# SPEC® CINT2006 Result

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## Hewlett-Packard Company

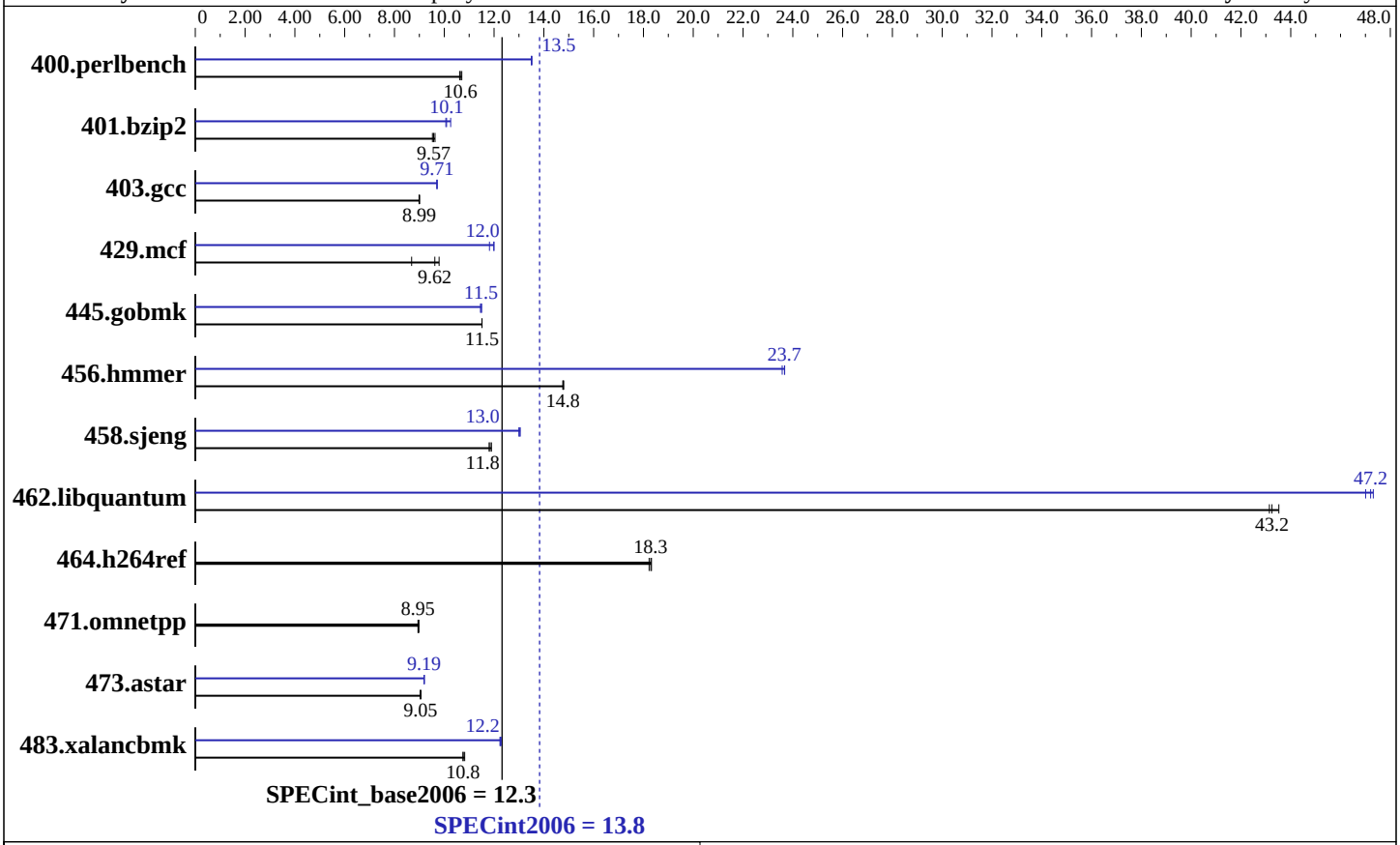
ProLiant DL585 G5
(2.3 GHz AMD Opteron 8356)

