SPEC® CINT2006 Result

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SGI

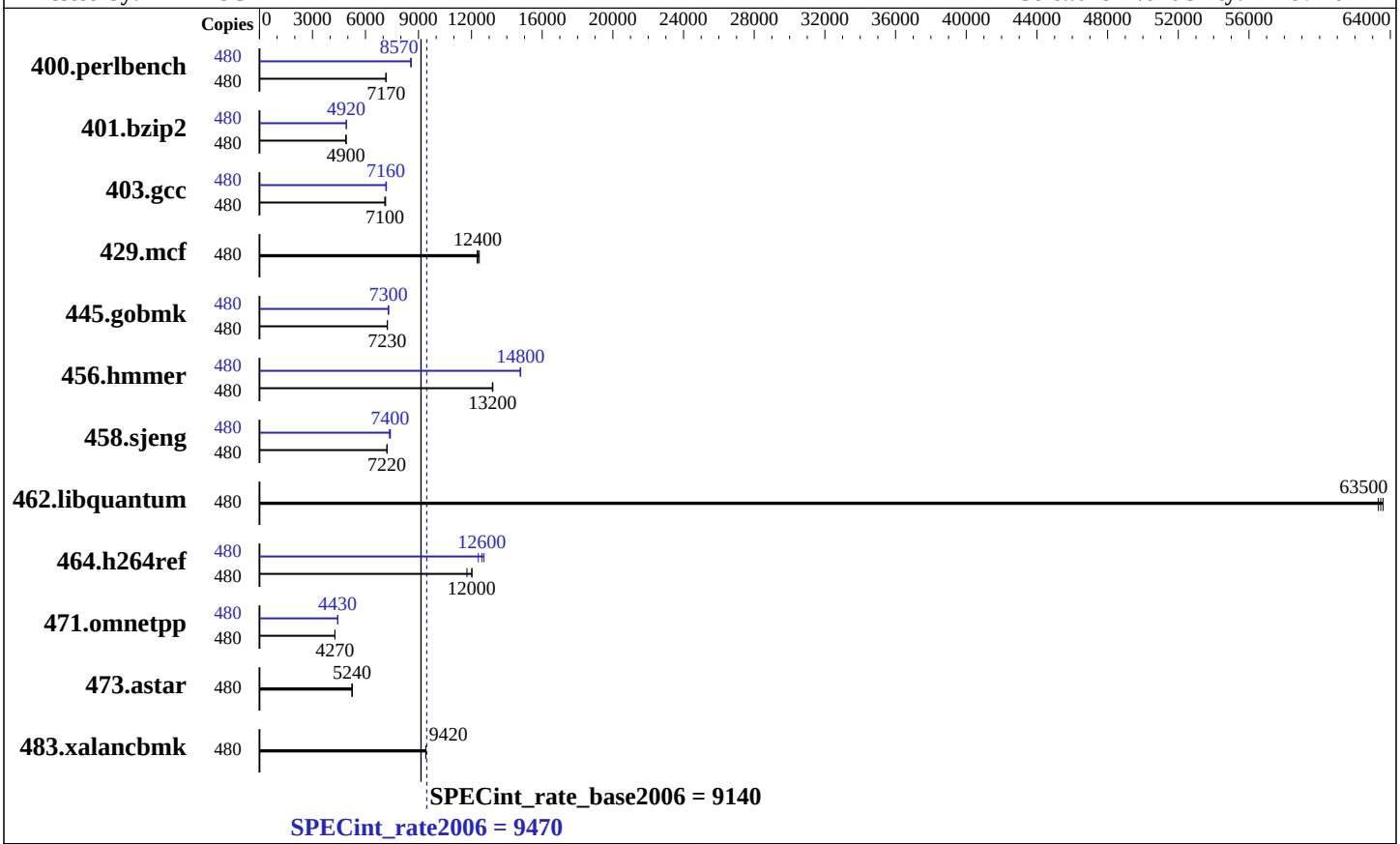
SGI UV 300 (Intel Xeon E7-8890 v2, 2.8 GHz)

SPECint®_rate2006 = 9470

SPECint_rate_base2006 = 9140

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

Test date: Dec-2014
Hardware Availability: Dec-2014
Software Availability: Nov-2014



Hardware

CPU Name:	Intel Xeon E7-8890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	240 cores, 16 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable:	4-32 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:	37.5 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (256 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem:	2 TB tmpfs
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP3, Kernel 3.0.101-0.46-default
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0 SGI Foundation Software 2.11, Build 711rp42.sles11sp3-1412152100

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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	480	654	7170	**654**	**7170**	656	7150	480	546	8600	548	8560	**547**	**8570**
401.bzip2	480	946	4890	946	4900	**946**	**4900**	480	**942**	**4920**	943	4910	941	4920
403.gcc	480	541	7140	**544**	**7100**	544	7100	480	538	7190	**540**	**7160**	540	7160
429.mcf	480	**354**	**12400**	355	12300	352	12400	480	**354**	**12400**	355	12300	352	12400
445.gobmk	480	**696**	**7230**	696	7230	695	7240	480	688	7310	**690**	**7300**	691	7280
456.hmmer	480	340	13200	339	13200	**340**	**13200**	480	303	14800	304	14800	**303**	**14800**
458.sjeng	480	804	7220	**805**	**7220**	805	7220	480	**785**	**7400**	784	7400	790	7350
462.libquantum	480	**157**	**63500**	156	63600	157	63300	480	**157**	**63500**	156	63600	157	63300
464.h264ref	480	883	12000	**884**	**12000**	905	11700	480	836	12700	858	12400	**844**	**12600**
471.omnetpp	480	703	4270	702	4270	**702**	**4270**	480	677	4430	678	4430	**678**	**4430**
473.astar	480	**643**	**5240**	642	5250	643	5240	480	**643**	**5240**	642	5250	643	5240
483.xalancbmk	480	**352**	**9420**	352	9420	352	9410	480	**352**	**9420**	352	9420	352	9410

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"

Tmpfs filesystem set up with:
  mkdir -p /mnt/shm
  mount -t tmpfs -o size=2048g,rw tmpfs /mnt/shm/

Turbo mode activated with:
  modprobe acpi_cpufreq
  cpupower frequency-set -u 3400MHz -d 3400MHz -g performance
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/mnt/shm/cpu2006-1.2/libs/32:/mnt/shm/cpu2006-1.2/libs/64:/mnt/shm/cpu2006-1.2/sh"

 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
```

Base Compiler Invocation

C benchmarks:
```
icc -m32 -L/sw/sdev/intel/parallel_studio_2015/composer_xe_2015/lib/ia32/
```

C++ benchmarks:
```
icpc -m32 -L/sw/sdev/intel/parallel_studio_2015/composer_xe_2015/lib/ia32/
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -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 -L/sw/sdev/intel/parallel_studio_2015/composer_xe_2015/lib/ia32/
```

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32 -L/sw/sdev/intel/parallel_studio_2015/composer_xe_2015/lib/ia32/
```

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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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

Continued on next page

Peak Optimization Flags (Continued)

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/SGI-UV300-Platform-Flags.html`
`http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/SGI-UV300-Platform-Flags.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml`

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For other inquiries, please contact webmaster@spec.org.

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