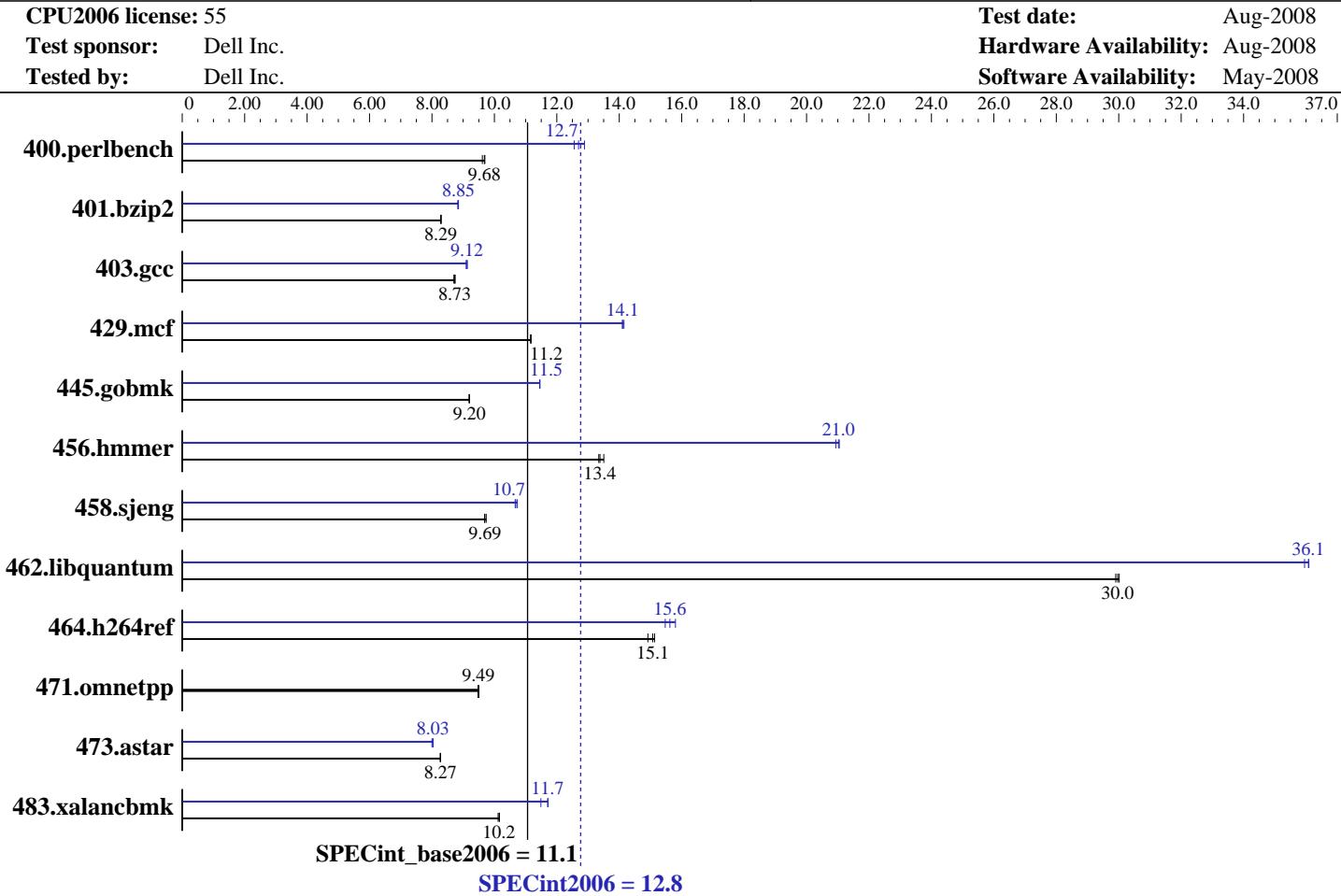# SPEC® CINT2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

## Dell Inc.

PowerEdge M805 (AMD Opteron 2350, 2.0 GHz)