SPECint®2006 = 13.8

SPECint_base2006 = 12.3

**CPU2006 license:** 3
**Test sponsor:** Hewlett-Packard Company
**Tested by:** Hewlett-Packard Company

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




### Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 8356 |
| CPU Characteristics: | |
| CPU MHz: | 2300 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 4 chips, 4 cores/chip |
| CPU(s) orderable: | 2,4 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: | 64 GB (16x4 GB, PC2-5300P CL5) |
| Disk Subsystem: | 1x146 GB 10 K SAS |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | PGI Server Complete Version 7.2 |
| Auto Parallel: | Yes |
| File System: | ext2 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | SmartHeap 8.1 32-bit Library for Linux binutils-2.18.50 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 920 | 10.6 | **918** | **10.6** | 913 | 10.7 | 723 | 13.5 | 724 | 13.5 | **723** | **13.5** |
| 401.bzip2 | 1002 | 9.63 | 1013 | 9.53 | **1008** | **9.57** | 941 | 10.3 | 959 | 10.1 | **956** | **10.1** |
| 403.gcc | 896 | 8.99 | **895** | **8.99** | 893 | 9.01 | 830 | 9.70 | **829** | **9.71** | 829 | 9.71 |
| 429.mcf | 1050 | 8.69 | **948** | **9.62** | 931 | 9.79 | 772 | 11.8 | **760** | **12.0** | 760 | 12.0 |
| 445.gobmk | 911 | 11.5 | **911** | **11.5** | 911 | 11.5 | 912 | 11.5 | 916 | 11.5 | **913** | **11.5** |
| 456.hmmer | 630 | 14.8 | 632 | 14.8 | **632** | **14.8** | 396 | 23.6 | 394 | 23.7 | **394** | **23.7** |
| 458.sjeng | **1022** | **11.8** | 1017 | 11.9 | 1025 | 11.8 | **929** | **13.0** | 931 | 13.0 | 927 | 13.1 |
| 462.libquantum | 480 | 43.1 | 476 | 43.5 | **479** | **43.2** | 438 | 47.3 | 441 | 47.0 | **439** | **47.2** |
| 464.h264ref | **1210** | **18.3** | 1214 | 18.2 | 1208 | 18.3 | **1210** | **18.3** | 1214 | 18.2 | 1208 | 18.3 |
| 471.omnetpp | 699 | 8.95 | **698** | **8.95** | 696 | 8.98 | 699 | 8.95 | **698** | **8.95** | 696 | 8.98 |
| 473.astar | **776** | **9.05** | 774 | 9.06 | 777 | 9.03 | 763 | 9.20 | **764** | **9.19** | 764 | 9.19 |
| 483.xalancbmk | **641** | **10.8** | 642 | 10.8 | 638 | 10.8 | 562 | 12.3 | 564 | 12.2 | **564** | **12.2** |

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

## Operating System Notes

```
Environment stack size set to 'unlimited'
Max locked memory set to 2097152
PGI_HUGE_PAGES set to 896.
Total number of huge pages available is 14336.
```

## Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
```

## 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`

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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
483.xalancbmk: -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
-fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mloop32
-Mconcur=innermost -Msmartalloc=huge:896 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mloop32
-Msmartalloc=huge:896 --zc_eh -tp barcelona -Bstatic_pgi

## Base Other Flags

C benchmarks:
-w

C++ benchmarks:
-w

## Peak Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

## 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

Continued on next page

## Peak 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

## Peak Optimization Flags

C benchmarks:

400.perlbench: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:8(pass 2)
-Mipa=inline(pass 2) -fast -O4 -Mfprelaxed
-Msmartalloc=huge:896 -Mnounroll -Mnovect -tp barcelona-64
-Bstatic_pgi

401.bzip2: -Mpfi(pass 1) -Mconcur=innermost(pass 2) -Mpfo(pass 2)
-fast -O4 -Msmartalloc=huge:896 -Mnounroll
-tp barcelona-64 -Bstatic_pgi

403.gcc: -Mpfi(pass 1) -Mpfo(pass 2) -Mconcur(pass 2)
-Mipa=jobs:8(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -fastsse -Mfprelaxed
-Msmartalloc=huge:896 -tp barcelona -Bstatic_pgi

429.mcf: -fastsse -Mconcur -Mipa=jobs:8 -Mipa=fast -Mipa=inline:1
-Msmartalloc=huge:896 -Mloop32 -tp barcelona -Bstatic_pgi

445.gobmk: -Mpfi(pass 1) -Mpfo(pass 2) -Mconcur(pass 2)
-Mipa=jobs:8(pass 2) -Mipa=fast(pass 2) -fast -O4
-Msmartalloc=huge:896 -Mfprelaxed -Mnovect
-tp barcelona-64 -Bstatic_pgi

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:896 -Mfprelaxed
-Mvect=partial -Msafeptr -Mipa=jobs:8 -Mipa=const
-Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64
-Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:8(pass 2) -Mipa=fast(pass 2)
-Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mconcur(pass 2)
-Mpfo(pass 2) -fastsse -Msmartalloc=huge:896 -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc -Mvect=nosse
-Munroll=m:8 -Mconcur=innermost -Mconcur=noaltcode
-Mipa=jobs:8 -Mipa=fast -Mipa=noarg -tp barcelona-64
-Bstatic_pgi

464.h264ref: basepeak = yes

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# Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mpfi(pass 1) -Mipa=jobs:8(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2) -Mpfo(pass 2) -fastsse -O4 -Msmartalloc=huge:896 -Mfprelaxed -Mloop32 --zc_eh -tp barcelona -Bstatic_pgi

483.xalancbmk: -fastsse -O4 -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc -Mloop32 --zc_eh -tp barcelona -Bstatic_pgi -L/proj/qa/smartheap/SmartHeap_8.1/lib -lsmartheap

# Peak Other Flags

C benchmarks:
-w

C++ benchmarks:
-w

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.xml


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