SPEC® CINT2006 Result

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SGI

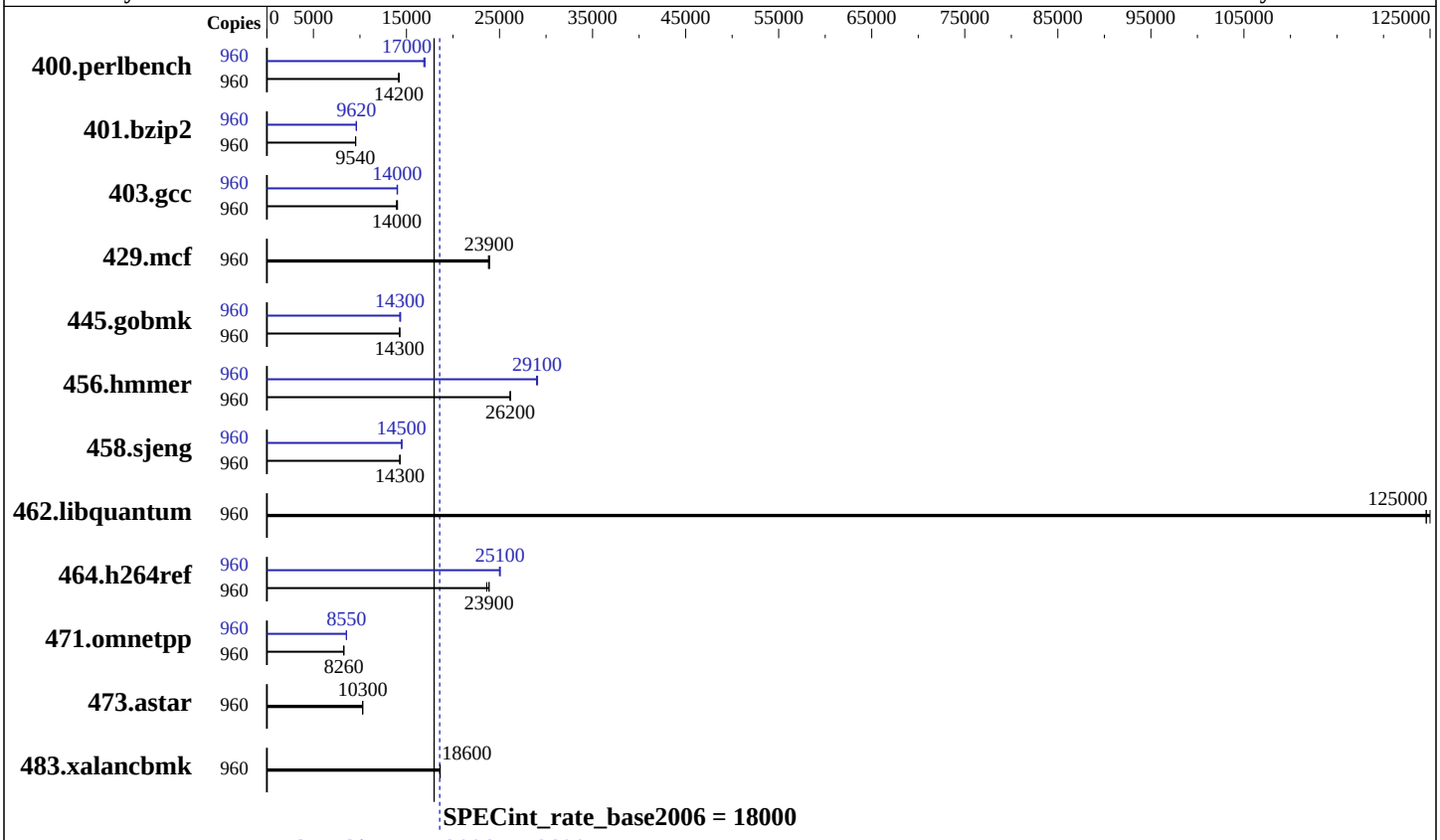
SGI UV 300 (Intel Xeon E7-8890 v2, 2.8 GHz)

SPECint®_rate2006 = 18600

SPECint_rate_base2006 = 18000

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:	480 cores, 32 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:	4 TB (256 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem:	4 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	960	**662**	**14200**	663	14200	660	14200	960	**553**	**17000**	556	16900	552	17000
401.bzip2	960	971	9540	**971**	**9540**	973	9520	960	966	9590	962	9630	**963**	**9620**
403.gcc	960	551	14000	555	13900	**552**	**14000**	960	552	14000	**551**	**14000**	551	14000
429.mcf	960	366	23900	**367**	**23900**	368	23800	960	366	23900	**367**	**23900**	368	23800
445.gobmk	960	**706**	**14300**	704	14300	707	14200	960	704	14300	701	14400	**704**	**14300**
456.hmmer	960	342	26200	**342**	**26200**	343	26100	960	308	29100	309	29000	**308**	**29100**
458.sjeng	960	812	14300	**812**	**14300**	812	14300	960	802	14500	801	14500	**802**	**14500**
462.libquantum	960	**160**	**125000**	160	125000	159	125000	960	**160**	**125000**	160	125000	159	125000
464.h264ref	960	890	23900	**890**	**23900**	899	23600	960	848	25100	850	25000	**848**	**25100**
471.omnetpp	960	726	8270	726	8260	**726**	**8260**	960	**701**	**8550**	701	8560	703	8540
473.astar	960	656	10300	**655**	**10300**	654	10300	960	656	10300	**655**	**10300**	654	10300
483.xalancbmk	960	356	18600	356	18600	**356**	**18600**	960	356	18600	356	18600	**356**	**18600**

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=4096g,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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