# SPEC® CINT2006 Result



## HITACHI

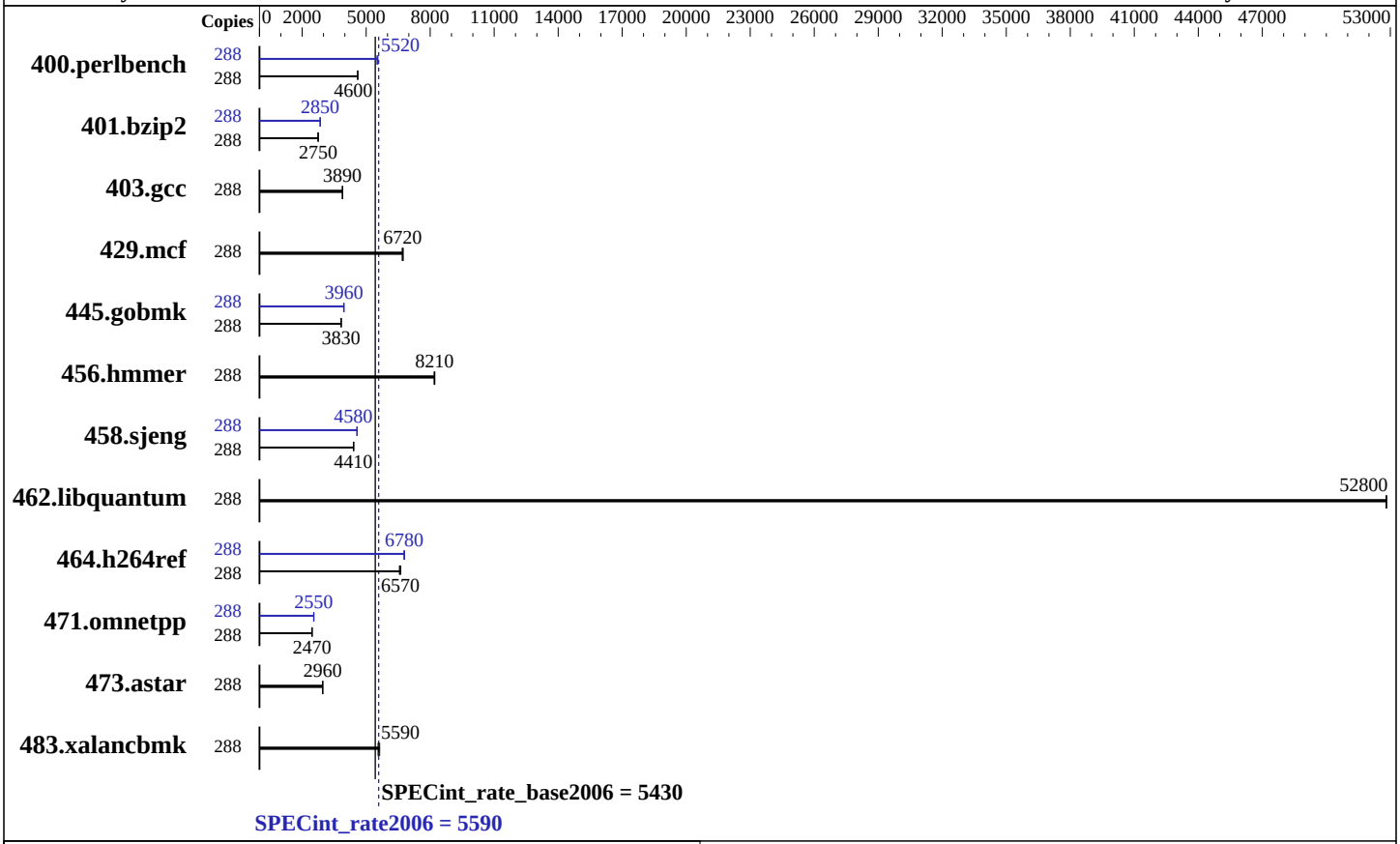
BladeSymphony BS2500 (Intel Xeon E7-8890 v3)

