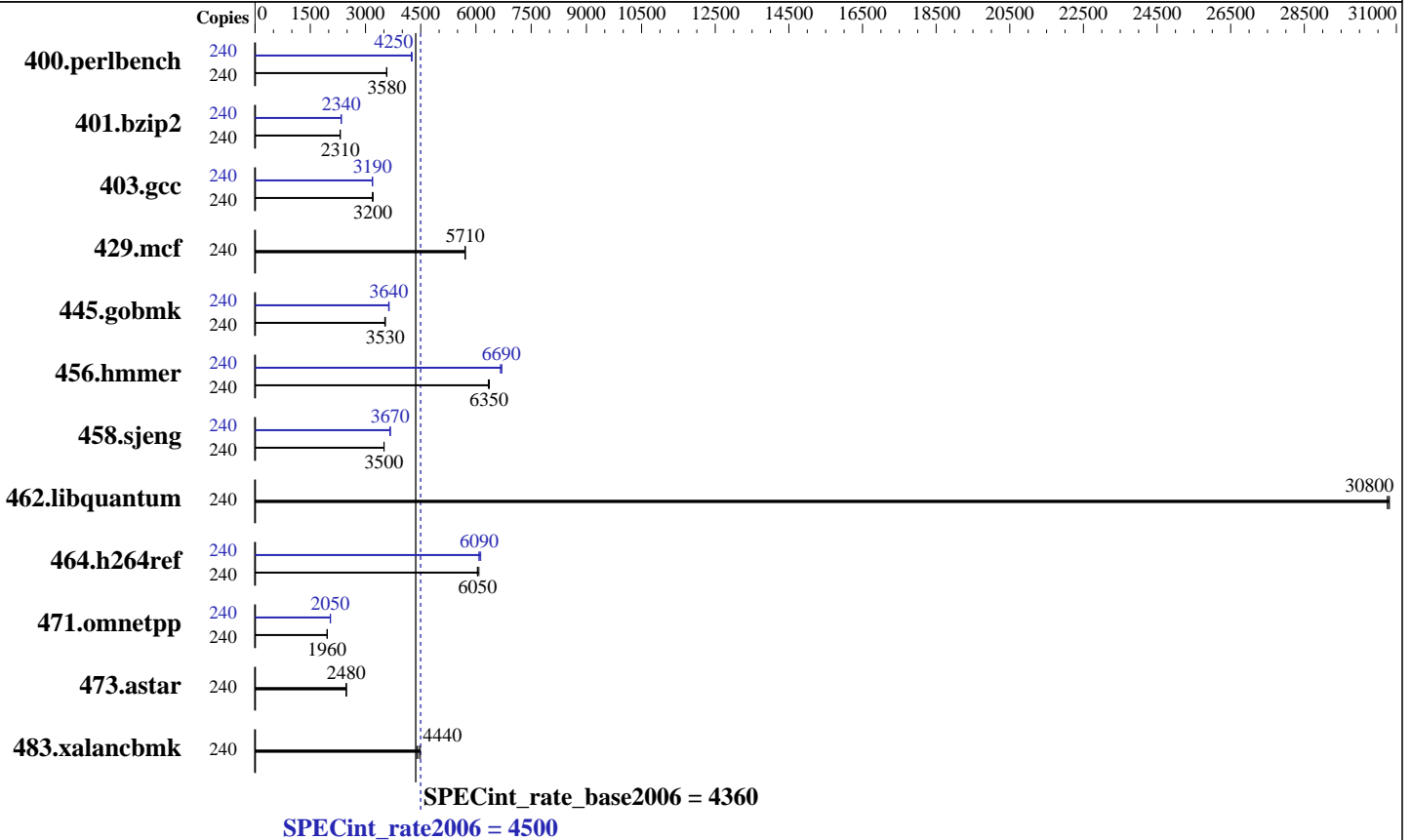
Test date: Jun-2014

Test sponsor: HITACHI

Hardware Availability: Sep-2014

Tested by: HITACHI

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E7-8890 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 120 cores, 8 chips, 15 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4,8 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 37.5 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 2 TB (128 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 2 x 300 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	240	656	3580	655	3580	<b>656</b>	<b>3580</b>	240	<b>552</b>	<b>4250</b>	552	4250	550	4260
401.bzip2	240	1001	2310	<b>1001</b>	<b>2310</b>	1003	2310	240	989	2340	991	2340	<b>989</b>	<b>2340</b>
403.gcc	240	<b>604</b>	<b>3200</b>	606	3190	603	3200	240	607	3180	<b>606</b>	<b>3190</b>	605	3190
429.mcf	240	<b>383</b>	<b>5710</b>	384	5700	383	5710	240	<b>383</b>	<b>5710</b>	384	5700	383	5710
445.gobmk	240	<b>712</b>	<b>3530</b>	714	3520	712	3540	240	694	3630	692	3640	<b>692</b>	<b>3640</b>
456.hammer	240	353	6340	<b>352</b>	<b>6350</b>	352	6360	240	<b>334</b>	<b>6690</b>	334	6700	336	6660
458.sjeng	240	830	3500	<b>829</b>	<b>3500</b>	828	3510	240	790	3680	793	3660	<b>792</b>	<b>3670</b>
462.libquantum	240	162	30800	<b>162</b>	<b>30800</b>	161	30800	240	162	30800	<b>162</b>	<b>30800</b>	161	30800
464.h264ref	240	879	6040	<b>878</b>	<b>6050</b>	873	6080	240	866	6130	<b>872</b>	<b>6090</b>	873	6080
471.omnetpp	240	<b>765</b>	<b>1960</b>	765	1960	765	1960	240	<b>732</b>	<b>2050</b>	732	2050	734	2040
473.astar	240	<b>681</b>	<b>2480</b>	679	2480	681	2480	240	<b>681</b>	<b>2480</b>	679	2480	681	2480
483.xalancbmk	240	<b>373</b>	<b>4440</b>	377	4400	369	4490	240	<b>373</b>	<b>4440</b>	377	4400	369	4490

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"

## Platform Notes

Sysinfo program /home/cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on RHEL6.5x8664 Sun Jun 1 08:06:49 2014

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 v2 @ 2.80GHz
8 "physical id"s (chips)
240 "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 : 15
siblings  : 30
```

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### Platform Notes (Continued)

```

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
cache size : 38400 KB

```

From /proc/meminfo

```

MemTotal:      2117225796 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 RHEL6.5x8664 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 May 30 18:57

SPEC is set to: /home/cpu2006

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/vg_rhel6-lv_home ext4  359G  8.9G  332G   3% /home

```

Additional information from dmidecode:

BIOS HITACHI 06-06 05/29/2014

Memory:

```

64x NO DIMM Unknown
1x Samsung 393B2G7 BH0 YH9 16 GB 1333 MHz 2 rank
1x Samsung 393B2G7 BH0 YK0 16 GB 1333 MHz 2 rank
5x Samsung M393B2G7 BH0 YK0 16 GB 1333 MHz 2 rank
32x Samsung M393B2G70BH0-YK0 16 GB 1333 MHz 2 rank
89x Samsung M393B2G70QH0-YK0 16 GB 1333 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

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## General Notes (Continued)

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 and Hitachi Compute Blade 520X are electronically equivalent.  
The results have been measured on a Compute Blade 520X

## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
C++ benchmarks:  
icpc -m32

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca



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**Software Availability:** Sep-2013

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LINUX

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32

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## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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.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.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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