



# SPEC® CINT2006 Result

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## HITACHI

SPECint®\_rate2006 = 939

BladeSymphony BS520H (Intel Xeon E5-2697 v2)

SPECint\_rate\_base2006 = 911

CPU2006 license: 35

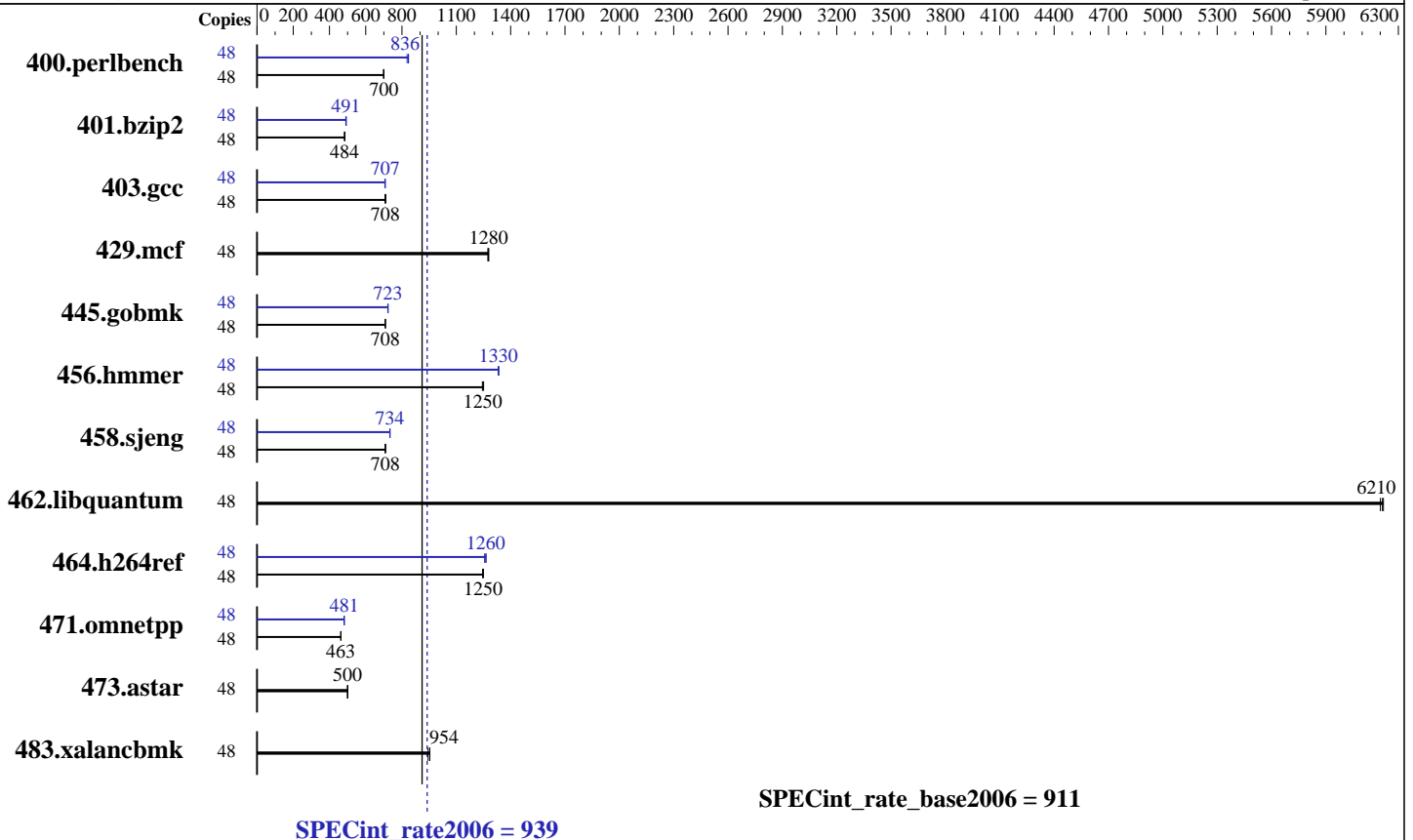
Test date: Feb-2014

Test sponsor: HITACHI

Hardware Availability: Feb-2014

Tested by: HITACHI

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2697 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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  
 L3 Cache: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)

