



SPEC[®] CINT2006 Result

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Hewlett-Packard Company

SPECint[®]_rate2006 = 61.0

ProLiant DL185 G5
(3.0 GHz AMD Opteron 2222)

SPECint_rate_base2006 = 55.0

CPU2006 license: 3

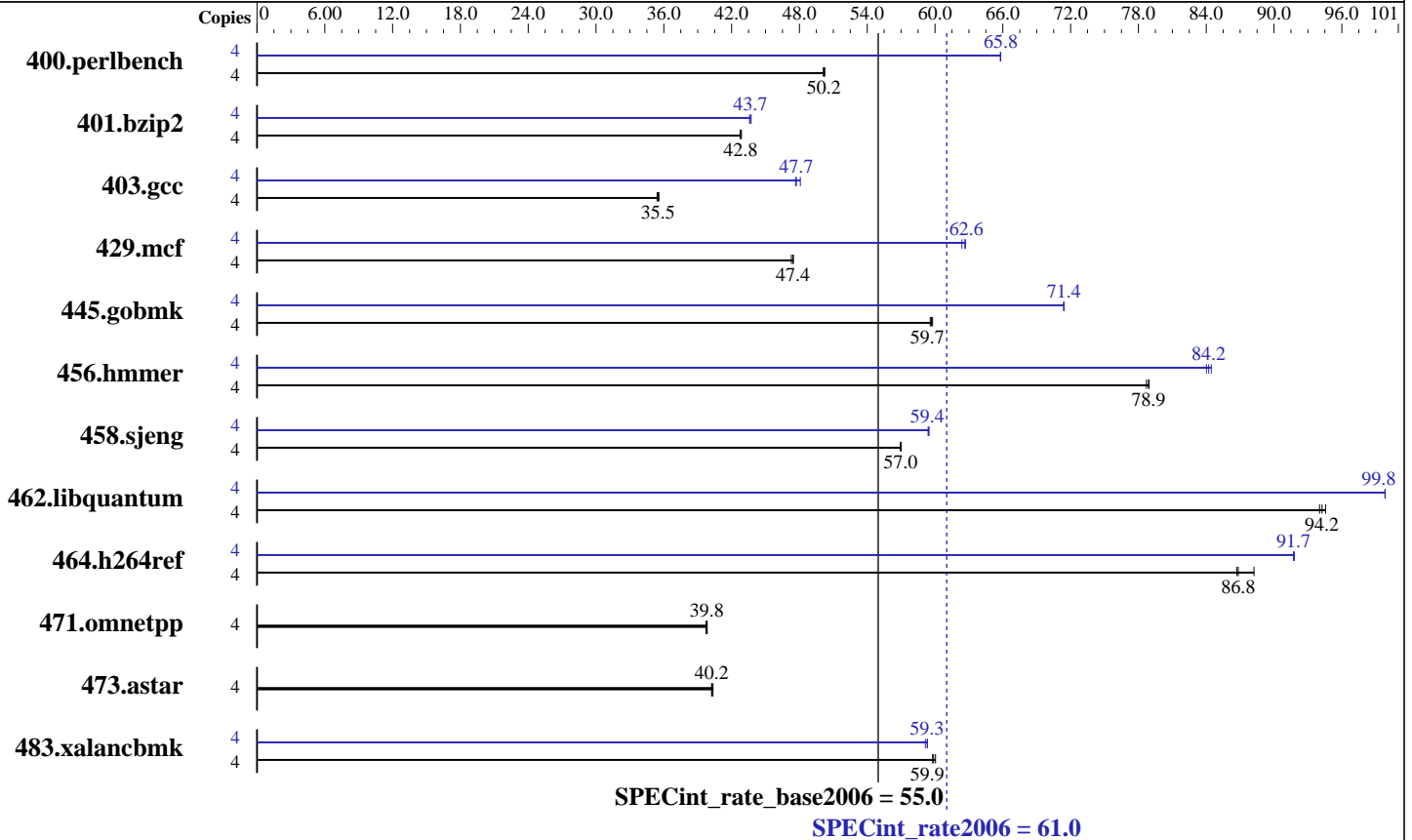
Test date: Dec-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



