SPEC® CINT2006 Result

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SGI

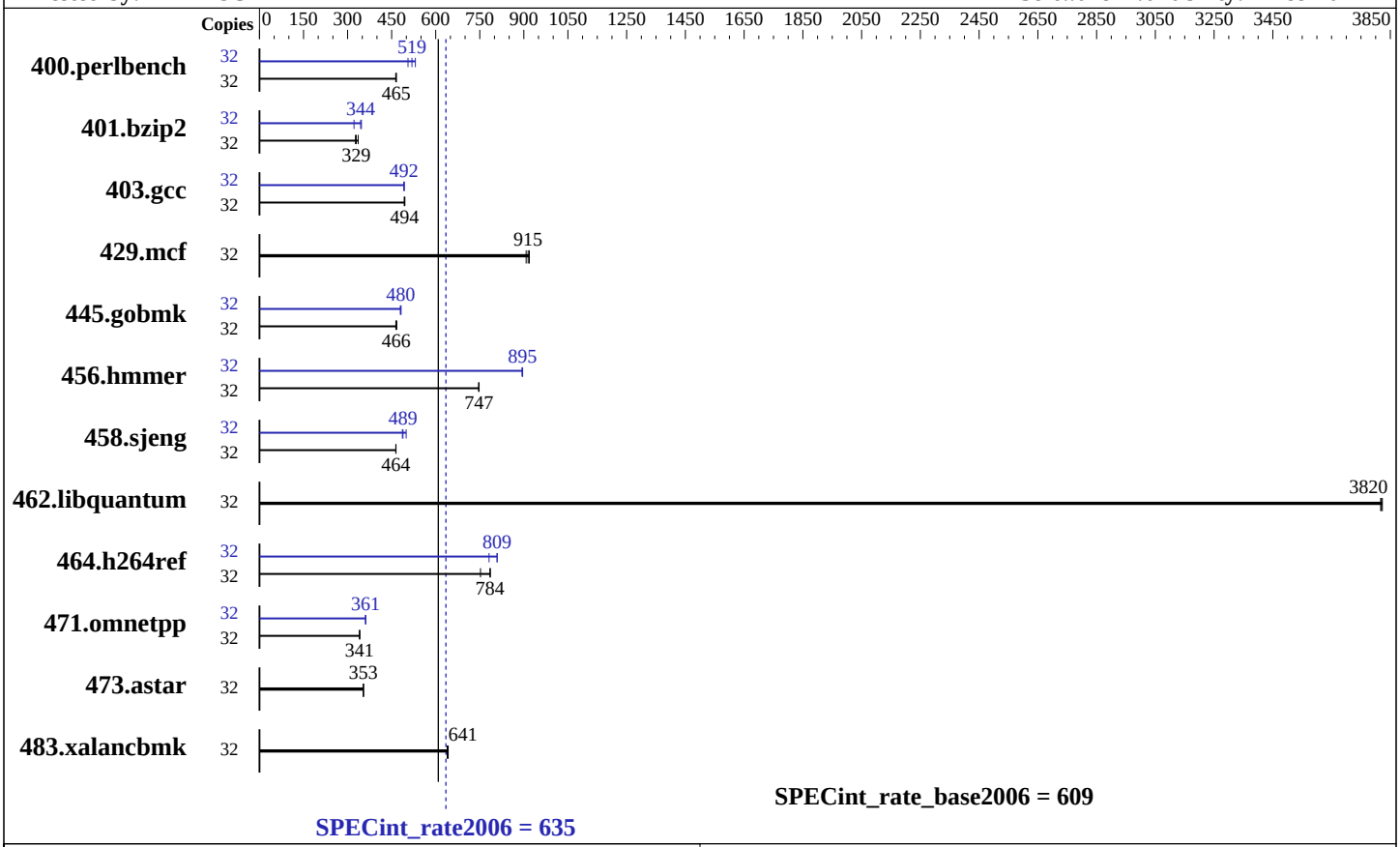
SGI Rackable C2110G-RP5 (Intel Xeon E5-2670, 2.60 GHz)

SPECint®_rate2006 = 635

SPECint_rate_base2006 = 609

CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Aug-2012
Hardware Availability: Mar-2012
Software Availability: Feb-2012



Hardware

CPU Name:	Intel Xeon E5-2670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 TB RAID 0 2 x 500 GB SATA (Seagate Constellation 7200 RPM)
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP2, Kernel 3.0.26-0.7-default
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
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	**672**	**465**	671	466	674	464	32	**602**	**519**	618	506	589	531
401.bzip2	32	919	336	**938**	**329**	945	327	32	959	322	890	347	**897**	**344**
403.gcc	32	521	495	**521**	**494**	523	493	32	524	492	523	493	**523**	**492**
429.mcf	32	318	919	321	908	**319**	**915**	32	318	919	321	908	**319**	**915**
445.gobmk	32	723	464	**721**	**466**	718	467	32	700	480	**699**	**480**	696	482
456.hmmer	32	400	746	399	748	**400**	**747**	32	333	896	**334**	**895**	334	894
458.sjeng	32	**834**	**464**	834	464	833	465	32	**793**	**489**	775	499	796	487
462.libquantum	32	174	3820	173	3820	**174**	**3820**	32	174	3820	173	3820	**174**	**3820**
464.h264ref	32	901	786	941	753	**903**	**784**	32	906	782	875	809	**876**	**809**
471.omnetpp	32	587	340	**586**	**341**	586	341	32	554	361	553	362	**553**	**361**
473.astar	32	**636**	**353**	636	353	634	354	32	**636**	**353**	636	353	634	354
483.xalancbmk	32	344	643	**344**	**641**	346	639	32	344	643	**344**	**641**	346	639

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"
echo never > /sys/kernel/mm/transparent_hugepage/defrag
sysctl vm.numa_zonelist_order=N
```

Platform Notes

```
Sysinfo program /store/cma/cpu2006-v1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on cy019 Tue Aug  7 09:59:36 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 E5-2670 0 @ 2.60GHz
      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.)
```

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Platform Notes (Continued)

```
        cpu cores : 8
        siblings  : 16
        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:       65560052 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     SUSE Linux Enterprise Server 11 (x86_64)

  From /etc/*release* /etc/*version*
     SuSE-release:
        SUSE Linux Enterprise Server 11 (x86_64)
        VERSION = 11
        PATCHLEVEL = 2
     sgi-accelerate-release: SGI Accelerate 1.4, Build 706r14.sles11sp2-1204092008
     sgi-foundation-release: SGI Foundation Software 2.6, Build
     706r14.sles11sp2-1204092008
     sgi-mpi-release: SGI MPI 1.4, Build 706r14.sles11sp2-1204092008
     sgi-release: SGI Performance Suite 1.4, Build 706r14.sles11sp2-1204092008
     sgi-upc-release: SGI UPC 1.4, Build 706r14.sles11sp2-1204092008

  uname -a:
     Linux cy019 3.0.26-0.7-default #1 SMP Tue Apr 17 10:27:57 UTC 2012 (3829766)
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Aug 7 09:07 last=5

  SPEC is set to: /store/cma/cpu2006-v1.2
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda2      xfs   256G   41G  216G  16% /

  Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/store/cma/cpu2006-v1.2/libs/32:/store/cma/cpu2006-v1.2/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/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>
```

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:
```
-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`

Continued on next page

Peak Compiler Invocation (Continued)

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: -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.bzip2: -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: -xAVX -ipo -O3 -no-prec-div

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

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Peak Optimization Flags (Continued)

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

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/SGI-platform-SNB-2S.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/SGI-platform-SNB-2S.xml

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