SPECint®2006 = 12.8

SPECint_base2006 = 11.1

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

**Test date:** Aug-2008
**Hardware Availability:** Aug-2008
**Software Availability:** May-2008



| | | 400.perlbench | 12.7 |
| | | | 9.68 |
| 401.bzip2 | 8.85 | | |
| | 8.29 | | |
| 403.gcc | 9.12 | | |
| | 8.73 | | |
| 429.mcf | 14.1 | | |
| | 11.2 | | |
| 445.gobmk | 11.5 | | |
| | 9.20 | | |
| 456.hmmer | 21.0 | | |
| | 13.4 | | |
| 458.sjeng | 10.7 | | |
| | 9.69 | | |
| 462.libquantum | 36.1 | | |
| | 30.0 | | |
| 464.h264ref | 15.6 | | |
| | 15.1 | | |
| 471.omnetpp | 9.49 | | |
| 473.astar | 8.03 | | |
| | 8.27 | | |
| 483.xalancbmk | 11.7 | | |
| | 10.2 | | |

SPECint_base2006 = 11.1

SPECint2006 = 12.8

## Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 2350 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 2 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 512 KB I+D on chip per core |
| L3 Cache: | 2 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 16 GB (8x2GB, DDR2-667, CL5, Reg, Dual Rank) |
| Disk Subsystem: | 1 x 73 SATA 15000 RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp |
| Compiler: | PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.1 |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | SmartHeap 8.0 32-bit Library for Linux |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 1016 | 9.61 | **1009** | **9.68** | 1008 | 9.70 | **770** | **12.7** | 778 | 12.6 | 758 | 12.9 |
| 401.bzip2 | 1163 | 8.29 | **1165** | **8.29** | 1165 | 8.28 | 1091 | 8.85 | **1091** | **8.85** | 1093 | 8.83 |
| 403.gcc | **922** | **8.73** | 921 | 8.74 | 925 | 8.70 | 882 | 9.13 | **882** | **9.12** | 885 | 9.09 |
| 429.mcf | 817 | 11.2 | **817** | **11.2** | 816 | 11.2 | **646** | **14.1** | 647 | 14.1 | 644 | 14.2 |
| 445.gobmk | 1140 | 9.20 | 1141 | 9.19 | **1141** | **9.20** | 915 | 11.5 | **916** | **11.5** | 916 | 11.4 |
| 456.hmmer | 699 | 13.3 | **697** | **13.4** | 691 | 13.5 | 443 | 21.0 | 446 | 20.9 | **444** | **21.0** |
| 458.sjeng | 1243 | 9.74 | 1249 | 9.68 | **1248** | **9.69** | 1134 | 10.7 | **1132** | **10.7** | 1127 | 10.7 |
| 462.libquantum | **691** | **30.0** | 690 | 30.0 | 693 | 29.9 | 576 | 36.0 | **574** | **36.1** | 574 | 36.1 |
| 464.h264ref | 1462 | 15.1 | 1484 | 14.9 | **1468** | **15.1** | 1401 | 15.8 | 1430 | 15.5 | **1417** | **15.6** |
| 471.omnetpp | **658** | **9.49** | 658 | 9.50 | 660 | 9.47 | **658** | **9.49** | 658 | 9.50 | 660 | 9.47 |
| 473.astar | **849** | **8.27** | 848 | 8.27 | 849 | 8.27 | 874 | 8.04 | 878 | 8.00 | **874** | **8.03** |
| 483.xalancbmk | 682 | 10.1 | 679 | 10.2 | **680** | **10.2** | 601 | 11.5 | 589 | 11.7 | **590** | **11.7** |

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

## Operating System Notes

```
'numactl' was used to bind copies to the cores
Environment variable PGI_HUGE_PAGES set to 150
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory quantity
Set vm/nr_hugepages = 1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

## Base Compiler Invocation

C benchmarks:
     pgcc

C++ benchmarks:
     pgcpp

## Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
   401.bzip2: -DSPEC_CPU_LP64
     403.gcc: -DSPEC_CPU_LP64
     429.mcf: -DSPEC_CPU_LP64
   445.gobmk: -DSPEC_CPU_LP64
   456.hmmer: -DSPEC_CPU_LP64
```

