



# SPEC® CINT2006 Result

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Dell Inc.

**SPECint®\_rate2006 = 216**

PowerEdge M710 (Intel Xeon E5540, 2.53 GHz)

**SPECint\_rate\_base2006 = 200**

CPU2006 license: 55

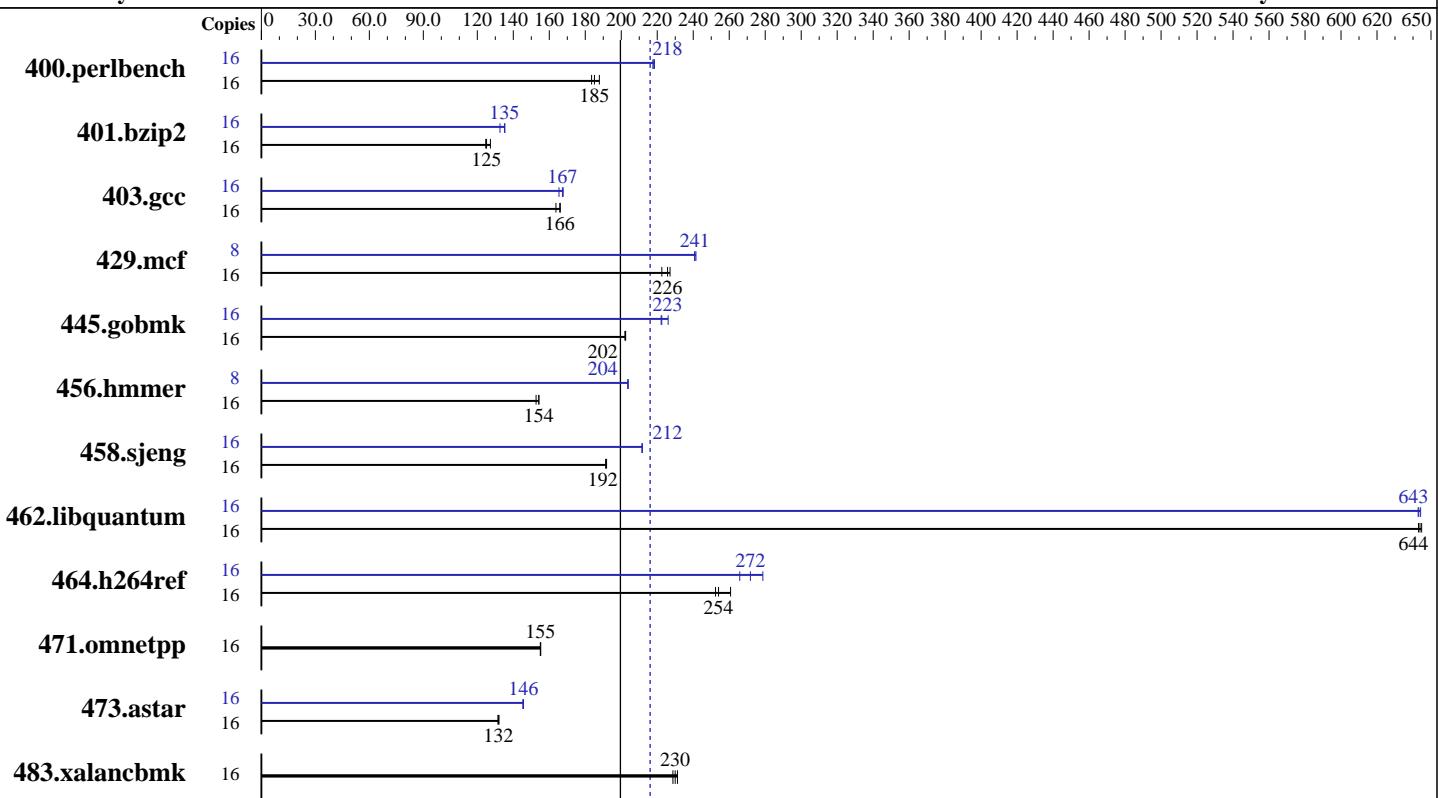
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Mar-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009



