



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 13.8

ProLiant BL685c G5
(2.3 GHz AMD Opteron 8356)

SPECint_base2006 = 12.2

CPU2006 license: 3

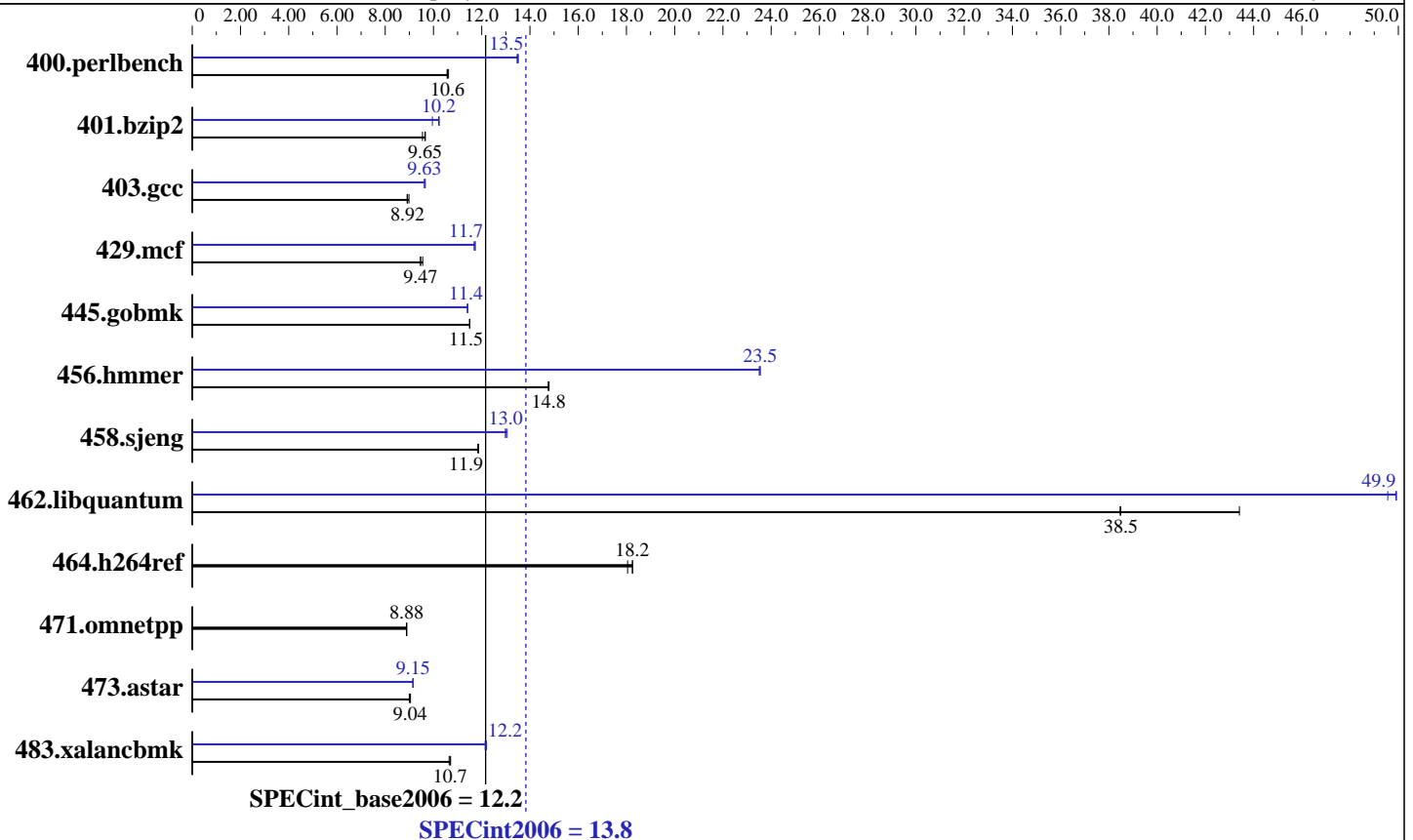
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

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: binutils-2.18.50, SmartHeap 8.1 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	<u>923</u>	<u>10.6</u>	925	10.6	920	10.6	723	13.5	<u>724</u>	<u>13.5</u>	726	13.5
401.bzip2	999	9.66	1011	9.55	<u>1000</u>	<u>9.65</u>	942	10.2	969	9.96	<u>945</u>	<u>10.2</u>
403.gcc	<u>902</u>	<u>8.92</u>	896	8.98	904	8.91	833	9.66	<u>836</u>	<u>9.63</u>	837	9.62
429.mcf	<u>964</u>	<u>9.47</u>	954	9.55	964	9.46	780	11.7	778	11.7	<u>778</u>	<u>11.7</u>
445.gobmk	912	11.5	912	11.5	<u>912</u>	<u>11.5</u>	919	11.4	920	11.4	<u>919</u>	<u>11.4</u>
456.hammer	632	14.8	631	14.8	<u>632</u>	<u>14.8</u>	<u>396</u>	<u>23.5</u>	396	23.5	397	23.5
458.sjeng	<u>1020</u>	<u>11.9</u>	1022	11.8	1019	11.9	<u>931</u>	<u>13.0</u>	927	13.1	932	13.0
462.libquantum	477	43.4	539	38.5	<u>538</u>	<u>38.5</u>	415	49.9	418	49.6	<u>415</u>	<u>49.9</u>
464.h264ref	<u>1213</u>	<u>18.2</u>	1226	18.0	1213	18.3	<u>1213</u>	<u>18.2</u>	1226	18.0	1213	18.3
471.omnetpp	703	8.89	704	8.88	<u>704</u>	<u>8.88</u>	703	8.89	704	8.88	<u>704</u>	<u>8.88</u>
473.astar	780	9.00	<u>777</u>	<u>9.04</u>	776	9.05	768	9.15	<u>767</u>	<u>9.15</u>	767	9.16
483.xalancbmk	648	10.7	<u>645</u>	<u>10.7</u>	644	10.7	566	12.2	568	12.1	<u>567</u>	<u>12.2</u>

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
NCPUS set to number of cores
numactl used to bind processes to CPUs
```

Platform Notes

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

Base Compiler Invocation

```
C benchmarks:
pgcc

C++ benchmarks:
pgcpp
```



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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
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

```

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Peak Portability Flags (Continued)

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: -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

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Peak Optimization Flags (Continued)

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mphi(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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