



# SPEC® CINT2006 Result

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## SGI

SPECint®\_rate2006 = **857**

SGI UV 20 (Intel Xeon E5-4617, 2.90 GHz)

SPECint\_rate\_base2006 = 829

CPU2006 license: 4

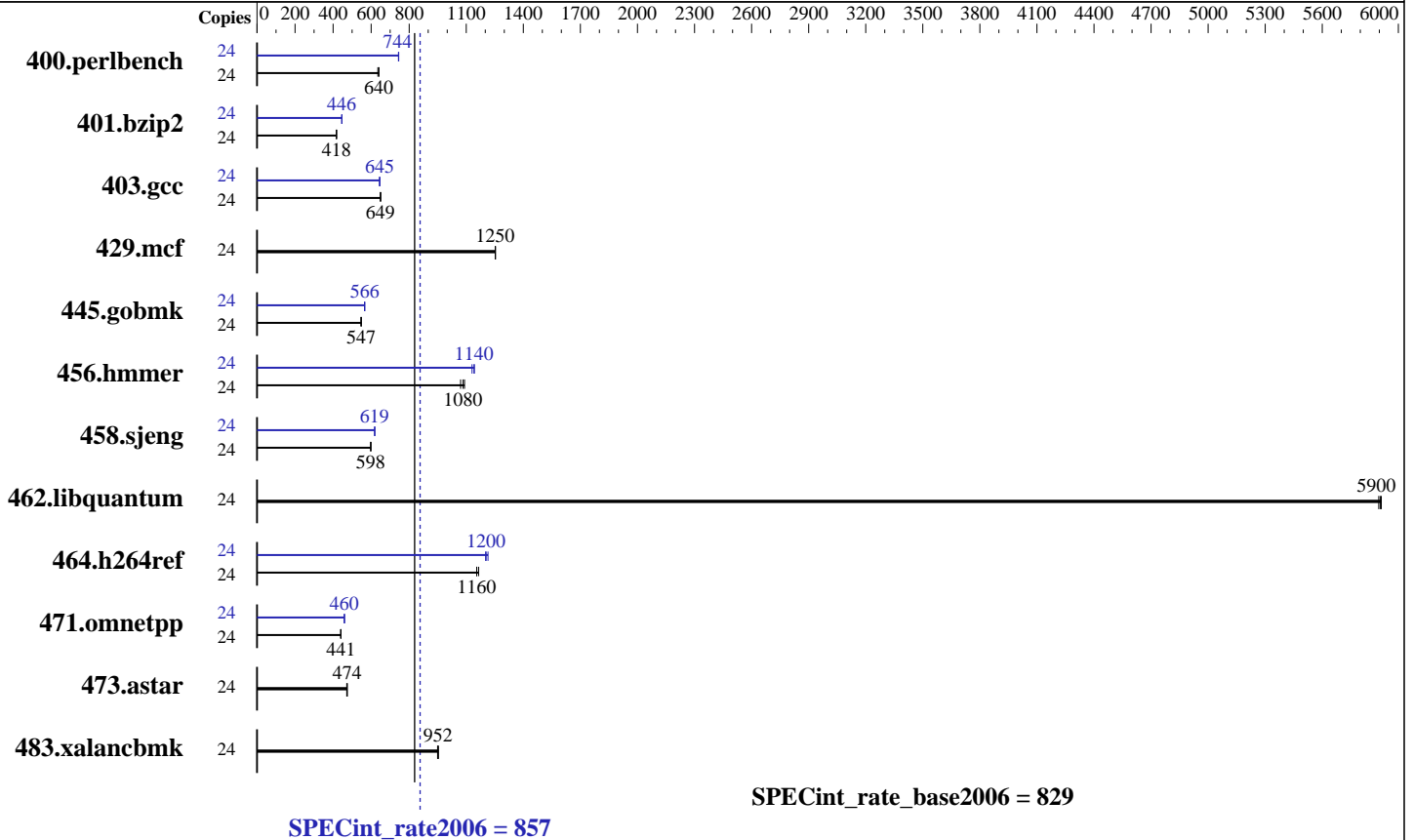
Test sponsor: SGI

Tested by: SGI

Test date: Feb-2013

Hardware Availability: Nov-2012

Software Availability: Feb-2013



### Hardware

CPU Name: Intel Xeon E5-4617  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip  
 CPU(s) orderable: 2,4 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 3.3 TB RAID 0  
 6 x 600 GB, SSD  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64)  
 kernel 3.0.42-0.7-default  
 Compiler: C/C++: Version 13.0.0.133 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 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	24	369	635	366	640	<b>366</b>	<b>640</b>	24	<b>315</b>	<b>744</b>	315	745	315	744
401.bzip2	24	555	417	554	418	<b>554</b>	<b>418</b>	24	520	445	518	447	<b>519</b>	<b>446</b>
403.gcc	24	297	650	298	648	<b>297</b>	<b>649</b>	24	299	645	<b>300</b>	<b>645</b>	300	644
429.mcf	24	175	1250	<b>175</b>	<b>1250</b>	175	1250	24	175	1250	<b>175</b>	<b>1250</b>	175	1250
445.gobmk	24	460	547	<b>460</b>	<b>547</b>	459	549	24	445	566	<b>445</b>	<b>566</b>	445	565
456.hammer	24	205	1090	<b>207</b>	<b>1080</b>	209	1070	24	198	1130	196	1140	<b>196</b>	<b>1140</b>
458.sjeng	24	486	598	<b>486</b>	<b>598</b>	485	598	24	469	619	<b>469</b>	<b>619</b>	469	619
462.libquantum	24	84.3	5900	<b>84.2</b>	<b>5900</b>	84.1	5910	24	84.3	5900	<b>84.2</b>	<b>5900</b>	84.1	5910
464.h264ref	24	456	1170	460	1150	<b>460</b>	<b>1160</b>	24	437	1210	<b>441</b>	<b>1200</b>	442	1200
471.omnetpp	24	341	440	<b>340</b>	<b>441</b>	340	441	24	<b>326</b>	<b>460</b>	326	460	327	459
473.astar	24	355	474	<b>356</b>	<b>474</b>	357	472	24	355	474	<b>356</b>	<b>474</b>	357	472
483.xalancbmk	24	174	949	174	954	<b>174</b>	<b>952</b>	24	174	949	174	954	<b>174</b>	<b>952</b>

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 /store/cma/cpu2006-v1.2/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on cy020 Wed Feb 27 00:07:27 2013