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## Hardware

CPU Name: Intel Xeon E5540  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2533  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 x 4 GB DDR3-1067 DR RDIMM)  
 Disk Subsystem: 1 x 73 GB 10000 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 Professional 11.0 for Linux Build 20090131 Package ID: 1\_cproc\_p\_11.0.080  
 Auto Parallel: No  
 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   |             |            |            |            |            |            |
|----------------|--------|-------------|------------|------------|------------|-------------|------------|--------|-------------|------------|------------|------------|------------|------------|
|                | Copies | Seconds     | Ratio      | Seconds    | Ratio      | Seconds     | Ratio      | Copies | Seconds     | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      |
| 400.perlbench  | 16     | 852         | 184        | <b>845</b> | <b>185</b> | 832         | 188        | 16     | <b>717</b>  | <b>218</b> | 716        | 218        | 718        | 218        |
| 401.bzip2      | 16     | 1238        | 125        | 1213       | 127        | <b>1234</b> | <b>125</b> | 16     | <b>1143</b> | <b>135</b> | 1164       | 133        | 1141       | 135        |
| 403.gcc        | 16     | <b>777</b>  | <b>166</b> | 775        | 166        | 787         | 164        | 16     | 768         | 168        | <b>770</b> | <b>167</b> | 779        | 165        |
| 429.mcf        | 16     | 656         | 223        | <b>646</b> | <b>226</b> | 642         | 227        | 8      | 303         | 241        | <b>303</b> | <b>241</b> | 302        | 242        |
| 445.gobmk      | 16     | 829         | 202        | 830        | 202        | <b>830</b>  | <b>202</b> | 16     | 742         | 226        | 755        | 222        | <b>754</b> | <b>223</b> |
| 456.hammer     | 16     | 968         | 154        | 978        | 153        | <b>968</b>  | <b>154</b> | 8      | 367         | 204        | 366        | 204        | <b>366</b> | <b>204</b> |
| 458.sjeng      | 16     | <b>1011</b> | <b>192</b> | 1012       | 191        | 1009        | 192        | 16     | 915         | 212        | 915        | 212        | <b>915</b> | <b>212</b> |
| 462.libquantum | 16     | 514         | 645        | <b>515</b> | <b>644</b> | 516         | 643        | 16     | 516         | 643        | <b>515</b> | <b>643</b> | 515        | 644        |
| 464.h264ref    | 16     | <b>1394</b> | <b>254</b> | 1358       | 261        | 1403        | 252        | 16     | <b>1303</b> | <b>272</b> | 1271       | 279        | 1332       | 266        |
| 471.omnetpp    | 16     | <b>645</b>  | <b>155</b> | 645        | 155        | 644         | 155        | 16     | <b>645</b>  | <b>155</b> | 645        | 155        | 644        | 155        |
| 473.astar      | 16     | 851         | 132        | 854        | 131        | <b>853</b>  | <b>132</b> | 16     | 771         | 146        | 773        | 145        | <b>771</b> | <b>146</b> |
| 483.xalancbmk  | 16     | 477         | 231        | <b>480</b> | <b>230</b> | 483         | 229        | 16     | 477         | 231        | <b>480</b> | <b>230</b> | 483        | 229        |

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

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## Base Optimization Flags (Continued)

C++ benchmarks:

```
-xSSE4.2 -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/11.0/080/bin/intel64/icc
```

```
456.hmmr: /opt/intel/Compiler/11.0/080/bin/intel64/icc
```

```
458.sjeng: /opt/intel/Compiler/11.0/080/bin/intel64/icc
```

C++ benchmarks (except as noted below):

icpc

```
473.astar: /opt/intel/Compiler/11.0/080/bin/intel64/icpc
```

## Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
```

```
401.bzip2: -DSPEC_CPU_LP64
```

```
456.hmmr: -DSPEC_CPU_LP64
```

```
458.sjeng: -DSPEC_CPU_LP64
```

```
462.libquantum: -DSPEC_CPU_LINUX
```

```
473.astar: -DSPEC_CPU_LP64
```

```
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) -static(pass 2)  
-prof-use(pass 2) -ansi-alias -opt-prefetch
```

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## Peak Optimization Flags (Continued)

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
                   -opt-malloc-options=3

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
                   -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
                   -prof-use(pass 2) -opt-prefetch

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

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll12  
                   -ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
                   -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
                   -prof-use(pass 2) -unroll14 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static  
                   -opt-malloc-options=3 -opt-prefetch

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
                   -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
                   -prof-use(pass 2) -unroll12 -ansi-alias

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -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=routine -auto-ilp32  
                   -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.02.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.02.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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