SPEC® CINT2006 Result
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Acer Incorporated

SPECint®_rate2006 =   51.4

Acer Altos R5250 (AMD Opteron 2356)
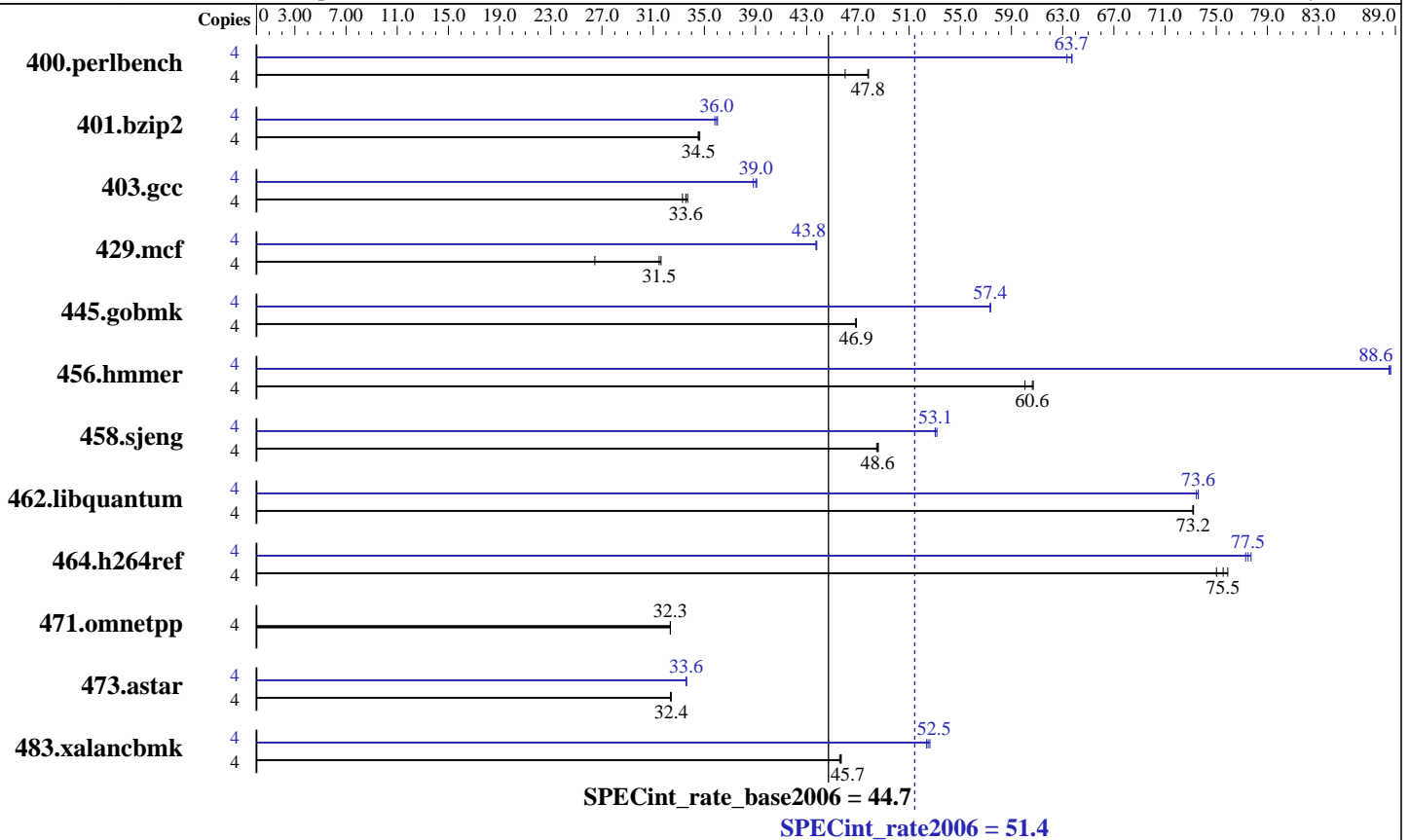
SPECint_rate_base2006 =   44.7

CPU2006 license: 97
Test sponsor: Acer Incorporated
Tested by: Acer Incorporated

Test date: May-2008
Hardware Availability: Mar-2008
Software Availability: May-2008

Copies 0 3.00 7.00 11.0 15.0 19.0 23.0 27.0 31.0 35.0 39.0 43.0 47.0 51.0 55.0 59.0 63.0 67.0 71.0 75.0 79.0 83.0 89.0

- 400.perlbench: 4 → 63.7; 4 → 47.8
- 401.bzip2: 4 → 36.0; 4 → 34.5
- 403.gcc: 4 → 39.0; 4 → 33.6
- 429.mcf: 4 → 43.8; 4 → 31.5
- 445.gobmk: 4 → 57.4; 4 → 46.9
- 456.hmmer: 4 → 88.6; 4 → 60.6
- 458.sjeng: 4 → 53.1; 4 → 48.6
- 462.libquantum: 4 → 73.6; 4 → 73.2
- 464.h264ref: 4 → 77.5; 4 → 75.5
- 471.omnetpp: 4 → 32.3
- 473.astar: 4 → 33.6; 4 → 32.4
- 483.xalancbmk: 4 → 52.5; 4 → 45.7

SPECint_rate_base2006 = 44.7

SPECint_rate2006 = 51.4

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):
```
    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.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

      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

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

Tested with SPEC CPU2006 v1.0.
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