# SPEC® CINT2006 Result
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## Dell Inc.
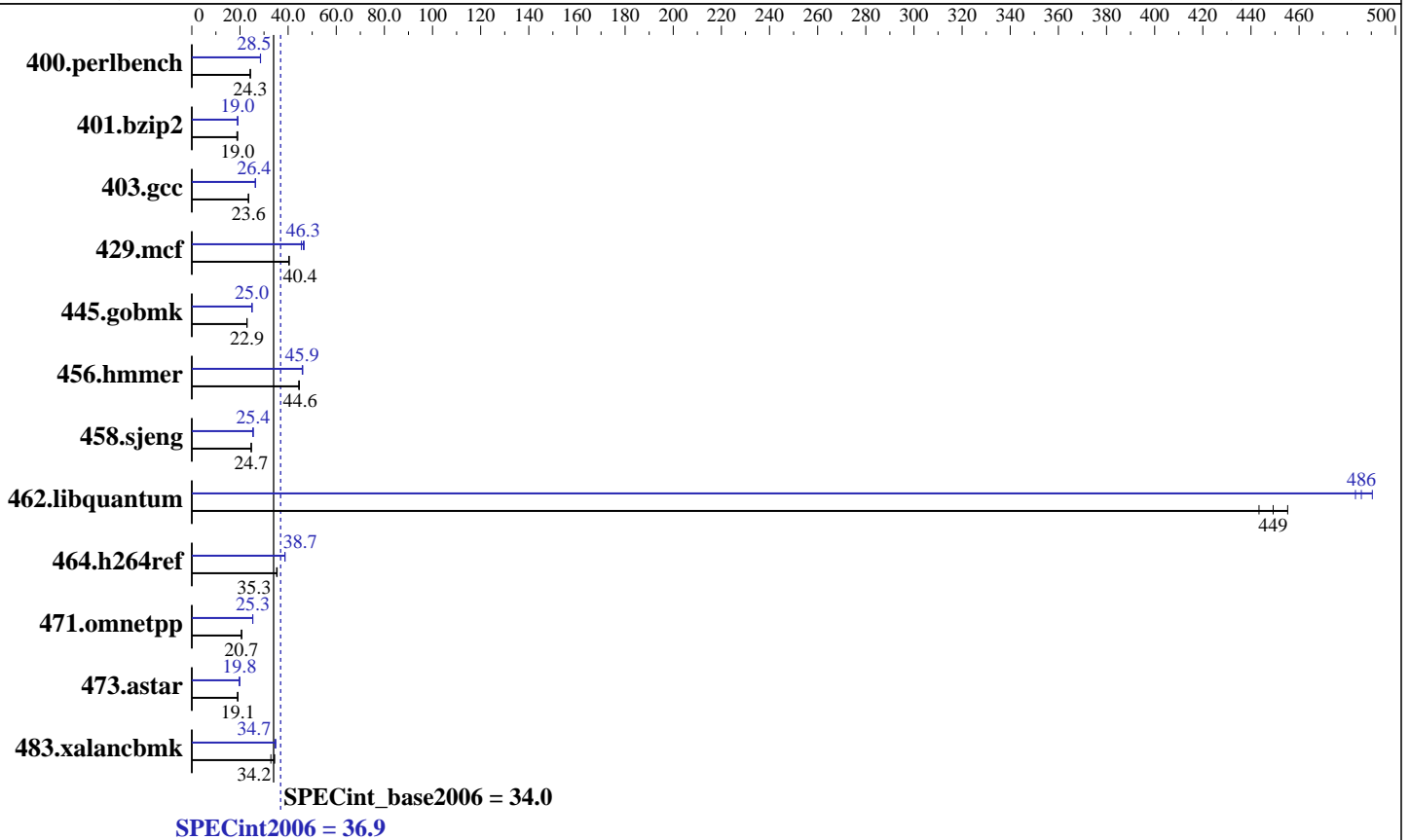
PowerEdge R710
(Intel Xeon X5560, 2.80 GHz)

SPECint®2006 =            36.9

SPECint_base2006 =      34.0

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

**Test date:** Mar-2010
**Hardware Availability:** Mar-2009
**Software Availability:** Dec-2009



| Benchmark | Peak | Base |
|---|---|---|
| 400.perlbench | 28.5 | 24.3 |
| 401.bzip2 | 19.0 | 19.0 |
| 403.gcc | 26.4 | 23.6 |
| 429.mcf | 46.3 | 40.4 |
| 445.gobmk | 25.0 | 22.9 |
| 456.hmmer | 45.9 | 44.6 |
| 458.sjeng | 25.4 | 24.7 |
| 462.libquantum | 486 | 449 |
| 464.h264ref | 38.7 | 35.3 |
| 471.omnetpp | 25.3 | 20.7 |
| 473.astar | 19.8 | 19.1 |
| 483.xalancbmk | 34.7 | 34.2 |

