



SPEC® CINT2006 Result

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Acer Incorporated

SPECint®_rate2006 = 51.4

Acer Altos G5450 (AMD Opteron 2356)

SPECint_rate_base2006 = 44.7

CPU2006 license: 97

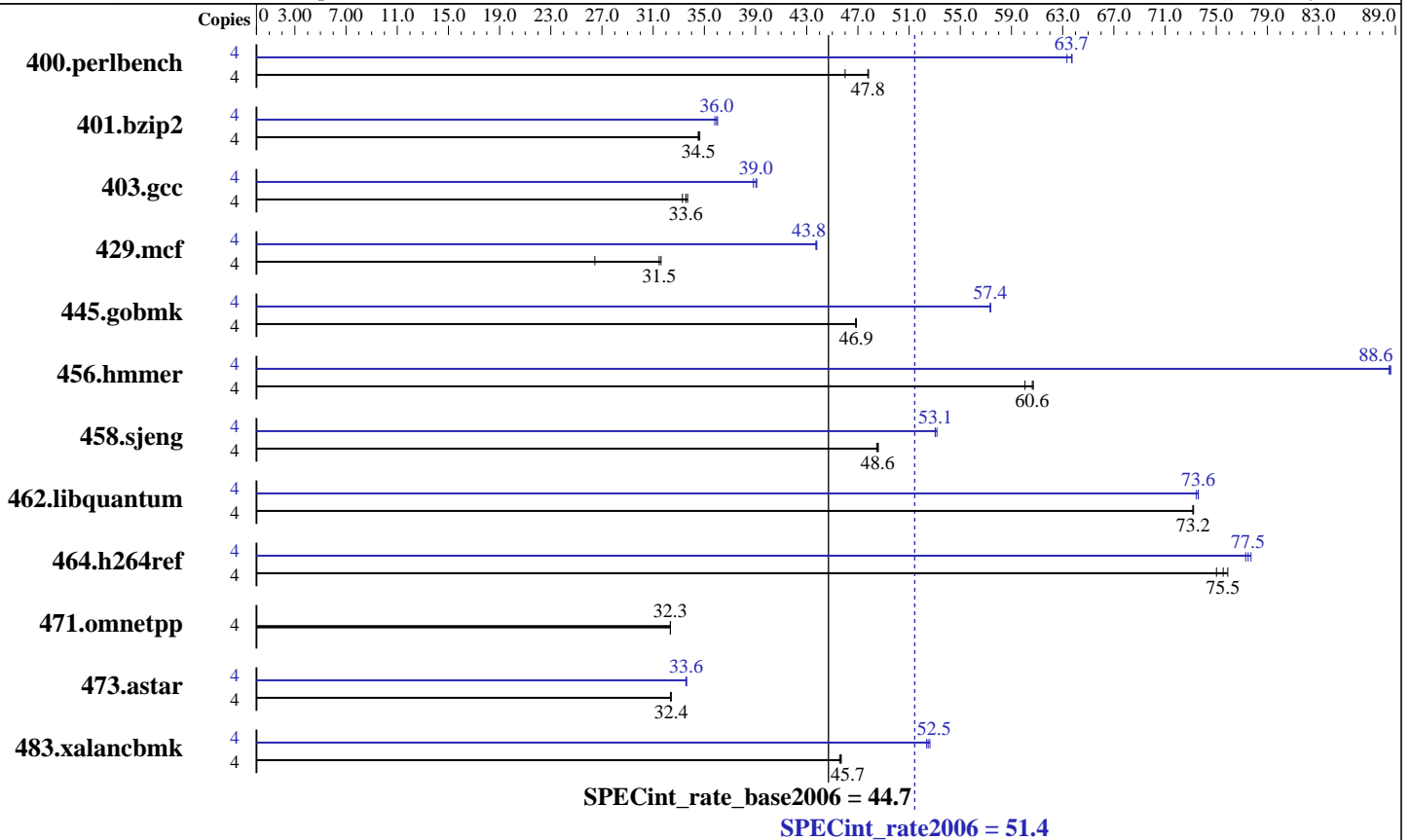
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: May-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: 8 GB (4x2GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 1x160GB SATA, 7200 RPM
 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 Version 3.1
 Auto Parallel: No
 File System: ReiserFS
 System State: Default
 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	4	850	46.0	817	47.8	818	47.8	4	617	63.3	613	63.7	614	63.7
401.bzip2	4	1114	34.6	1118	34.5	1117	34.5	4	1078	35.8	1073	36.0	1071	36.0
403.gcc	4	956	33.7	960	33.6	967	33.3	4	825	39.0	829	38.8	824	39.1
429.mcf	4	1380	26.4	1154	31.6	1159	31.5	4	835	43.7	833	43.8	833	43.8
445.gobmk	4	895	46.9	895	46.9	896	46.8	4	731	57.4	732	57.4	732	57.3
456.hmmer	4	615	60.7	616	60.6	621	60.1	4	422	88.5	421	88.6	421	88.6
458.sjeng	4	996	48.6	997	48.6	999	48.5	4	913	53.0	910	53.2	912	53.1
462.libquantum	4	1132	73.2	1133	73.2	1132	73.2	4	1126	73.6	1126	73.6	1128	73.4
464.h264ref	4	1180	75.0	1172	75.5	1166	75.9	4	1145	77.3	1142	77.5	1139	77.7
471.omnetpp	4	773	32.3	773	32.3	773	32.3	4	773	32.3	773	32.3	773	32.3
473.astar	4	868	32.4	867	32.4	867	32.4	4	836	33.6	835	33.6	837	33.6
483.xalancbmk	4	604	45.7	606	45.6	605	45.7	4	527	52.4	526	52.5	524	52.6

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
'numactl' was used to bind copies to the cores
Environment variable PGI_HUGE_PAGES set to 150
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 1228800' was used to set environment locked pages in memory quantity
Set vm/nr_hugepages=600 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
```

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Base Portability Flags (Continued)

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

C++ benchmarks:

-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:150
--zc_eh -tp barcelona -Bstatic_pgi

Base Other Flags

C benchmarks:

-w -Mipa=jobs:4

C++ benchmarks:

-w -Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):

gcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

C++ benchmarks (except as noted below):

pathCC

471.omnetpp: pgcpp



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Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
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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: -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

429.mcf: -fastsse -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:opt=0
          -CG:p2align=on

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

458.sjeng: -Mpfi(pass 1) -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=fast -Mipa=inline -Mipa=noarg -tp barcelona-64
              -Bstatic_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=fast(pass 2)
            -Mipa=inline(pass 2) -Mpfo=indirect(pass 2) -fastsse
            -Msmartalloc=huge:150 -Mfprelaxed -tp barcelona-64
            -Bstatic_pgi

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Peak Optimization Flags (Continued)

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 -Mipa=jobs:4(pass 2)

400.perlbench: No flags used

401.bzip2: -w

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 -Mipa=jobs:4

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.html>

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

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.xml>

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

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