SPECint®_rate2006 = 5590

SPECint_rate_base2006 = 5430

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

**Test date:** Jul-2015
**Hardware Availability:** Jun-2015
**Software Availability:** Oct-2014




## 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: | 144 cores, 8 chips, 18 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2,3,4,8 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 45 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 2 TB (128 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz) |
| Disk Subsystem: | 2 x 600 GB SAS, 10000 RPM, RAID1 |
| Other Hardware: | None |

## 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 |
| 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 | 288 | **611** | **4600** | 611 | 4610 | 611 | 4600 | 288 | 511 | 5510 | **510** | **5520** | 507 | 5550 |
| 401.bzip2 | 288 | 1014 | 2740 | **1009** | **2750** | 1008 | 2760 | 288 | **976** | **2850** | 976 | 2850 | 978 | 2840 |
| 403.gcc | 288 | **596** | **3890** | 595 | 3900 | 598 | 3880 | 288 | **596** | **3890** | 595 | 3900 | 598 | 3880 |
| 429.mcf | 288 | 393 | 6690 | **391** | **6720** | 390 | 6740 | 288 | 393 | 6690 | **391** | **6720** | 390 | 6740 |
| 445.gobmk | 288 | 790 | 3820 | 788 | 3830 | **789** | **3830** | 288 | 766 | 3940 | **763** | **3960** | 762 | 3960 |
| 456.hmmer | 288 | **327** | **8210** | 328 | 8180 | 327 | 8220 | 288 | **327** | **8210** | 328 | 8180 | 327 | 8220 |
| 458.sjeng | 288 | **790** | **4410** | 788 | 4420 | 791 | 4410 | 288 | 761 | 4580 | 764 | 4560 | **761** | **4580** |
| 462.libquantum | 288 | **113** | **52800** | 113 | 52800 | 113 | 52800 | 288 | **113** | **52800** | 113 | 52800 | 113 | 52800 |
| 464.h264ref | 288 | 971 | 6560 | **970** | **6570** | 962 | 6620 | 288 | **940** | **6780** | 941 | 6770 | 937 | 6800 |
| 471.omnetpp | 288 | 729 | 2470 | **730** | **2470** | 732 | 2460 | 288 | **707** | **2550** | 705 | 2550 | 710 | 2540 |
| 473.astar | 288 | 682 | 2970 | 683 | 2960 | **682** | **2960** | 288 | 682 | 2970 | 683 | 2960 | **682** | **2960** |
| 483.xalancbmk | 288 | 353 | 5630 | **355** | **5590** | 358 | 5560 | 288 | 353 | 5630 | **355** | **5590** | 358 | 5560 |

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

```
BIOS configuration:
 C-State = Disable
 C1 Enhanced Mode = Disable
 EnergyEfficientTurbo = Disable
 ProcessorPerformanceStates = Disable
 UncoreFrequencyScaling = Disable
 Platform Controlled Type = Maximum Performance
 Memory Power Management = Disable
 Patrol Scrub = Disable

 Sysinfo program /home/speccpu2006/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on RHEL6.6 Fri Jul 24 18:32:20 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
```

Continued on next page

## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-8890 v3 @ 2.50GHz
      8 "physical id"s (chips)
      288 "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
      physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 7: 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:       2117096216 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 RHEL6.6 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 3 Jul 24 18:03

SPEC is set to: /home/speccpu2006/cpu2006
   Filesystem           Type  Size  Used Avail Use% Mounted on
   /dev/mapper/vg_rhel6-lv_home
                        ext4  496G  7.5G  464G   2% /home

Additional information from dmidecode:
  BIOS HITACHI 09-14 07/09/2015
  Memory:
   64x NO DIMM Unknown
   1x Samsung M39.A2G40DB0-CPB 16 GB 1600 MHz 2 rank
   127x 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/speccpu2006/cpu2006/libs/32:/home/speccpu2006/cpu2006/libs/64:/home/speccpu2006/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  -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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -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

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
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto-ilp32

Continued on next page

## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(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-V1.2.20150729.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-V1.2.20150729.xml



For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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