# SPEC® CINT2006 Result

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## Hewlett-Packard Company

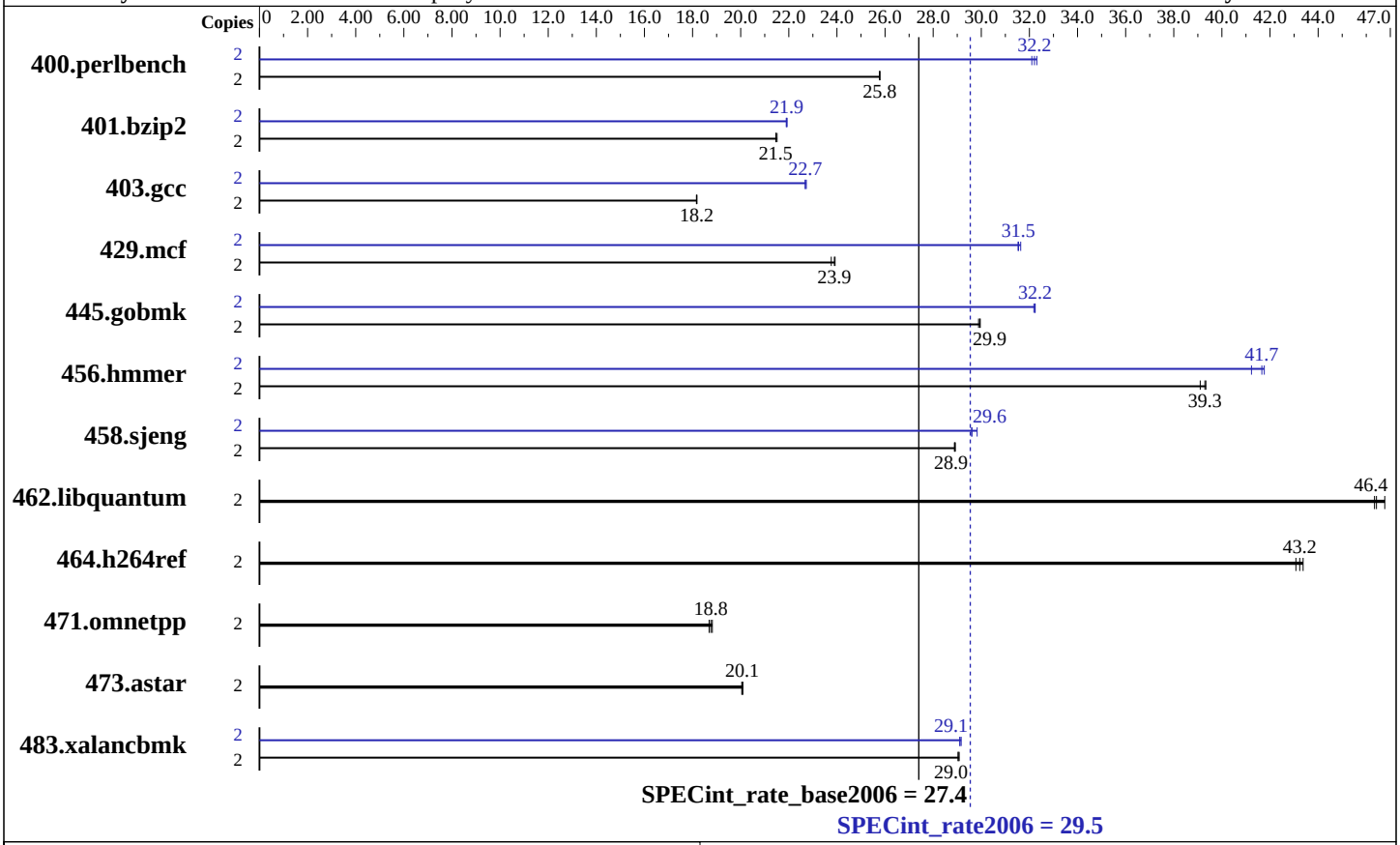
ProLiant DL365
(3.0GHz AMD Opteron 2222)

