# SPEC® CINT2006 Result

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## SGI

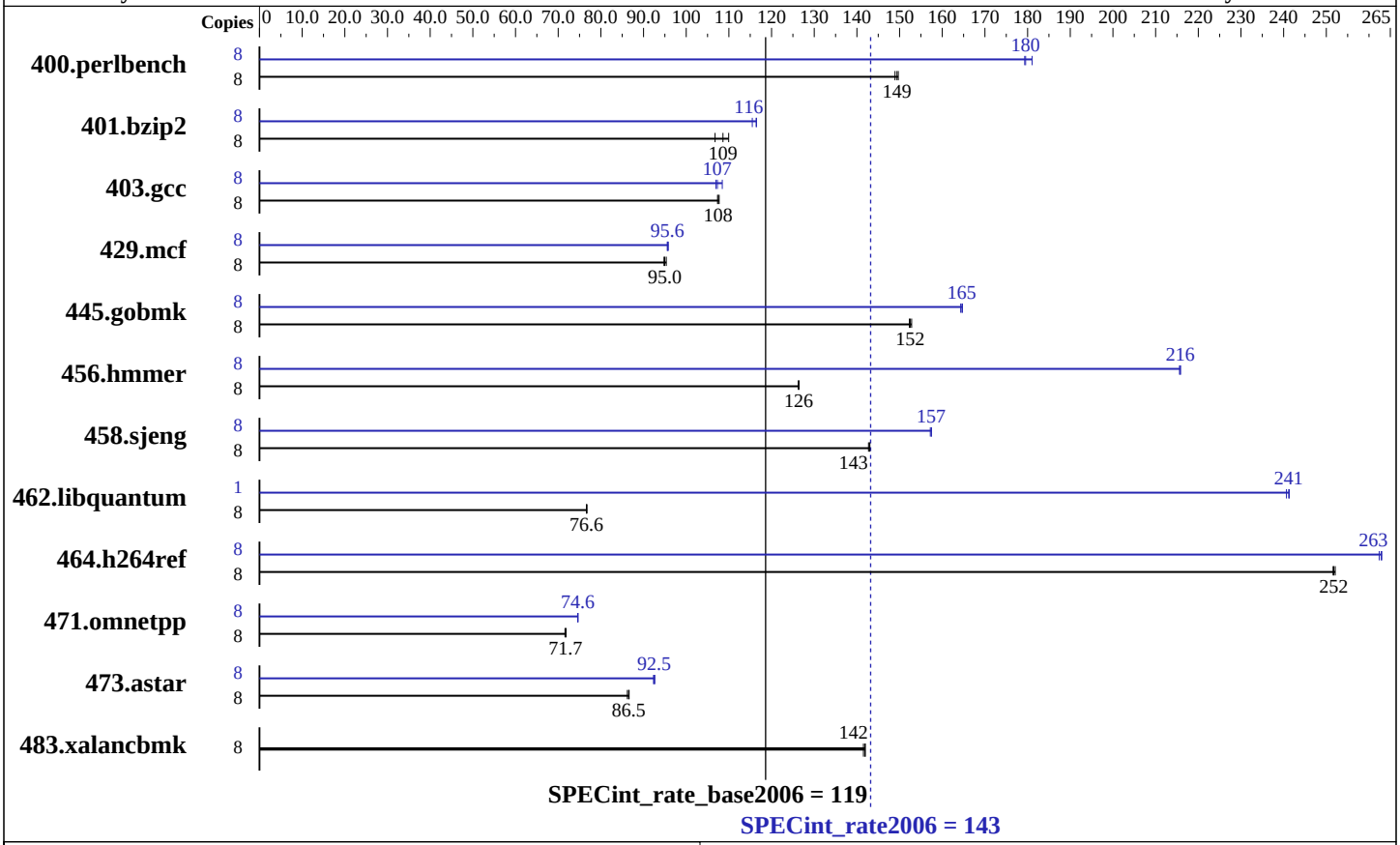
SGI Altix XE 250 (Intel Xeon E5472, 3.00 GHz)

