



SPEC[®] CINT2006 Result

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HITACHI

SPECint[®]_rate2006 = 1210

Compute Blade 520H (Intel Xeon E5-2697 v3)

SPECint_rate_base2006 = 1170

CPU2006 license: 35

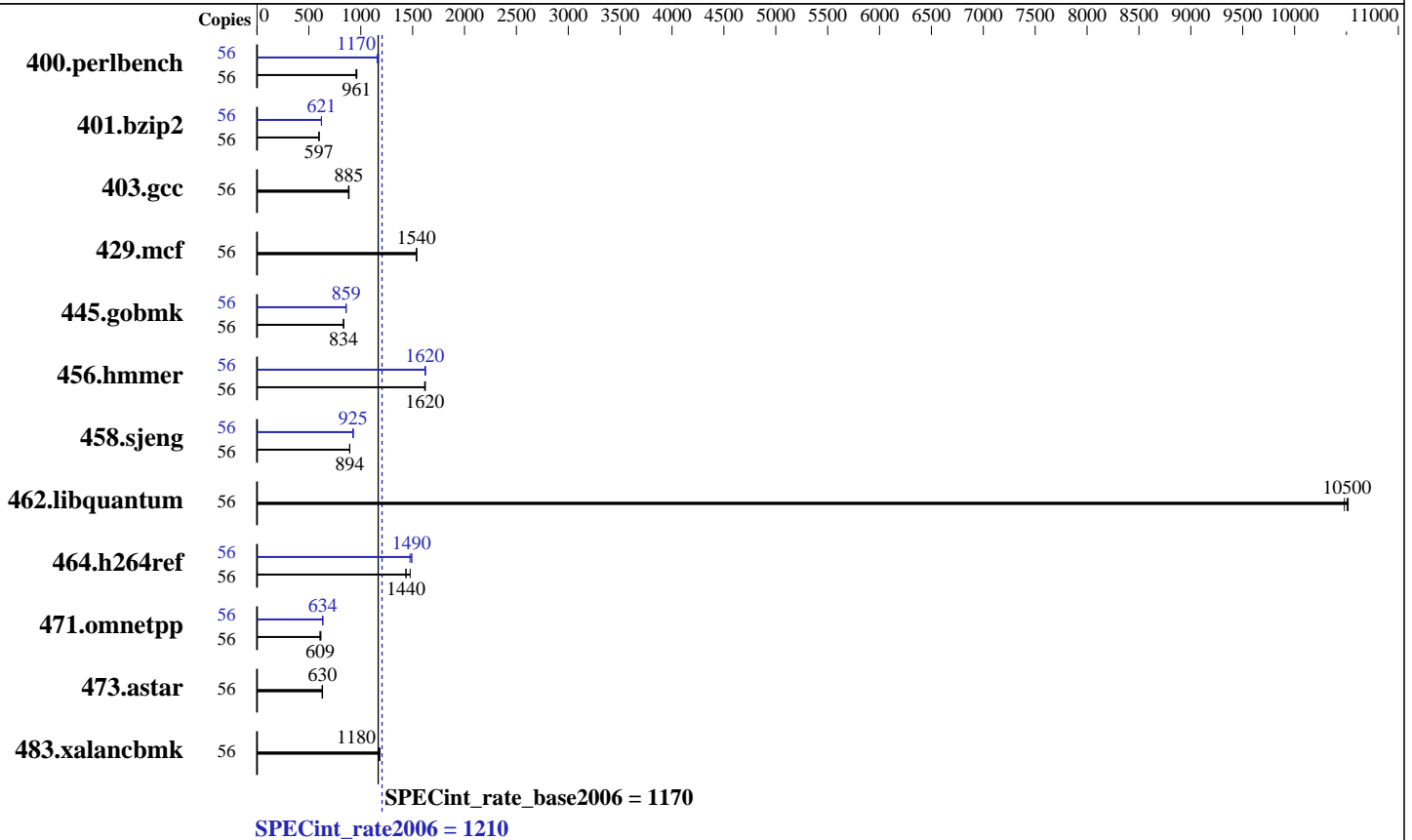
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2697 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 2 x 600 GB SAS, 10000 RPM, RAID1
 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	56	569	962	574	954	<u>569</u>	<u>961</u>	56	473	1160	467	1170	<u>468</u>	<u>1170</u>
401.bzip2	56	<u>905</u>	<u>597</u>	905	597	903	598	56	<u>870</u>	<u>621</u>	871	621	869	622
403.gcc	56	508	887	<u>509</u>	<u>885</u>	512	881	56	508	887	<u>509</u>	<u>885</u>	512	881
429.mcf	56	<u>332</u>	<u>1540</u>	333	1540	332	1540	56	<u>332</u>	<u>1540</u>	333	1540	332	1540
445.gobmk	56	<u>704</u>	<u>834</u>	704	834	705	834	56	685	857	<u>684</u>	<u>859</u>	684	859
456.hammer	56	322	1620	323	1620	<u>323</u>	<u>1620</u>	56	321	1630	323	1620	<u>323</u>	<u>1620</u>
458.sjeng	56	<u>758</u>	<u>894</u>	759	892	757	895	56	733	924	<u>732</u>	<u>925</u>	729	929
462.libquantum	56	<u>110</u>	<u>10500</u>	110	10500	111	10500	56	<u>110</u>	<u>10500</u>	110	10500	111	10500
464.h264ref	56	864	1440	<u>863</u>	<u>1440</u>	840	1480	56	831	1490	<u>832</u>	<u>1490</u>	841	1470
471.omnetpp	56	568	616	<u>575</u>	<u>609</u>	575	608	56	553	633	552	634	<u>552</u>	<u>634</u>
473.astar	56	<u>624</u>	<u>630</u>	622	632	626	628	56	<u>624</u>	<u>630</u>	622	632	626	628
483.xalancbmk	56	328	1180	327	1180	<u>327</u>	<u>1180</u>	56	328	1180	327	1180	<u>327</u>	<u>1180</u>

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:
Patrol Scrub = Disable
Per Core P-state = Disable
COD Preferenc = Enable

Sysinfo program /home/speccpu2006/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on 520Hx36564 Sun Jan 18 10:17:09 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>

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2697 v3 @ 2.60GHz
2 "physical id"s (chips)
56 "processors"

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Platform Notes (Continued)

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 : 14
siblings  : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 17920 KB
```

From /proc/meminfo

```
MemTotal:      263987312 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 520Hx36564 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 Jan 16 19:12

SPEC is set to: /home/speccpu2006/cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_520hx36564-lv_home ext4    485G   56G  405G  13% /home
```

Additional information from dmidecode:

```
BIOS HITACHI 08-20 01/06/2015
Memory:
 8x NO DIMM Unknown
16x Samsung M393A2G40DB0-CPB 16 GB 2133 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
```

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General Notes (Continued)

runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
BladeSymphony BS520H, Hitachi Compute Blade 520H and BladeSymphony BS2500 HC0A1 are electronically equivalent.
The results have been measured on a Hitachi Compute Blade 520H.

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

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Peak Compiler Invocation (Continued)

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: `-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: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

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`

462.libquantum: `basepeak = yes`

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Peak Optimization Flags (Continued)

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-V1.2.20150127.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-V1.2.20150127.xml>

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