SPECint_base2006 = 34.0
SPECint2006 = 36.9

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5560 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.20 GHz |
| CPU MHz: | 2800 |
| 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 PC3-10600R, 2 Rank, CL9-9-9, ECC) |
| Disk Subsystem: | 1 x 73 GB SAS, 10000 RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP2, SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp |
| Compiler: | Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-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 | **402** | **24.3** | 402 | 24.3 | 403 | 24.3 | **343** | **28.5** | 343 | 28.5 | 342 | 28.6 |
| 401.bzip2 | 515 | 18.7 | **508** | **19.0** | 508 | 19.0 | **507** | **19.0** | 507 | 19.1 | 508 | 19.0 |
| 403.gcc | **342** | **23.6** | 341 | 23.6 | 342 | 23.5 | 304 | 26.5 | **305** | **26.4** | 305 | 26.4 |
| 429.mcf | 226 | 40.4 | **226** | **40.4** | 226 | 40.4 | 200 | 45.5 | 195 | 46.7 | **197** | **46.3** |
| 445.gobmk | 458 | 22.9 | 458 | 22.9 | **458** | **22.9** | 420 | 25.0 | **420** | **25.0** | 419 | 25.0 |
| 456.hmmer | 210 | 44.4 | 209 | 44.7 | **209** | **44.6** | 203 | 45.9 | 202 | 46.1 | **203** | **45.9** |
| 458.sjeng | 490 | 24.7 | 491 | 24.7 | **490** | **24.7** | 475 | 25.5 | 476 | 25.4 | **476** | **25.4** |
| 462.libquantum | 45.5 | 455 | 46.7 | 443 | **46.1** | **449** | 42.2 | 490 | **42.6** | **486** | 42.9 | 483 |
| 464.h264ref | 624 | 35.4 | **626** | **35.3** | 628 | 35.3 | 572 | 38.7 | 572 | 38.7 | **572** | **38.7** |
| 471.omnetpp | 302 | 20.7 | 303 | 20.6 | **302** | **20.7** | 247 | 25.3 | **247** | **25.3** | 247 | 25.3 |
| 473.astar | **367** | **19.1** | 370 | 19.0 | 367 | 19.1 | 353 | 19.9 | **354** | **19.8** | 356 | 19.7 |
| 483.xalancbmk | **202** | **34.2** | 210 | 32.8 | 201 | 34.4 | **199** | **34.7** | 199 | 34.6 | 198 | 34.9 |

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
The Dell PowerEdge R710 and
the Bull NovaScale R460 F2 models are electronically equivalent.
The results have been measured on a Bull NovaScale R460 F2 model.
```

## Base Compiler Invocation

C benchmarks:
```
icc -m64
```

C++ benchmarks:
```
icpc -m64
```

## Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
  401.bzip2: -DSPEC_CPU_LP64
```

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## Base Portability Flags (Continued)

```
      403.gcc: -DSPEC_CPU_LP64
      429.mcf: -DSPEC_CPU_LP64
   445.gobmk: -DSPEC_CPU_LP64
   456.hmmer: -DSPEC_CPU_LP64
    458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
  464.h264ref: -DSPEC_CPU_LP64
  471.omnetpp: -DSPEC_CPU_LP64
     473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

## Base Optimization Flags

C benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

## Base Other Flags

C benchmarks:

```
      403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
    icc  -m64
```

```
   400.perlbench: icc -m32
```

```
      429.mcf: icc -m32
```

```
   445.gobmk: icc -m32
```

```
   464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):
```
    icpc -m32
```

```
      473.astar: icpc -m64
```

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## Peak Portability Flags

```
 400.perlbench: -DSPEC_CPU_LINUX_IA32
     401.bzip2: -DSPEC_CPU_LP64
       403.gcc: -DSPEC_CPU_LP64
    456.hmmer: -DSPEC_CPU_LP64
     458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LP64 -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

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

       403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
               -opt-malloc-options=3 -auto-ilp32

       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

 462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
               -opt-prefetch -par-schedule-static=32768 -ansi-alias

    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/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap
```

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| **Test sponsor:** | Dell Inc. | **Hardware Availability:** | Mar-2009 |
| **Tested by:** | Bull SAS | **Software Availability:** | Dec-2009 |

# Peak Optimization Flags (Continued)

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 -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
-Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

# 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-ic11.1-linux64-revE.20100316.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.xml

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