SPECint®_rate2006 = 29.5

SPECint_rate_base2006 = 27.4

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

**Test date:** Aug-2007
**Hardware Availability:** Sep-2007
**Software Availability:** Oct-2007




### Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 2222 |
| CPU Characteristics: | |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (4x4 GB, PC2-5300P CL5) |
| Disk Subsystem: | 1x72 GB 10 K SAS |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP1<br>kernel 2.6.16.46-0.12-smp |
| Compiler: | The Portland Group (PGI)<br>PGI pgcc 7.1-0 C Compiler<br>PGI pgCC 7.1-0 C++ Compiler |
| Auto Parallel: | No |
| File System: | ext2 |
| System State: | Multi-user, run level 3 |
| 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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 2 | 758 | 25.8 | **758** | **25.8** | 758 | 25.8 | 2 | **607** | **32.2** | 609 | 32.1 | 605 | 32.3 |
| 401.bzip2 | 2 | 899 | 21.5 | 897 | 21.5 | **899** | **21.5** | 2 | 882 | 21.9 | 880 | 21.9 | **881** | **21.9** |
| 403.gcc | 2 | 886 | 18.2 | 887 | 18.2 | **886** | **18.2** | 2 | **710** | **22.7** | 710 | 22.7 | 708 | 22.7 |
| 429.mcf | 2 | 762 | 23.9 | 768 | 23.8 | **763** | **23.9** | 2 | 579 | 31.5 | 577 | 31.6 | **578** | **31.5** |
| 445.gobmk | 2 | 702 | 29.9 | **701** | **29.9** | 700 | 30.0 | 2 | 651 | 32.2 | 652 | 32.2 | **651** | **32.2** |
| 456.hmmer | 2 | 477 | 39.1 | **475** | **39.3** | 474 | 39.3 | 2 | 453 | 41.2 | 447 | 41.8 | **448** | **41.7** |
| 458.sjeng | 2 | **837** | **28.9** | 837 | 28.9 | 838 | 28.9 | 2 | **817** | **29.6** | 818 | 29.6 | 811 | 29.8 |
| 462.libquantum | 2 | 886 | 46.8 | **893** | **46.4** | 894 | 46.3 | 2 | 886 | 46.8 | **893** | **46.4** | 894 | 46.3 |
| 464.h264ref | 2 | **1024** | **43.2** | 1020 | 43.4 | 1027 | 43.1 | 2 | **1024** | **43.2** | 1020 | 43.4 | 1027 | 43.1 |
| 471.omnetpp | 2 | 664 | 18.8 | **666** | **18.8** | 669 | 18.7 | 2 | 664 | 18.8 | **666** | **18.8** | 669 | 18.7 |
| 473.astar | 2 | 700 | 20.0 | **700** | **20.1** | 699 | 20.1 | 2 | 700 | 20.0 | **700** | **20.1** | 699 | 20.1 |
| 483.xalancbmk | 2 | 475 | 29.0 | 475 | 29.1 | **475** | **29.0** | 2 | 473 | 29.2 | **474** | **29.1** | 474 | 29.1 |

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'
ulimit -l set to 1048576
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=1024 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
458.sjeng: -DSPEC_CPU_LP64

Continued on next page

## Base Portability Flags (Continued)

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 -Mipa=noarg -Mfprelaxed
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh
-tp k8-32 -Bstatic_pgi -lsmartheap

## Base Other Flags

C benchmarks:
-w

C++ benchmarks:
-w -L/proj/qa/smartheap/SmartHeap_8/lib

## 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
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=inline`(pass 2) `-fast -O4 -Mfprelaxed -Msmartalloc=huge:8 -Mnounroll -tp k8-64 -Bstatic_pgi`

401.bzip2: `-Mpfi`(pass 1) `-Mpfo`(pass 2) `-fast -O4 -Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi`

403.gcc: `-fastsse -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast -Mipa=inline -tp k8-32 -Bstatic_pgi`

429.mcf: `-fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:16 -tp k8-32 -Bstatic_pgi`

445.gobmk: `-Mpfi`(pass 1) `-Mpfo`(pass 2) `-Mipa=fast`(pass 2) `-fast -O4 -Msmartalloc=huge:32 -Mfprelaxed -Mnovect -tp k8-64 -Bstatic_pgi`

456.hmmer: `-fast -Msmartalloc=huge:32 -Mfprelaxed -Msafeptr -Mipa=const -Mipa=ptr -Mipa=arg -tp k8-64 -Bstatic_pgi`

458.sjeng: `-Mpfi`(pass 1) `-Mipa=fast`(pass 2) `-Mipa=inline`(pass 2) `-Mipa=noarg`(pass 2) `-Mpfo`(pass 2) `-fast -Msmartalloc=huge:32 -Mfprelaxed -tp k8-64 -Bstatic_pgi`

462.libquantum: `basepeak = yes`

464.h264ref: `basepeak = yes`

C++ benchmarks:

471.omnetpp: `basepeak = yes`

473.astar: `basepeak = yes`

483.xalancbmk: `-fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh -tp k8-32 -Bstatic_pgi -lsmartheap`

## Peak Other Flags

C benchmarks:
`-w`

C++ benchmarks:
`-w -L/proj/qa/smartheap/SmartHeap_8/lib`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/hp-pgi710_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/hp-pgi710_flags.xml


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

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