# SPEC® CINT2006 Result

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## Dell Inc.

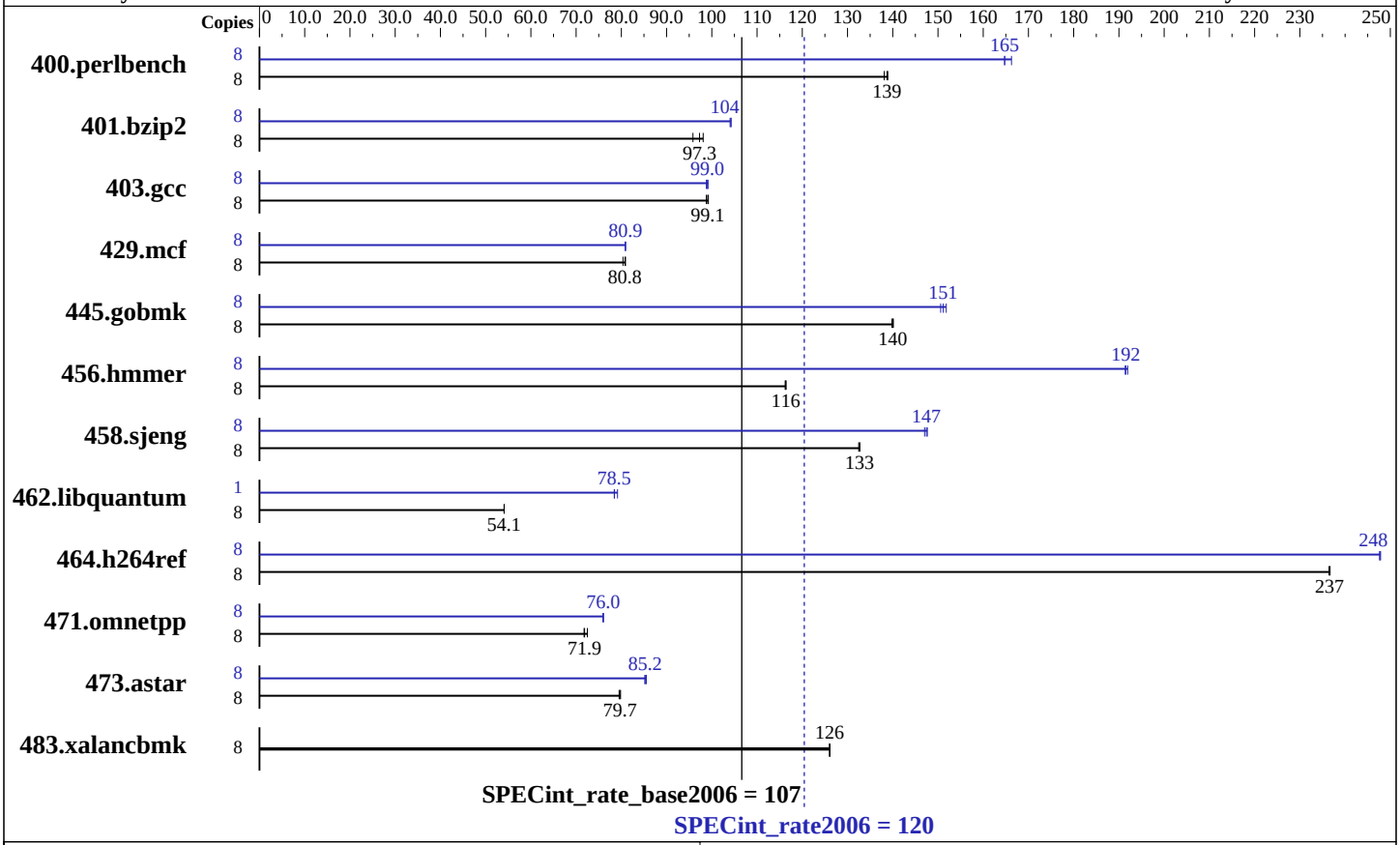
PowerEdge 2950 III (Intel Xeon E5440, 2.83 GHz)

SPECint®_rate2006 = 120

SPECint_rate_base2006 = 107

**CPU2006 license:** 55
**Test sponsor:** Dell Inc.
**Tested by:** Dell Inc.

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




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5440 |
| CPU Characteristics: | 1333 MHz system bus |
| CPU MHz: | 2833 |
| 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 (8x2 GB DDR2-667 ECC CL5 FB-DIMM) |
| Disk Subsystem: | 1 x 73 GB SAS 15k RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1<br>Binutils 2.17.50.0.15 |

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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 | **563** | **139** | 566 | 138 | 563 | 139 | 8 | 475 | 165 | **474** | **165** | 470 | 166 |
| 401.bzip2 | 8 | 806 | 95.8 | 787 | 98.1 | **794** | **97.3** | 8 | 742 | 104 | **741** | **104** | 740 | 104 |
| 403.gcc | 8 | **650** | **99.1** | 652 | 98.8 | 649 | 99.2 | 8 | 649 | 99.2 | **650** | **99.0** | 652 | 98.8 |
| 429.mcf | 8 | 902 | 80.9 | **903** | **80.8** | 908 | 80.4 | 8 | **902** | **80.9** | 902 | 80.9 | 902 | 80.9 |
| 445.gobmk | 8 | 599 | 140 | 600 | 140 | **599** | **140** | 8 | 553 | 152 | **555** | **151** | 557 | 151 |
| 456.hmmer | 8 | 642 | 116 | 641 | 116 | **642** | **116** | 8 | 390 | 191 | 389 | 192 | **390** | **192** |
| 458.sjeng | 8 | 729 | 133 | 731 | 132 | **730** | **133** | 8 | 656 | 148 | **657** | **147** | 658 | 147 |
| 462.libquantum | 8 | 3064 | 54.1 | 3065 | 54.1 | **3064** | **54.1** | 1 | 262 | 79.2 | **264** | **78.5** | 264 | 78.4 |
| 464.h264ref | 8 | **748** | **237** | 748 | 237 | 749 | 236 | 8 | 714 | 248 | **715** | **248** | 715 | 248 |
| 471.omnetpp | 8 | **696** | **71.9** | 690 | 72.5 | 697 | 71.8 | 8 | 659 | 75.9 | **658** | **76.0** | 658 | 76.0 |
| 473.astar | 8 | **705** | **79.7** | 706 | 79.5 | 704 | 79.8 | 8 | **659** | **85.2** | 659 | 85.2 | 657 | 85.5 |
| 483.xalancbmk | 8 | 438 | 126 | 438 | 126 | **438** | **126** | 8 | 438 | 126 | 438 | 126 | **438** | **126** |

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

## Compiler Invocation Notes

```
OMP_NUM_THREADS set to number of cores
KMP_STACK_SIZE set to 64M
KMP_AFFINITY set to physical,0
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' used to bind processes to CPUs
```

## Platform Notes

```
BIOS Settings:
Adjacent Cache Line Prefetch = Disabled (default Enabled)
Hardware Prefetcher = Disabled (default Enabled)
```

## Base Compiler Invocation

C benchmarks:

```
icc
```

C++ benchmarks:

```
icpc
```

## 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
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:
icpc

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX

Continued on next page

## Peak Portability Flags (Continued)

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 -L/spec/users/rahul/cpu2006.1.0/lib -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 -L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

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.20090714.12.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.20090714.12.xml`


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