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 E5-4617 0 @ 2.90GHz
 4 "physical id"s (chips)
 24 "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 : 6
siblings : 6
```

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## Platform Notes (Continued)

```

physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
physical 2: cores 0 1 2 3 4 5
physical 3: cores 0 1 2 3 4 5
cache size : 15360 KB

```

From /proc/meminfo

```

MemTotal:      529360172 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 1.5, Build 707r85.sles11sp2-1302142007

sgi-foundation-release: SGI Foundation Software 2.7, Build 707r85.sles11sp2-1302142007

sgi-mpi-release: SGI MPI 1.5, Build 707r85.sles11sp2-1302142007

sgi-propack-release: SGI ProPack 706 for Linux, Build 706rp51.sles11sp2-1210312107

sgi-release: SGI Performance Suite 1.5, Build 707r85.sles11sp2-1302142007

sgi-upc-release: SGI UPC 1.5, Build 707r85.sles11sp2-1302142007

uname -a:

```

Linux cy020 3.0.42-0.7-default #1 SMP Tue Oct 9 11:58:45 UTC 2012 (a8dc443)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Feb 19 14:13 last=S

SPEC is set to: /store/cma/cpu2006-v1.2

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdc1        xfs   3.3T   61G  3.3T   2% /scratch

```

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:/store/cma/cpu2006-v1.2/sh"

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

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## General Notes (Continued)

Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop\_caches  
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/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: `-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/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-ic13-official-linux64.html>  
<http://www.spec.org/cpu2006/flags/SGI-platform.20120912.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml>  
<http://www.spec.org/cpu2006/flags/SGI-platform.20120912.xml>

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

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