



SPEC® CINT2006 Result

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Acer Incorporated

SPECint®_rate2006 = 47.1

Acer Altos G5450 (AMD Opteron 2350)

SPECint_rate_base2006 = 40.9

CPU2006 license: 97

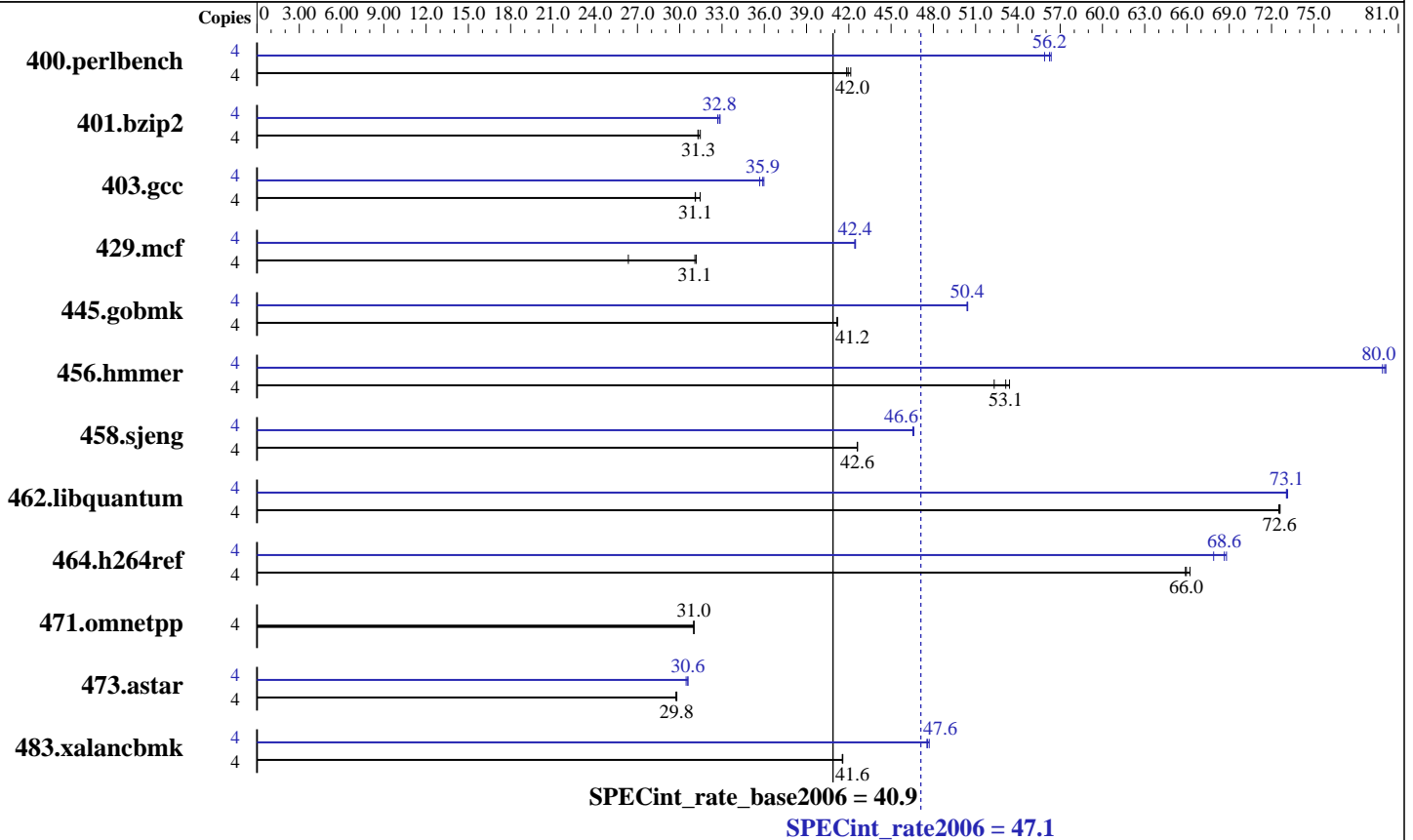
Test date: May-2008

Test sponsor: Acer Incorporated

Hardware Availability: Apr-2008

Tested by: Acer Incorporated

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2350
 CPU Characteristics:
 CPU MHz: 2000
 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	927	42.1	<u>931</u>	<u>42.0</u>	934	41.8	4	699	55.9	<u>695</u>	<u>56.2</u>	693	56.4
401.bzip2	4	1227	31.5	1234	31.3	<u>1232</u>	<u>31.3</u>	4	1181	32.7	<u>1176</u>	<u>32.8</u>	1175	32.9
403.gcc	4	<u>1035</u>	<u>31.1</u>	1024	31.5	1035	31.1	4	903	35.7	<u>897</u>	<u>35.9</u>	895	36.0
429.mcf	4	1384	26.4	<u>1174</u>	<u>31.1</u>	1170	31.2	4	860	42.4	<u>860</u>	<u>42.4</u>	859	42.5
445.gobmk	4	1019	41.2	1019	41.2	<u>1019</u>	<u>41.2</u>	4	<u>832</u>	<u>50.4</u>	833	50.4	832	50.4
456.hmmer	4	<u>702</u>	<u>53.1</u>	699	53.4	713	52.3	4	467	79.9	466	80.1	<u>466</u>	<u>80.0</u>
458.sjeng	4	<u>1136</u>	<u>42.6</u>	1136	42.6	1136	42.6	4	1038	46.6	1040	46.5	<u>1039</u>	<u>46.6</u>
462.libquantum	4	1142	72.6	1143	72.5	<u>1142</u>	<u>72.6</u>	4	<u>1134</u>	<u>73.1</u>	1134	73.1	1133	73.1
464.h264ref	4	1344	65.9	1337	66.2	<u>1342</u>	<u>66.0</u>	4	<u>1290</u>	<u>68.6</u>	1304	67.9	1287	68.8
471.omnetpp	4	<u>806</u>	<u>31.0</u>	806	31.0	807	31.0	4	<u>806</u>	<u>31.0</u>	806	31.0	807	31.0
473.astar	4	942	29.8	944	29.7	<u>943</u>	<u>29.8</u>	4	918	30.6	922	30.5	<u>918</u>	<u>30.6</u>
483.xalancbmk	4	664	41.6	<u>664</u>	<u>41.6</u>	664	41.5	4	581	47.5	579	47.7	<u>580</u>	<u>47.6</u>

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):

pgcc

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
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: -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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