Hardware

CPU Name: AMD Opteron 2222
 CPU Characteristics:
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 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: 32 GB (8x4 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: The Portland Group (PGI)
 PGI pgcc 7.1-1 C Compiler
 PGI pgCC 7.1-1 C++ Compiler
 QLogic PathScale Compiler Suite, Release 3.0
 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: MicroQuill SmartHeap Library 8.1



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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 | 4 | 779 | 50.2 | 778 | 50.2 | 780 | 50.1 | 4 | 594 | 65.8 | 594 | 65.8 | 594 | 65.8 |
| 401.bzip2 | 4 | 902 | 42.8 | 903 | 42.8 | 900 | 42.9 | 4 | 886 | 43.6 | 883 | 43.7 | 884 | 43.7 |
| 403.gcc | 4 | 907 | 35.5 | 905 | 35.6 | 909 | 35.4 | 4 | 670 | 48.1 | 675 | 47.7 | 676 | 47.7 |
| 429.mcf | 4 | 772 | 47.3 | 769 | 47.5 | 769 | 47.4 | 4 | 585 | 62.4 | 582 | 62.7 | 582 | 62.6 |
| 445.gobmk | 4 | 704 | 59.6 | 703 | 59.7 | 702 | 59.8 | 4 | 588 | 71.4 | 588 | 71.4 | 588 | 71.4 |
| 456.hmmer | 4 | 474 | 78.7 | 473 | 78.9 | 473 | 78.9 | 4 | 443 | 84.2 | 444 | 84.0 | 442 | 84.4 |
| 458.sjeng | 4 | 849 | 57.0 | 850 | 56.9 | 850 | 57.0 | 4 | 815 | 59.4 | 814 | 59.4 | 814 | 59.5 |
| 462.libquantum | 4 | 876 | 94.6 | 879 | 94.2 | 881 | 94.0 | 4 | 830 | 99.8 | 830 | 99.8 | 830 | 99.8 |
| 464.h264ref | 4 | 1019 | 86.8 | 1021 | 86.7 | 1003 | 88.2 | 4 | 965 | 91.7 | 964 | 91.8 | 965 | 91.7 |
| 471.omnetpp | 4 | 628 | 39.8 | 628 | 39.8 | 629 | 39.7 | 4 | 628 | 39.8 | 628 | 39.8 | 629 | 39.7 |
| 473.astar | 4 | 696 | 40.4 | 698 | 40.2 | 698 | 40.2 | 4 | 696 | 40.4 | 698 | 40.2 | 698 | 40.2 |
| 483.xalancbmk | 4 | 460 | 60.0 | 461 | 59.9 | 462 | 59.8 | 4 | 467 | 59.1 | 465 | 59.3 | 465 | 59.3 |

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
```

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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:840 -tp k8-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
--zc_eh -tp k8-32 -Bstatic_pgi
-L/cpu2006/SmartHeap_8.1/lib -lsmartheap

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

464.h264ref: pathcc

C++ benchmarks:

pgcpp



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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.xalanbmk: -DSPEC_CPU_LINUX

```

Peak Optimization Flags

C benchmarks:

```

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
               -LNO:opt=0

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
           -Msmartalloc=huge:448 -tp k8-64 -Bstatic_pgi

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

429.mcf: -fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:420
         -tp k8-32 -Bstatic_pgi

445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
           -OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off
           -WOPT:retype_expr=on

456.hmmer: -fast -Msmartalloc=huge:448 -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:448 -Mfprelaxed -tp k8-64 -Bstatic_pgi

462.libquantum: -fast -Mfprelaxed -Msmartalloc=huge:448 -Munroll=m:4
               -Mipa=fast -Mipa=inline -Mipa=noarg -Bstatic_pgi

464.h264ref: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
             -IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0

```

C++ benchmarks:

```

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

```

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Peak Optimization Flags (Continued)

```
483.xalancbmk: -fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed
               -Msmartalloc=huge:420 --zc_eh -tp k8-32 -Bstatic_pgi
               -L/cpu2006/SmartHeap_8.1/lib -lsmartheap
```

Peak Other Flags

C benchmarks (except as noted below):

-w

400.perlbench: No flags used

403.gcc: No flags used

445.gobmk: No flags used

464.h264ref: No flags used

C++ benchmarks:

-w

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/hp-pgi710_ps30_flags.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/hp-pgi710_ps30_flags.xml

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

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