# SPEC® CINT2006 Result

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## Dell Inc.

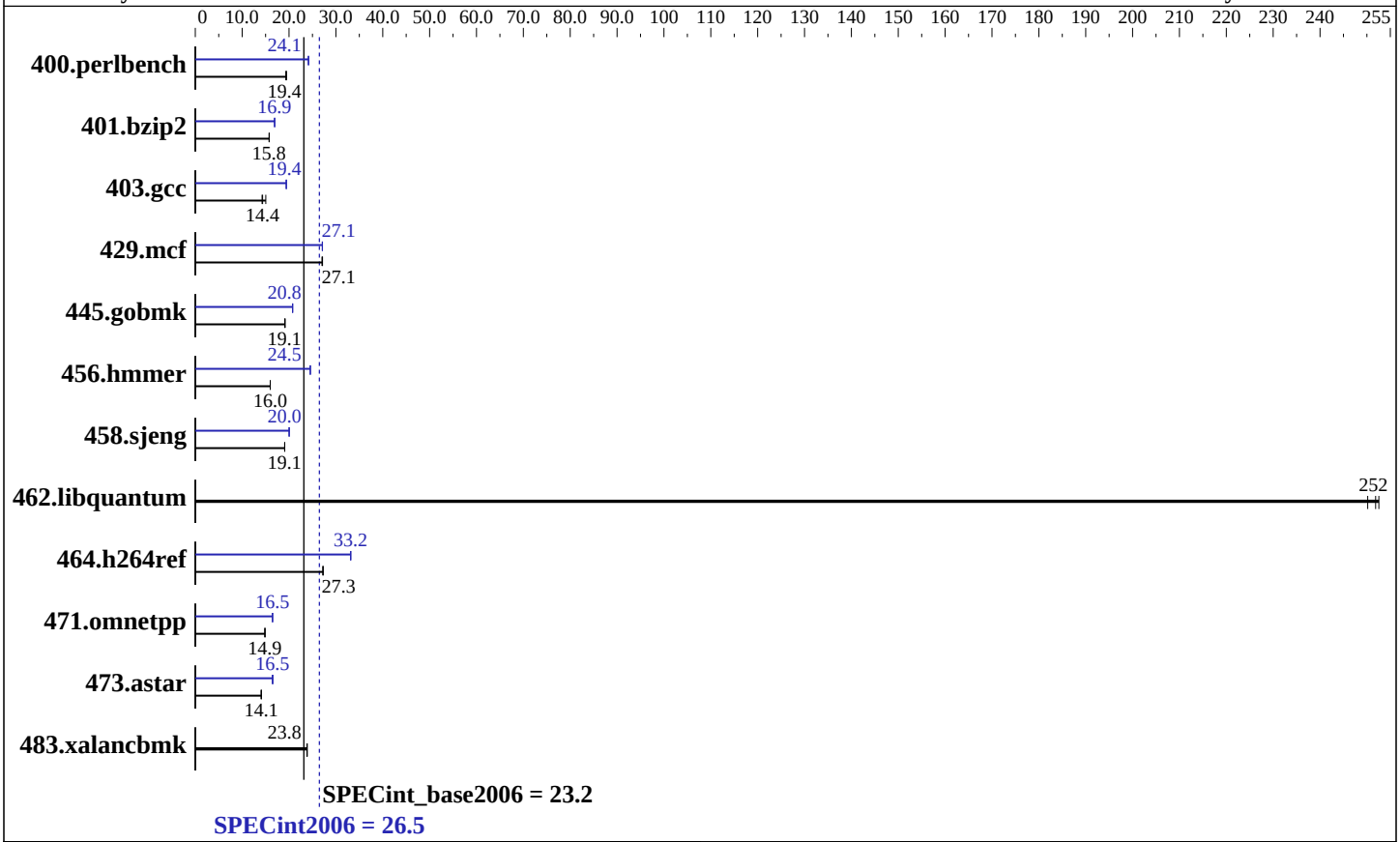
PowerEdge 2900 III (Intel Xeon E5440, 2.83 GHz)

SPECint®2006 = 26.5

SPECint_base2006 = 23.2

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

**Test date:** Nov-2008
**Hardware Availability:** Sep-2008
**Software Availability:** Nov-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5440 |
| CPU Characteristics: | |
| 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 (8 x 2 GB DDR2-667 FBDIMM) |
| Disk Subsystem: | 2 x 73 GB 15000 RPM SAS |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp |
| Compiler: | Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l_cc_b_11.0.042 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | **504** | **19.4** | 505 | 19.3 | 502 | 19.4 | 405 | 24.1 | 404 | 24.2 | **405** | **24.1** |
| 401.bzip2 | 612 | 15.8 | **612** | **15.8** | 613 | 15.8 | 569 | 17.0 | 570 | 16.9 | **570** | **16.9** |
| 403.gcc | 535 | 15.0 | 565 | 14.2 | **560** | **14.4** | **415** | **19.4** | 414 | 19.4 | 415 | 19.4 |
| 429.mcf | 337 | 27.0 | 336 | 27.2 | **336** | **27.1** | 336 | 27.1 | **336** | **27.1** | 337 | 27.1 |
| 445.gobmk | **548** | **19.1** | 548 | 19.1 | 549 | 19.1 | 505 | 20.8 | **505** | **20.8** | 505 | 20.8 |
| 456.hmmer | **583** | **16.0** | 583 | 16.0 | 583 | 16.0 | 380 | 24.5 | 380 | 24.6 | **380** | **24.5** |
| 458.sjeng | 635 | 19.1 | **634** | **19.1** | 634 | 19.1 | 604 | 20.0 | **604** | **20.0** | 603 | 20.1 |
| 462.libquantum | 82.8 | 250 | 82.0 | 253 | **82.3** | **252** | 82.8 | 250 | 82.0 | 253 | **82.3** | **252** |
| 464.h264ref | **812** | **27.3** | 812 | 27.3 | 813 | 27.2 | 668 | 33.1 | **667** | **33.2** | 667 | 33.2 |
| 471.omnetpp | 420 | 14.9 | 421 | 14.9 | **421** | **14.9** | 380 | 16.5 | 378 | 16.5 | **379** | **16.5** |
| 473.astar | 499 | 14.1 | 498 | 14.1 | **499** | **14.1** | **425** | **16.5** | 427 | 16.4 | 424 | 16.6 |
| 483.xalancbmk | 289 | 23.9 | **289** | **23.8** | 290 | 23.8 | 289 | 23.9 | **289** | **23.8** | 290 | 23.8 |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## General Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
```

## 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:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/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/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include
```

456.hmmer:
```
/opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/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`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc -opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

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-ic11.0-int-linux64-revA.20090713.02.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.html

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

http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.02.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.xml


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