



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 29.5

PowerEdge T410 (Intel Xeon E5540, 2.53 GHz)

SPECint\_base2006 = 26.5

CPU2006 license: 55

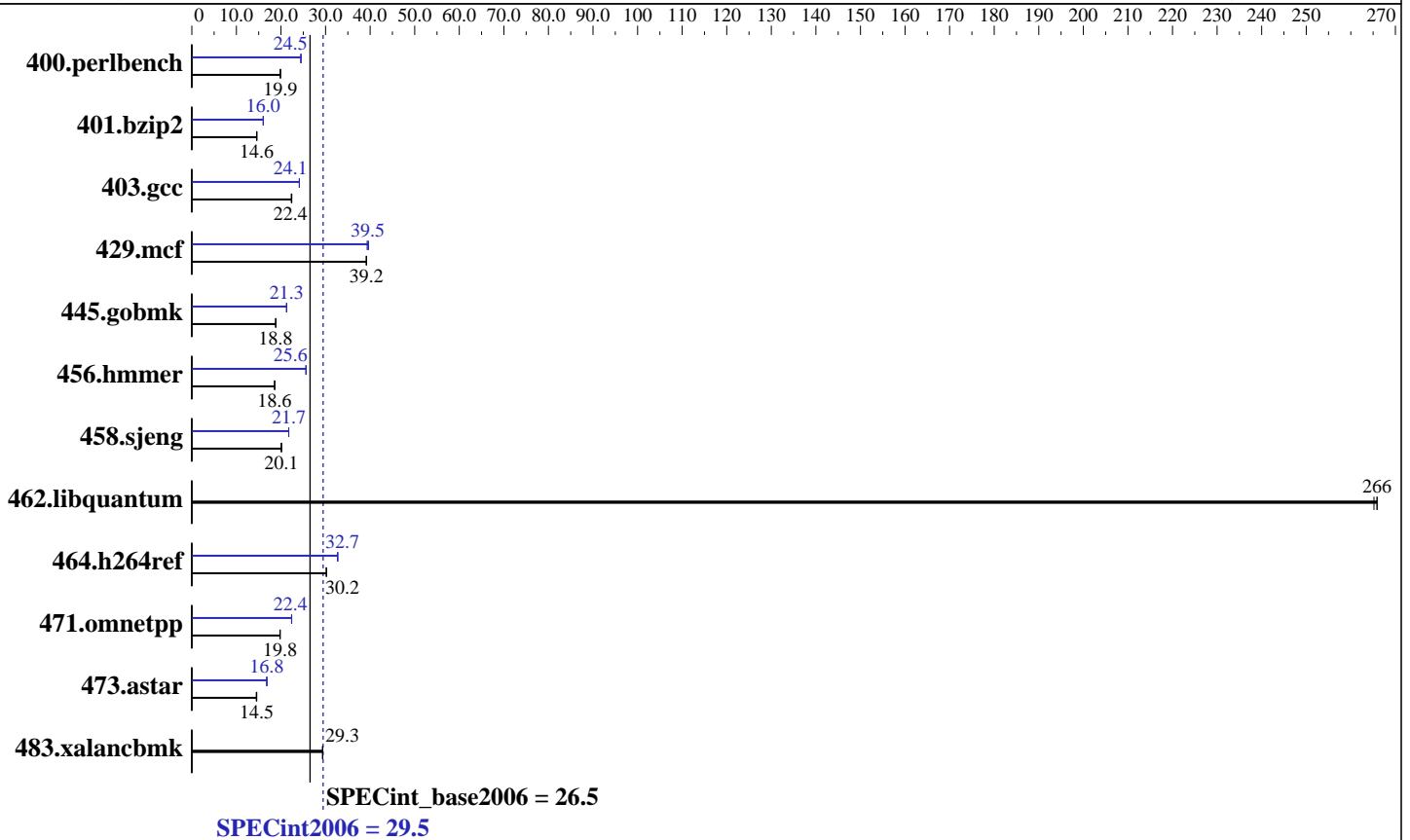
Test date: Mar-2009

Test sponsor: Dell Inc.

Hardware Availability: Mar-2009

Tested by: Dell Inc.

Software Availability: Feb-2009



## 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 DDR3-1066 DR RDIMM)  
 Disk Subsystem: 1 x 160 GB 7200 RPM SATA  
 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: l\_cproc\_p\_11.0.080  
 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  | <u>492</u>  | <u>19.9</u> | 491        | 19.9        | 492        | 19.9        | 399         | 24.5        | <u>399</u> | <u>24.5</u> | 399     | 24.5  |
| 401.bzip2      | <u>662</u>  | <u>14.6</u> | 662        | 14.6        | 664        | 14.5        | 602         | 16.0        | <u>602</u> | <u>16.0</u> | 602     | 16.0  |
| 403.gcc        | 361         | 22.3        | 359        | 22.4        | <u>360</u> | <u>22.4</u> | 334         | 24.1        | <u>334</u> | <u>24.1</u> | 334     | 24.1  |
| 429.mcf        | 233         | 39.1        | 233        | 39.2        | <u>233</u> | <u>39.2</u> | 230         | 39.6        | <u>231</u> | <u>39.5</u> | 232     | 39.3  |
| 445.gobmk      | 557         | 18.8        | <u>557</u> | <u>18.8</u> | 557        | 18.8        | 493         | 21.3        | <u>493</u> | <u>21.3</u> | 494     | 21.3  |
| 456.hammer     | <u>502</u>  | <u>18.6</u> | 502        | 18.6        | 502        | 18.6        | <u>364</u>  | <u>25.6</u> | 364        | 25.6        | 364     | 25.6  |
| 458.sjeng      | <u>602</u>  | <u>20.1</u> | 603        | 20.1        | 602        | 20.1        | <u>557</u>  | <u>21.7</u> | 556        | 21.8        | 557     | 21.7  |
| 462.libquantum | <u>77.9</u> | <u>266</u>  | 77.9       | 266         | 78.1       | 265         | <u>77.9</u> | <u>266</u>  | 77.9       | 266         | 78.1    | 265   |
| 464.h264ref    | 732         | 30.2        | 734        | 30.1        | <u>733</u> | <u>30.2</u> | 677         | 32.7        | <u>677</u> | <u>32.7</u> | 676     | 32.8  |
| 471.omnetpp    | 316         | 19.8        | 315        | 19.8        | <u>316</u> | <u>19.8</u> | 279         | 22.4        | <u>279</u> | <u>22.4</u> | 279     | 22.4  |
| 473.astar      | 482         | 14.6        | <u>483</u> | <u>14.5</u> | 486        | 14.4        | 416         | 16.9        | <u>417</u> | <u>16.8</u> | 418     | 16.8  |
| 483.xalancbmk  | 235         | 29.4        | <u>235</u> | <u>29.3</u> | 235        | 29.3        | 235         | 29.4        | <u>235</u> | <u>29.3</u> | 235     | 29.3  |

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 stacksize to unlimited prior to run

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter

## 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



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## Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -opt-prefetch
```

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.hmmer: /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.hmmer: -DSPEC_CPU_LP64
```

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

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

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

```
483.xalancbmk: -DSPEC_CPU_LINUX
```



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## 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

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) -auto-ilp32 -opt-prefetch -ansi-alias

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

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -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 -unroll2  
 -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) -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) -static(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/spec/cpu2006.1.1/lib -lsmarheap

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 -lsmarheap64

483.xalancbmk: basepeak = yes



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## 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-ic11.0-int-linux64-revA.20090710.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.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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