



# SPEC<sup>®</sup> CINT2006 Result

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## HITACHI

SPECint<sup>®</sup>\_rate2006 = 661

BladeSymphony BS520H (Intel Xeon E5-2680)

SPECint\_rate\_base2006 = 632

CPU2006 license: 35

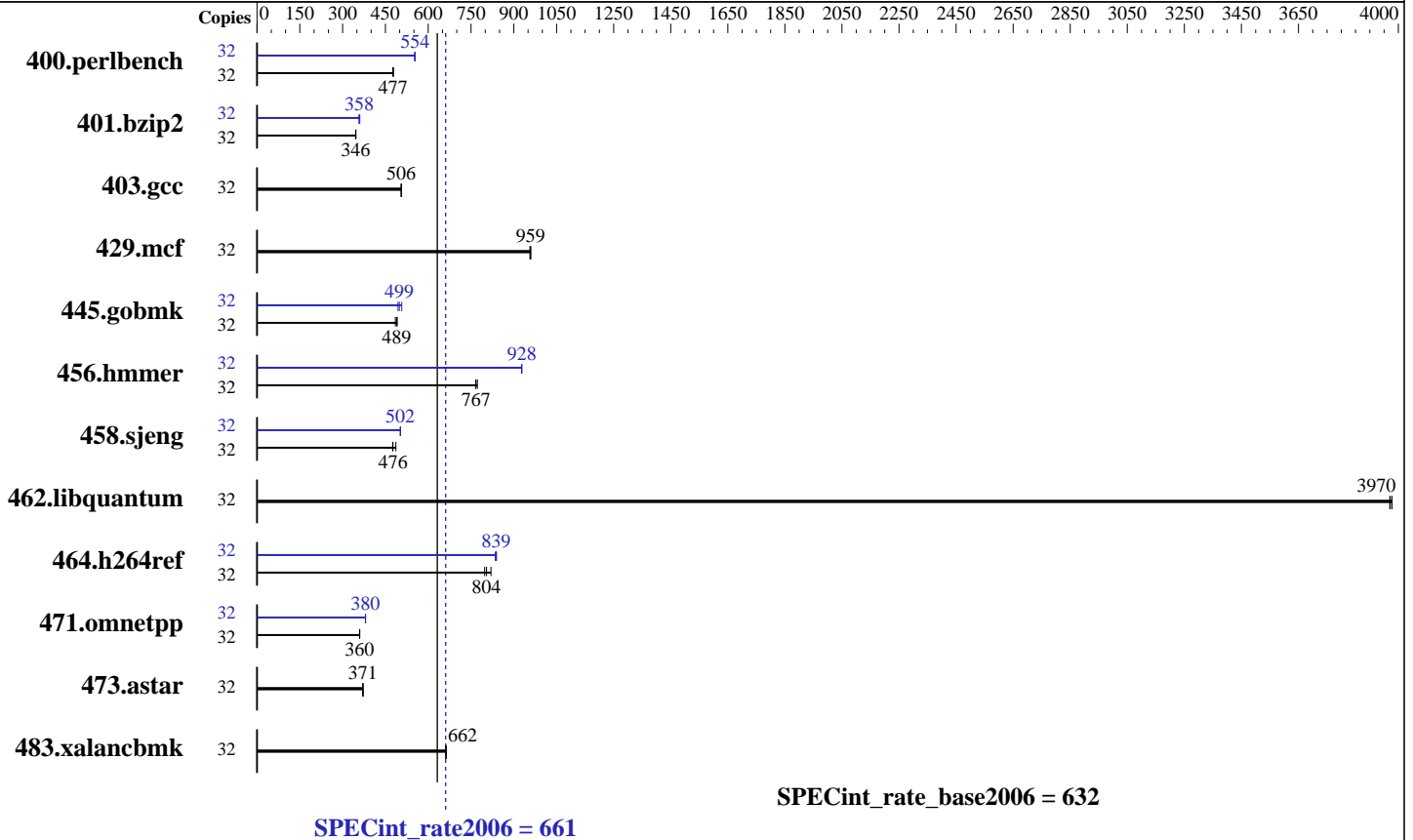
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Mar-2012

Hardware Availability: Apr-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 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  
 L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 146 GB SAS, 15000 RPM  
 Other Hardware: None

### 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  
 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 V9.01



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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  | 32     | 654        | 478        | 656        | 476         | <b>655</b> | <b>477</b> | 32     | 566        | 552        | 564        | 554         | <b>564</b> | <b>554</b> |
| 401.bzip2      | 32     | 893        | 346        | <b>892</b> | <b>346</b>  | 891        | 347        | 32     | <b>862</b> | <b>358</b> | 863        | 358         | 857        | 360        |
| 403.gcc        | 32     | 508        | 507        | 510        | 505         | <b>509</b> | <b>506</b> | 32     | 508        | 507        | 510        | 505         | <b>509</b> | <b>506</b> |
| 429.mcf        | 32     | 304        | 959        | <b>304</b> | <b>959</b>  | 305        | 956        | 32     | 304        | 959        | <b>304</b> | <b>959</b>  | 305        | 956        |
| 445.gobmk      | 32     | 692        | 485        | 683        | 491         | <b>686</b> | <b>489</b> | 32     | 662        | 507        | 679        | 494         | <b>673</b> | <b>499</b> |
| 456.hammer     | 32     | 387        | 772        | <b>389</b> | <b>767</b>  | 389        | 767        | 32     | <b>322</b> | <b>928</b> | 322        | 928         | 322        | 927        |
| 458.sjeng      | 32     | 796        | 487        | 814        | 475         | <b>813</b> | <b>476</b> | 32     | <b>771</b> | <b>502</b> | 770        | 503         | 771        | 502        |
| 462.libquantum | 32     | 167        | 3970       | <b>167</b> | <b>3970</b> | 167        | 3980       | 32     | 167        | 3970       | <b>167</b> | <b>3970</b> | 167        | 3980       |
| 464.h264ref    | 32     | <b>880</b> | <b>804</b> | 864        | 820         | 887        | 798        | 32     | 848        | 835        | <b>844</b> | <b>839</b>  | 844        | 839        |
| 471.omnetpp    | 32     | 555        | 360        | <b>556</b> | <b>360</b>  | 557        | 359        | 32     | 526        | 380        | <b>526</b> | <b>380</b>  | 526        | 380        |
| 473.astar      | 32     | <b>605</b> | <b>371</b> | 605        | 372         | 605        | 371        | 32     | <b>605</b> | <b>371</b> | 605        | 372         | 605        | 371        |
| 483.xalancbmk  | 32     | 333        | 663        | 334        | 661         | <b>333</b> | <b>662</b> | 32     | 333        | 663        | 334        | 661         | <b>333</b> | <b>662</b> |

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.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on localhost.localdomain Mon Mar 19 20:51:50 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  
model name : Intel(R) Xeon(R) CPU E5-2680 0 @ 2.70GHz  
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

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### Platform Notes (Continued)

```
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:      132137100 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 Mar 19 20:50
```

(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"

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
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>
```

HITACHI BladeSymphony BS520H and HITACHI Compute Blade 520H are electronically equivalent. The results have been measured on a HITACHI BladeSymphony BS520H.

### Base Compiler Invocation

C benchmarks:  
icc -m32

C++ benchmarks:  
icpc -m32



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## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:  
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/smartheap -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.hmmmer: 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.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

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

401.bzp2: -xAVX(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: basepeak = yes

429.mcf: basepeak = yes

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

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

458.sjeng: -xAVX(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: -xAVX(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: -xAVX(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/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes



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## 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-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>

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

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