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## Base Portability Flags (Continued)

```
      458.sjeng: -DSPEC_CPU_LP64
  462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
     464.h264ref: -DSPEC_CPU_LP64
   483.xalancbmk: -DSPEC_CPU_LINUX
```

## Base Optimization Flags

C benchmarks:
```
    -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:150
    -tp barcelona-64 -Bstatic_pgi
```

C++ benchmarks:
```
    -fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:150
    --zc_eh -tp barcelona -Bstatic_pgi
```

## Base Other Flags

C benchmarks:
```
    -w -Mipa=jobs:4
```

C++ benchmarks:
```
    -w -Mipa=jobs:4
```

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
    pgcc
```

```
    400.perlbench: pathcc
```

```
         403.gcc: pathcc
```

```
      445.gobmk: pathcc
```

C++ benchmarks (except as noted below):
```
    pathCC
```

```
    471.omnetpp: pgcpp
```

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## Dell Inc.

PowerEdge M805 (AMD Opteron 2350, 2.0 GHz)

$SPECint2006 =$    12.8

$SPECint\_base2006 =$    11.1

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

**Test date:** Aug-2008
**Hardware Availability:** Aug-2008
**Software Availability:** May-2008

## Peak Portability Flags

```
 400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
     401.bzip2: -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
  483.xalancbmk: -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
 400.perlbench: -march=barcelona -fb_create fbdata(pass 1)
                -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
                -WOPT:if_conv=0 -CG:local_sched_alg=1

     401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
                -Msmartalloc=huge:150 -Mnounroll -tp barcelona-64
                -Bstatic_pgi

       403.gcc: -march=barcelona -fb_create fbdata(pass 1)
                -fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast

       429.mcf: -fastsse -Mipa=fast -Mipa=inline:1 -Msmartalloc=huge:150
                -tp barcelona -Bstatic_pgi

     445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
                -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict -LNO:opt=0
                -CG:p2align=on

     456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed
                -Mvect=partial -Msafeptr -Mipa=const -Mipa=ptr -Mipa=arg
                -Mipa=inline -tp barcelona-64 -Bstatic_pgi

     458.sjeng: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline:1(pass 2)
                -Mipa=noarg(pass 2) -Mpfo(pass 2) -fastsse
                -Msmartalloc=huge:150 -Mfprelaxed -tp barcelona-64
                -Bstatic_pgi

  462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8
                -Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64
                -Bstatic_pgi

    464.h264ref: -Mpfi=indirect(pass 1) -Mipa=fast(pass 2)
                -Mipa=inline(pass 2) -Mpfo=indirect(pass 2) -fastsse
                -Msmartalloc=huge:150 -Mfprelaxed -tp barcelona-64
                -Bstatic_pgi
```

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|---|---|
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## Peak Optimization Flags (Continued)

C++ benchmarks:

    471.omnetpp: `basepeak = yes`

    473.astar: `-march=barcelona -Ofast -TENV:frame_pointer=off`
        `-WOPT:if_conv=0 -GRA:optimize_boundary=on -IPA:plimit=525`
        `-m32 -lsmartheap`

    483.xalancbmk: `-march=barcelona -Ofast -m32 -OPT:unroll_times_max=8`
        `-CG:push_pop_int_saved_regs=off -CG:ptr_load_use=0`
        `-lsmartheap`

## Peak Other Flags

C benchmarks (except as noted below):
    `-w -Mipa=jobs:4(pass 2)`

    400.perlbench: `No flags used`

    401.bzip2: `-w`

    403.gcc: `No flags used`

    445.gobmk: `No flags used`

C++ benchmarks (except as noted below):
    `-L/root/work/cpu2006/amd123GH.libs/32`

    471.omnetpp: `-w -Mipa=jobs:4`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.xml

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For other inquiries, please contact webmaster@spec.org.

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