SPEC® CINT2006 Result
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Hewlett-Packard Company

ProLiant DL185 G5
(3.0 GHz AMD Opteron 2222)

$SPECint^®\_rate2006 =$ 30.7

$SPECint\_rate\_base2006 =$ 27.7
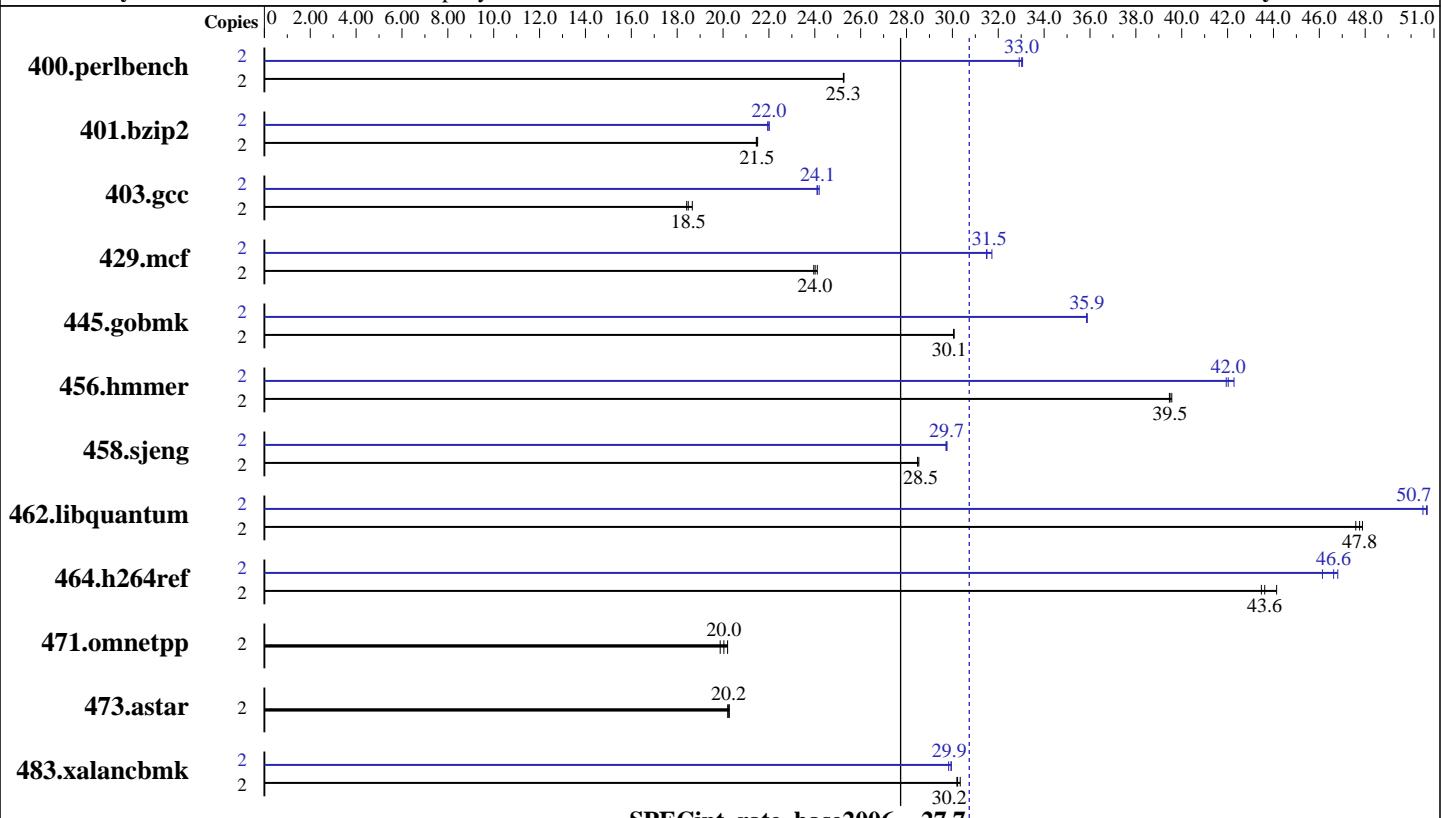
CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Dec-2007

Hardware Availability: Jan-2008

Software Availability: Nov-2007

Copies	0 2.00 4.00 6.00 8.00 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0 36.0 38.0 40.0 42.0 44.0 46.0 48.0 51.0
400.perlbench 2 / 2	33.0 / 25.3
401.bzip2 2 / 2	22.0 / 21.5
403.gcc 2 / 2	24.1 / 18.5
429.mcf 2 / 2	31.5 / 24.0
445.gobmk 2 / 2	35.9 / 30.1
456.hmmer 2 / 2	42.0 / 39.5
458.sjeng 2 / 2	29.7 / 28.5
462.libquantum 2 / 2	50.7 / 47.8
464.h264ref 2 / 2	46.6 / 43.6
471.omnetpp 2	20.0
473.astar 2	20.2
483.xalancbmk 2 / 2	29.9 / 30.2

SPECint_rate_base2006 = 27.7

SPECint_rate2006 = 30.7

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: 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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	2	773	25.3	**774**	**25.3**	774	25.2	2	**592**	**33.0**	591	33.1	594	32.9
401.bzip2	2	**899**	**21.5**	897	21.5	900	21.5	2	877	22.0	**877**	**22.0**	880	21.9
403.gcc	2	863	18.7	**871**	**18.5**	874	18.4	2	665	24.2	**667**	**24.1**	668	24.1
429.mcf	2	757	24.1	**759**	**24.0**	761	24.0	2	**579**	**31.5**	575	31.7	579	31.5
445.gobmk	2	698	30.1	**698**	**30.1**	698	30.1	2	**585**	**35.9**	585	35.9	585	35.9
456.hmmer	2	472	39.6	473	39.5	**473**	**39.5**	2	445	41.9	**444**	**42.0**	441	42.3
458.sjeng	2	848	28.5	850	28.5	**850**	**28.5**	2	814	29.7	**813**	**29.7**	813	29.8
462.libquantum	2	871	47.6	**868**	**47.8**	865	47.9	2	820	50.5	**818**	**50.7**	817	50.7
464.h264ref	2	**1015**	**43.6**	1018	43.5	1003	44.1	2	946	46.8	**949**	**46.6**	959	46.1
471.omnetpp	2	619	20.2	629	19.9	**624**	**20.0**	2	619	20.2	629	19.9	**624**	**20.0**
473.astar	2	**693**	**20.2**	693	20.3	695	20.2	2	**693**	**20.2**	693	20.3	695	20.2
483.xalancbmk	2	455	30.3	**457**	**30.2**	457	30.2	2	461	30.0	463	29.8	**461**	**29.9**

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.xalancbmk: -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`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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