Disk Subsystem: 1 x 146 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 2.6.32-358.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  | 48     | 670        | 700         | 672        | 698         | <b>670</b> | <b>700</b> | 48     | 561        | 836         | <b>561</b> | <b>836</b>  | 566     | 828   |
| 401.bzip2      | 48     | 961        | 482         | 954        | 486         | <b>957</b> | <b>484</b> | 48     | <b>944</b> | <b>491</b>  | 939        | 493         | 945     | 490   |
| 403.gcc        | 48     | 544        | 711         | <b>546</b> | <b>708</b>  | 547        | 706        | 48     | 547        | 706         | <b>546</b> | <b>707</b>  | 546     | 708   |
| 429.mcf        | 48     | 342        | 1280        | <b>342</b> | <b>1280</b> | 344        | 1270       | 48     | 342        | 1280        | <b>342</b> | <b>1280</b> | 344     | 1270  |
| 445.gobmk      | 48     | 711        | 709         | <b>711</b> | <b>708</b>  | 711        | 708        | 48     | <b>696</b> | <b>723</b>  | 696        | 724         | 697     | 722   |
| 456.hammer     | 48     | 358        | 1250        | <b>359</b> | <b>1250</b> | 360        | 1240       | 48     | <b>336</b> | <b>1330</b> | 336        | 1330        | 335     | 1340  |
| 458.sjeng      | 48     | 821        | 707         | 818        | 710         | <b>821</b> | <b>708</b> | 48     | <b>791</b> | <b>734</b>  | 792        | 733         | 791     | 734   |
| 462.libquantum | 48     | <b>160</b> | <b>6210</b> | 160        | 6220        | 160        | 6200       | 48     | <b>160</b> | <b>6210</b> | 160        | 6220        | 160     | 6200  |
| 464.h264ref    | 48     | 850        | 1250        | <b>851</b> | <b>1250</b> | 853        | 1250       | 48     | 840        | 1260        | <b>841</b> | <b>1260</b> | 846     | 1260  |
| 471.omnetpp    | 48     | <b>648</b> | <b>463</b>  | 647        | 463         | 649        | 462        | 48     | 623        | 482         | <b>624</b> | <b>481</b>  | 624     | 481   |
| 473.astar      | 48     | 672        | 501         | <b>675</b> | <b>500</b>  | 675        | 499        | 48     | 672        | 501         | <b>675</b> | <b>500</b>  | 675     | 499   |
| 483.xalancbmk  | 48     | 347        | 954         | <b>347</b> | <b>954</b>  | 351        | 944        | 48     | 347        | 954         | <b>347</b> | <b>954</b>  | 351     | 944   |

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 localhost.localdomain Wed Feb 26 16:17:40 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 E5-2697 v2 @ 2.70GHz
 2 "physical id"s (chips)
 48 "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 : 12
siblings  : 24
```

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### Platform Notes (Continued)

```
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      132333240 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost.localdomain 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41
EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Feb 26 16:10
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root
ext4            133G     16G  111G  13% /
```

```
Additional information from dmidecode:
BIOS HITACHI EP1043 02/04/2014
Memory:
16x Not Specified Not Specified
8x Samsung M393B2G70QH0-CMA 16 GB 1867 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 BS520H and Hitachi Compute Blade 520H are electronically equivalent.  
The results have been measured on a BladeSymphony BS520H



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## 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`

## 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`



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## 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

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

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## Peak Optimization Flags (Continued)

483.xalanbmk: 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-linux64.20140128.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-linux64.20140128.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).

Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jul 24 20:47:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 25 March 2014.