



# SPEC® CINT2006 Result

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## HITACHI

SPECint®\_rate2006 = 195

Compute Blade 520H (Intel Xeon E5-2637)

SPECint\_rate\_base2006 = 187

CPU2006 license: 35

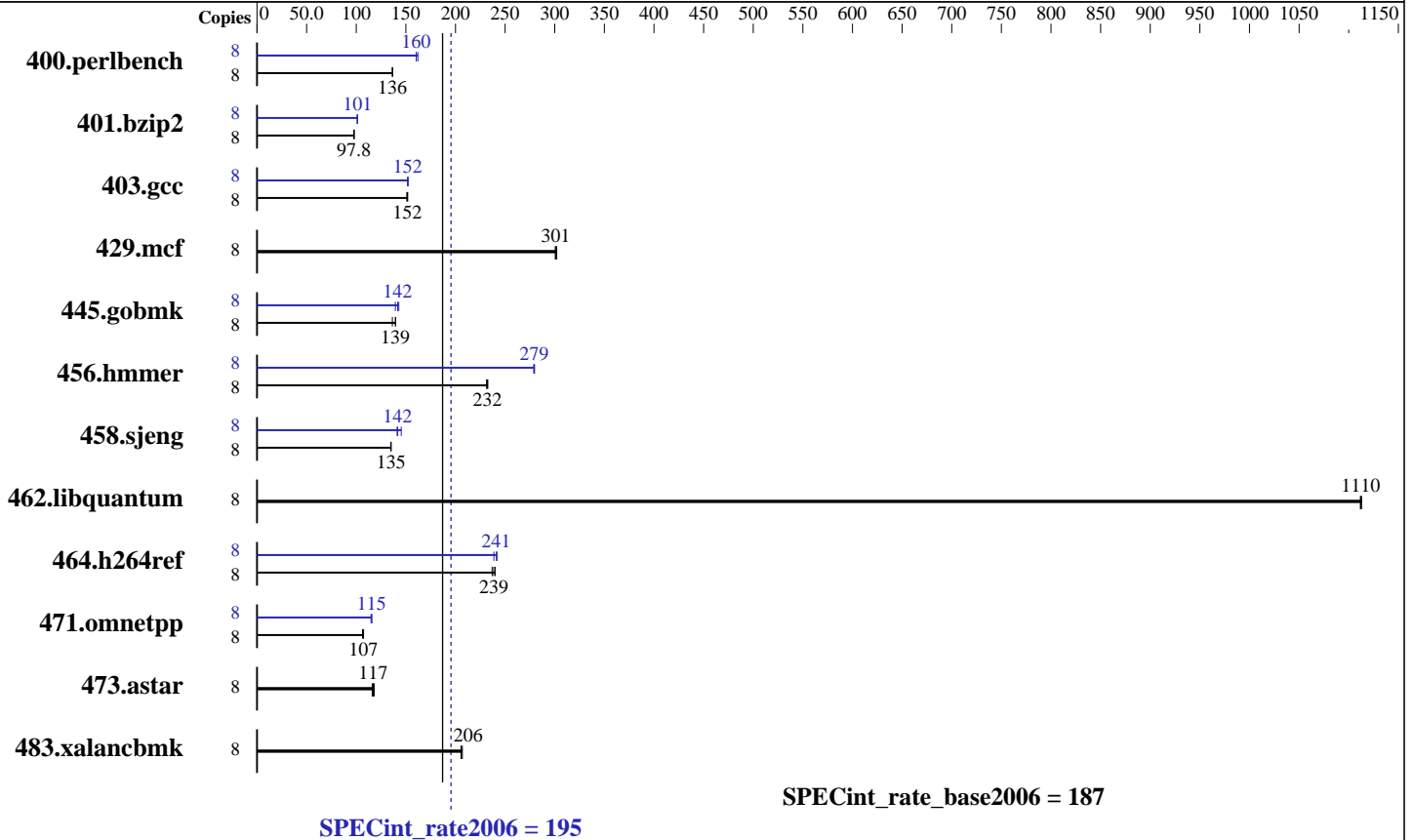
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2637  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 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: 5 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  | 8      | 573        | 136         | <u>573</u> | <u>136</u> | 573        | 137         | 8      | 482        | 162         | <u>487</u> | <u>160</u> | 487        | 160        |
| 401.bzip2      | 8      | 789        | 97.9        | 791        | 97.6       | <u>790</u> | <u>97.8</u> | 8      | 766        | 101         | <u>762</u> | <u>101</u> | 762        | 101        |
| 403.gcc        | 8      | 427        | 151         | 424        | 152        | <u>425</u> | <u>152</u>  | 8      | 423        | 152         | <u>424</u> | <u>152</u> | 425        | 152        |
| 429.mcf        | 8      | <u>243</u> | <u>301</u>  | 243        | 301        | 242        | 302         | 8      | <u>243</u> | <u>301</u>  | 243        | 301        | 242        | 302        |
| 445.gobmk      | 8      | 615        | 136         | <u>602</u> | <u>139</u> | 601        | 140         | 8      | 587        | 143         | 602        | 139        | <u>592</u> | <u>142</u> |
| 456.hammer     | 8      | 321        | 233         | 323        | 231        | <u>321</u> | <u>232</u>  | 8      | 268        | 279         | <u>267</u> | <u>279</u> | 267        | 280        |
| 458.sjeng      | 8      | 718        | 135         | <u>717</u> | <u>135</u> | 717        | 135         | 8      | 666        | 145         | 686        | 141        | <u>683</u> | <u>142</u> |
| 462.libquantum | 8      | <u>149</u> | <u>1110</u> | 149        | 1110       | 149        | 1110        | 8      | <u>149</u> | <u>1110</u> | 149        | 1110       | 149        | 1110       |
| 464.h264ref    | 8      | <u>742</u> | <u>239</u>  | 747        | 237        | 738        | 240         | 8      | <u>734</u> | <u>241</u>  | 742        | 239        | 732        | 242        |
| 471.omnetpp    | 8      | 470        | 106         | 466        | 107        | <u>466</u> | <u>107</u>  | 8      | <u>433</u> | <u>115</u>  | 435        | 115        | 432        | 116        |
| 473.astar      | 8      | 484        | 116         | 476        | 118        | <u>480</u> | <u>117</u>  | 8      | 484        | 116         | 476        | 118        | <u>480</u> | <u>117</u> |
| 483.xalancbmk  | 8      | 269        | 206         | <u>268</u> | <u>206</u> | 267        | 207         | 8      | 269        | 206         | <u>268</u> | <u>206</u> | 267        | 207        |

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 Sat Oct 20 06:59:00 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 E5-2637 0 @ 3.00GHz
 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 : 2
siblings  : 4
```

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### Platform Notes (Continued)

```
physical 0: cores 0 1
physical 1: cores 0 1
cache size : 5120 KB
```

```
From /proc/meminfo
MemTotal:      132136072 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 Oct 20 06:53
```

(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:  
-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/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.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

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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: -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/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-linux64.20120829.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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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