SPECint®_rate2006 = 143

SPECint_rate_base2006 = 119

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

**Test date:** Dec-2007
**Hardware Availability:** Feb-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5472 |
| CPU Characteristics: | Quad Core, 3.0 GHz |
| CPU MHz: | 2992 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (8*2GB PC2-6400 CL5-5-5 FB-DIMMs) |
| Disk Subsystem: | 1 x 250 GB SATA (Hitachi Deskstar 7200rpm) |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1<br>Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux,<br>Build 20070913 |
| Auto Parallel: | Yes |
| File System: | xfs |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | SmartHeap library V8.1<br>Binutils 2.17 |

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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 | 8 | 522 | 150 | 525 | 149 | **523** | **149** | 8 | **435** | **180** | 432 | 181 | 436 | 179 |
| 401.bzip2 | 8 | **711** | **109** | 702 | 110 | 723 | 107 | 8 | **663** | **116** | 663 | 116 | 669 | 115 |
| 403.gcc | 8 | 600 | 107 | 598 | 108 | **599** | **108** | 8 | **600** | **107** | 602 | 107 | 594 | 108 |
| 429.mcf | 8 | 770 | 94.8 | 765 | 95.3 | **768** | **95.0** | 8 | 761 | 95.8 | **763** | **95.6** | 763 | 95.6 |
| 445.gobmk | 8 | **550** | **152** | 551 | 152 | 549 | 153 | 8 | **510** | **165** | 509 | 165 | 511 | 164 |
| 456.hmmer | 8 | 590 | 126 | **591** | **126** | 591 | 126 | 8 | **346** | **216** | 346 | 216 | 346 | 216 |
| 458.sjeng | 8 | 677 | 143 | 678 | 143 | **677** | **143** | 8 | 616 | 157 | 615 | 157 | **615** | **157** |
| 462.libquantum | 8 | 2163 | 76.6 | **2163** | **76.6** | 2160 | 76.7 | 1 | 85.9 | 241 | **85.9** | **241** | 86.1 | 241 |
| 464.h264ref | 8 | 704 | 252 | 702 | 252 | **703** | **252** | 8 | 675 | 262 | **674** | **263** | 673 | 263 |
| 471.omnetpp | 8 | **697** | **71.7** | 696 | 71.8 | 698 | 71.6 | 8 | 670 | 74.6 | **670** | **74.6** | 671 | 74.6 |
| 473.astar | 8 | 648 | 86.6 | **649** | **86.5** | 651 | 86.2 | 8 | 606 | 92.6 | **607** | **92.5** | 608 | 92.3 |
| 483.xalancbmk | 8 | 389 | 142 | 390 | 142 | **389** | **142** | 8 | 389 | 142 | 390 | 142 | **389** | **142** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

```
BIOS settings:
  Snoop Filter:             Enabled
  Hardware Prefetcher:      Enabled
  Adjacent Sector Prefetch: Disabled
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
The taskset utility was used to bind processes to cores
Parallel settings for 462.libquantum peak:
  OMP_NUM_THREADS = 8
  KMP_AFFINITY = physical,0
  KMP_STACKSIZE = 64M
```

## Base Compiler Invocation

C benchmarks:

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

C++ benchmarks:

```
/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include

401.bzip2: /sw/sdev/intel-cc/x86_64/10.1.008/bin/icc
-L/sw/sdev/intel-cc/x86_64/10.1.008/lib
-I/sw/sdev/intel-cc/x86_64/10.1.008/include

456.hmmer: /sw/sdev/intel-cc/x86_64/10.1.008/bin/icc
-L/sw/sdev/intel-cc/x86_64/10.1.008/lib
-I/sw/sdev/intel-cc/x86_64/10.1.008/include

C++ benchmarks:
/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64

Continued on next page

## Peak Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias -prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo -no-prec-div -ansi-alias

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

Continued on next page

## Peak Other Flags (Continued)

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.04.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10-ia32-intel64-linux-flags.20090714.04.xml`


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

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