



# 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

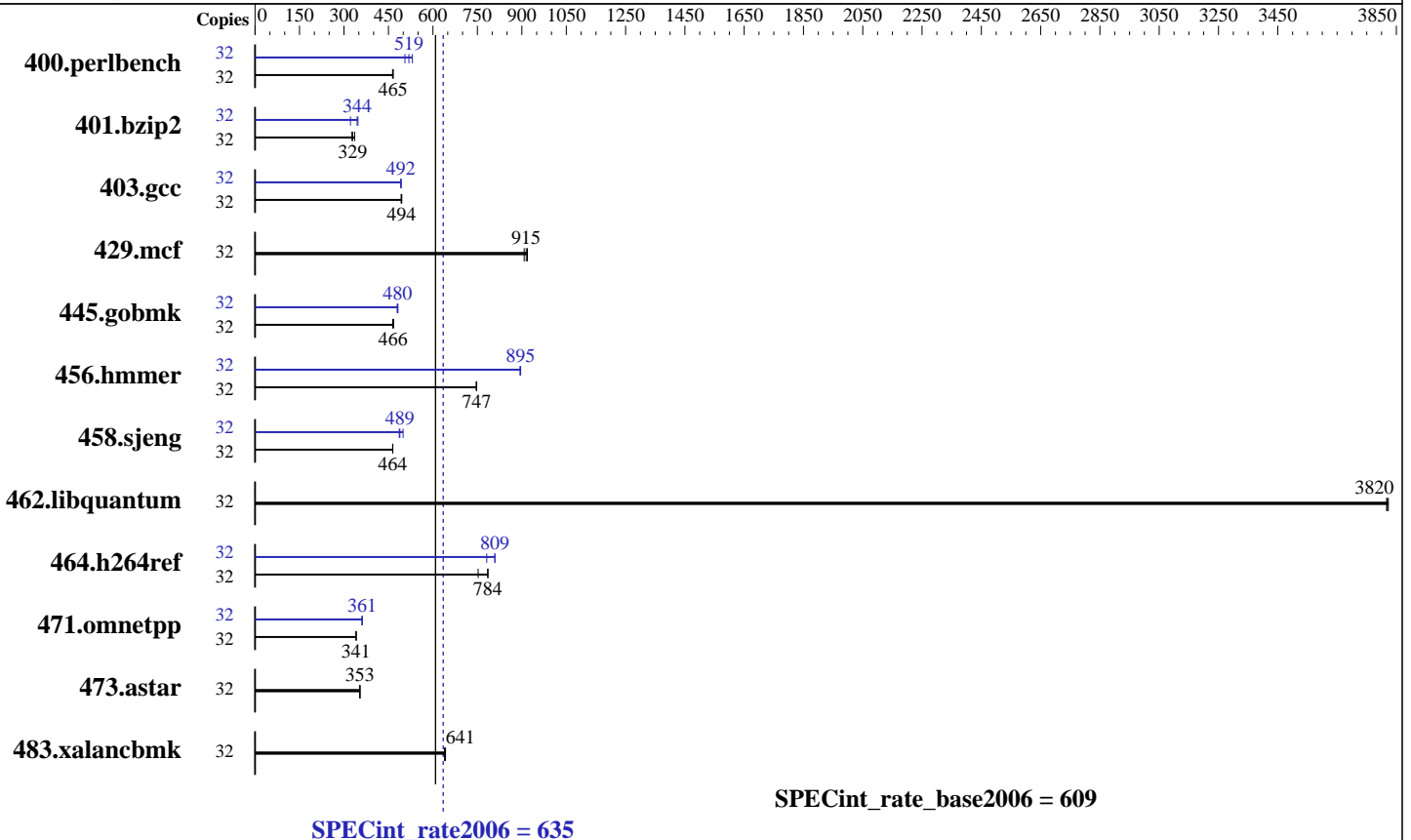
Test sponsor: SGI

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	<b>672</b>	<b>465</b>	671	466	674	464	32	<b>602</b>	<b>519</b>	618	506	589	531
401.bzip2	32	919	336	<b>938</b>	<b>329</b>	945	327	32	959	322	890	347	<b>897</b>	<b>344</b>
403.gcc	32	521	495	<b>521</b>	<b>494</b>	523	493	32	524	492	523	493	<b>523</b>	<b>492</b>
429.mcf	32	318	919	321	908	<b>319</b>	<b>915</b>	32	318	919	321	908	<b>319</b>	<b>915</b>
445.gobmk	32	723	464	<b>721</b>	<b>466</b>	718	467	32	700	480	<b>699</b>	<b>480</b>	696	482
456.hammer	32	400	746	399	748	<b>400</b>	<b>747</b>	32	333	896	<b>334</b>	<b>895</b>	334	894
458.sjeng	32	<b>834</b>	<b>464</b>	834	464	833	465	32	<b>793</b>	<b>489</b>	775	499	796	487
462.libquantum	32	174	3820	173	3820	<b>174</b>	<b>3820</b>	32	174	3820	173	3820	<b>174</b>	<b>3820</b>
464.h264ref	32	901	786	941	753	<b>903</b>	<b>784</b>	32	906	782	875	809	<b>876</b>	<b>809</b>
471.omnetpp	32	587	340	<b>586</b>	<b>341</b>	586	341	32	554	361	553	362	<b>553</b>	<b>361</b>
473.astar	32	<b>636</b>	<b>353</b>	636	353	634	354	32	<b>636</b>	<b>353</b>	636	353	634	354
483.xalancbmk	32	344	643	<b>344</b>	<b>641</b>	346	639	32	344	643	<b>344</b>	<b>641</b>	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

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

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