SPEC® CINT2006 Result

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Hewlett-Packard Company

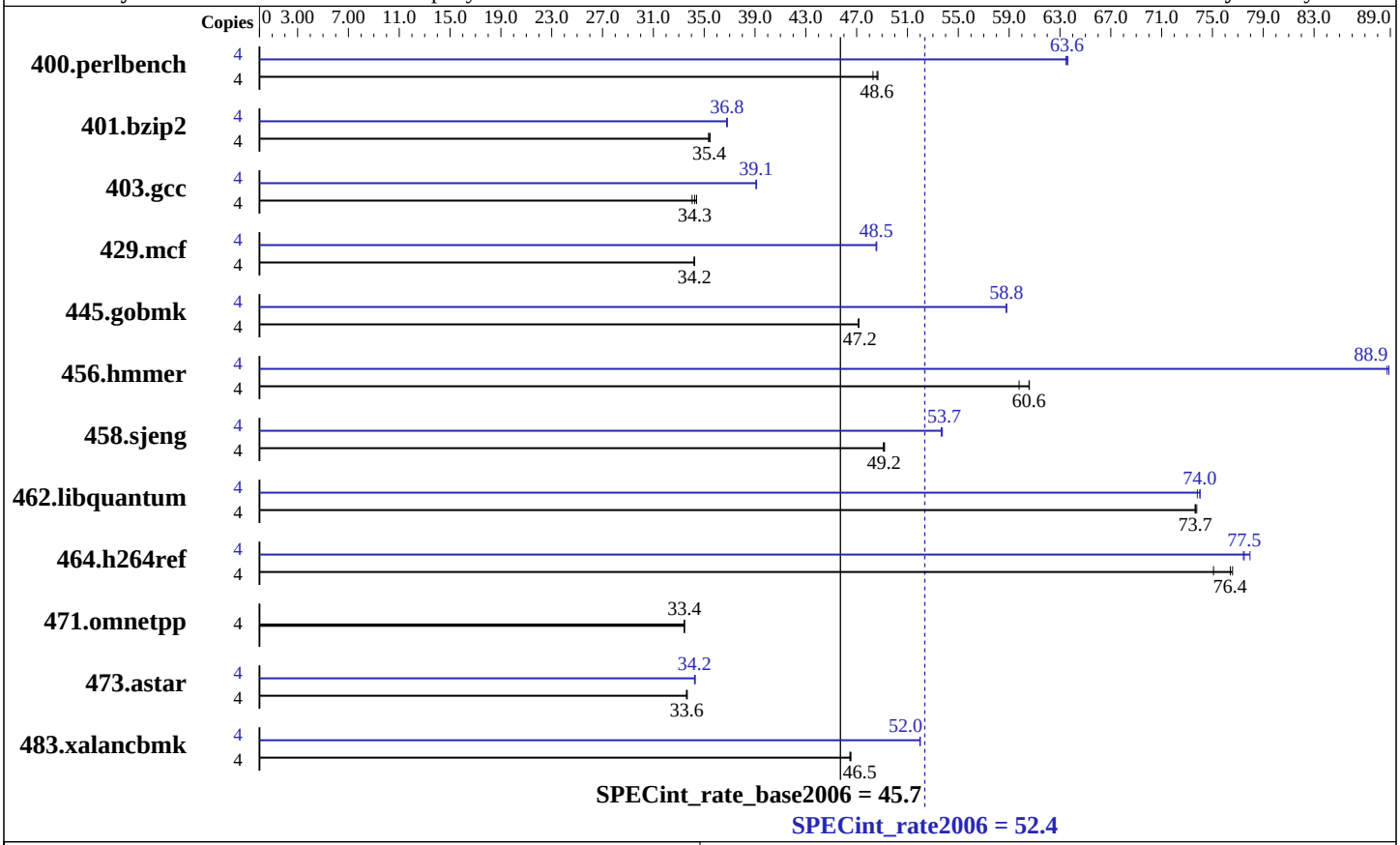
ProLiant DL385 G5
(2.3 GHz AMD Opteron 2356)

SPECint®_rate2006 = 52.4

SPECint_rate_base2006 = 45.7

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 2356
CPU Characteristics:	
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1,2 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:	16 GB (4x4 GB, PC2-5300P CL5)
Disk Subsystem:	2x72 GB 15 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 PathScale Compiler Suite, Release Pre-3.2 Beta
Auto Parallel:	No
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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	809	48.3	803	48.7	**804**	**48.6**	4	**615**	**63.6**	616	63.5	614	63.6
401.bzip2	4	1092	35.3	1088	35.5	**1090**	**35.4**	4	**1049**	**36.8**	1048	36.8	1050	36.8
403.gcc	4	946	34.1	**940**	**34.3**	936	34.4	4	**824**	**39.1**	823	39.1	824	39.1
429.mcf	4	**1066**	**34.2**	1066	34.2	1066	34.2	4	751	48.6	**752**	**48.5**	752	48.5
445.gobmk	4	**890**	**47.2**	890	47.2	890	47.1	4	714	58.8	**714**	**58.8**	714	58.8
456.hmmer	4	616	60.6	624	59.8	**616**	**60.6**	4	**420**	**88.9**	420	88.9	421	88.7
458.sjeng	4	984	49.2	**985**	**49.2**	986	49.1	4	902	53.7	900	53.7	**902**	**53.7**
462.libquantum	4	**1125**	**73.7**	1126	73.6	1124	73.8	4	1123	73.8	**1120**	**74.0**	1120	74.0
464.h264ref	4	**1159**	**76.4**	1179	75.1	1156	76.6	4	1143	77.4	**1142**	**77.5**	1136	78.0
471.omnetpp	4	748	33.4	**748**	**33.4**	748	33.4	4	748	33.4	**748**	**33.4**	748	33.4
473.astar	4	835	33.6	834	33.7	**835**	**33.6**	4	820	34.2	819	34.3	**820**	**34.2**
483.xalancbmk	4	594	46.5	593	46.5	**593**	**46.5**	4	**531**	**52.0**	531	52.0	531	52.0

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 3584.
```

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:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 --zc_eh -tp barcelona -Bstatic_pgi

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

C++ benchmarks (except as noted below):
pathCC

471.omnetpp: 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: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
-WOPT:if_conv=0 -CG:local_sched_alg=1

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
-Msmartalloc=huge:150 -Mnounroll -tp barcelona-64
-Bstatic_pgi

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

429.mcf: -fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline:1
-Msmartalloc=huge:150 -tp barcelona -Bstatic_pgi

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
-LNO:prefetch=1 -LNO:ignore_feedback=off -CG:p2align=on

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed
-Mvect=partial -Msafeptr -Mipa=jobs:4 -Mipa=const
-Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64
-Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
-Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mpfo(pass 2)
-fastsse -Msmartalloc=huge:150 -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mipa=noarg
-tp barcelona-64 -Bstatic_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=jobs:4(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mpfo=indirect(pass 2) -fastsse -Msmartalloc=huge:150

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Peak Optimization Flags (Continued)

464.h264ref (continued):
-Mfprelaxed -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -Ofast -TENV:frame_pointer=off
-WOPT:if_conv=0 -GRA:optimize_boundary=on -IPA:plimit=525
-m32 -lsmartheap

483.xalancbmk: -march=barcelona -Ofast -m32 -OPT:unroll_times_max=8
-CG:push_pop_int_saved_regs=off -CG:ptr_load_use=0
-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

C++ benchmarks (except as noted below):
-L/root/work/cpu2006/amd123GH.libs/32

471.omnetpp: -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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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 18:34:03 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 April 2008.