



SPEC[®] CINT2006 Result

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Acer Incorporated

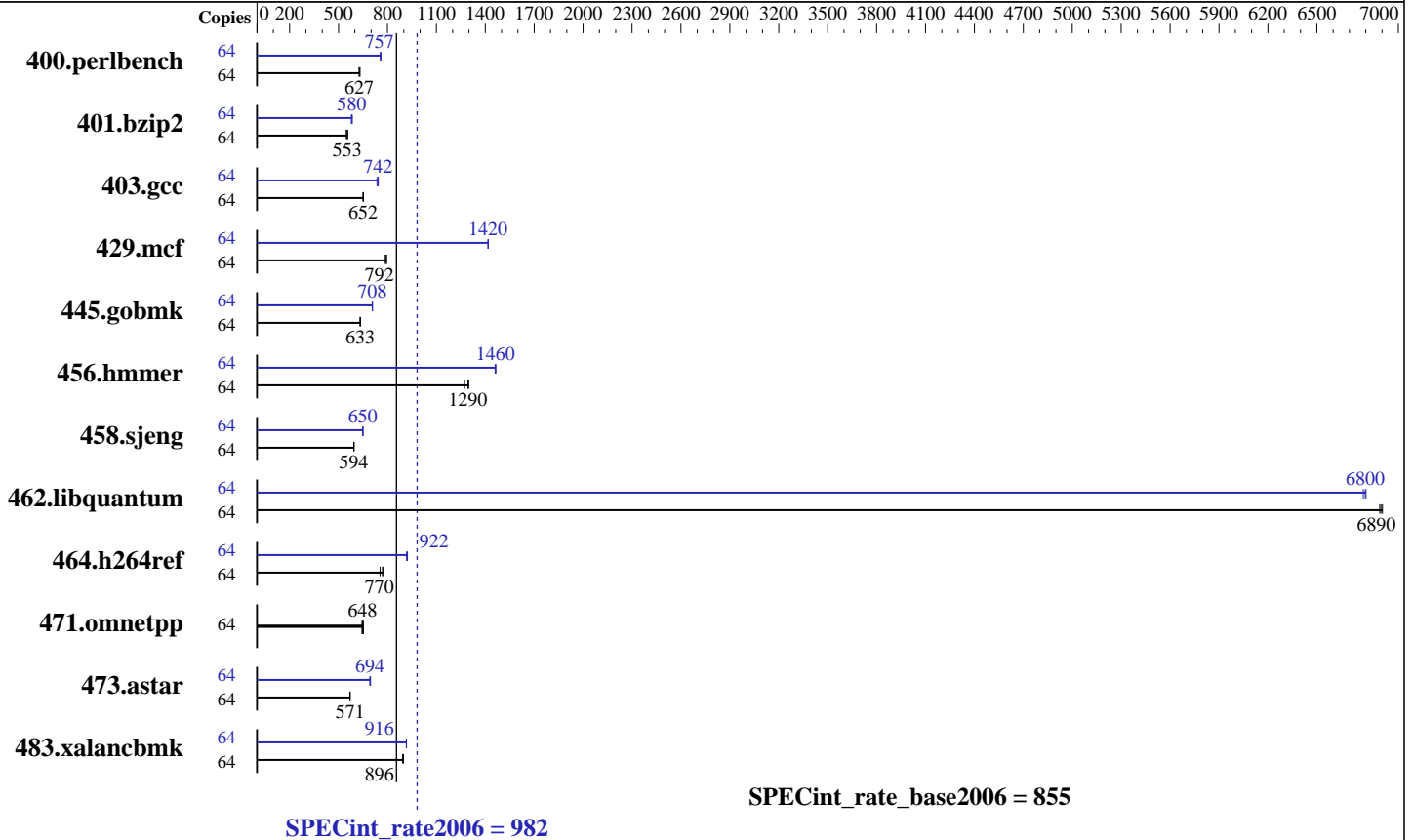
SPECint[®]_rate2006 = 982

Acer AR585 F1 (AMD Opteron 6276)

SPECint_rate_base2006 = 855

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

Test date: Apr-2012
Hardware Availability: Nov-2011
Software Availability: Dec-2011



Hardware

CPU Name: AMD Opteron 6276
 CPU Characteristics: AMD Turbo CORE technology up to 3.20 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 512 KB I on chip per chip,
 64 KB I shared / 2 cores;
 16 KB D on chip per core
 Secondary Cache: 16 MB I+D on chip per chip, 2 MB shared / 2 cores
 L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 8 cores
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.2,
 Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 4.5.1 of x86 Open64 Compiler Suite
 (from AMD)
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (Full multiuser with network)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: SmartHeap 10.0 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	64	998	626	990	632	<u>997</u>	<u>627</u>	64	<u>826</u>	<u>757</u>	826	757	823	759
401.bzip2	64	1129	547	<u>1118</u>	<u>553</u>	1110	556	64	1066	579	1057	584	<u>1064</u>	<u>580</u>
403.gcc	64	789	653	793	649	<u>790</u>	<u>652</u>	64	<u>694</u>	<u>742</u>	693	743	700	736
429.mcf	64	742	787	735	794	<u>737</u>	<u>792</u>	64	<u>412</u>	<u>1420</u>	412	1420	412	1420
445.gobmk	64	<u>1060</u>	<u>633</u>	1059	634	1062	632	64	950	707	948	708	<u>949</u>	<u>708</u>
456.hammer	64	<u>462</u>	<u>1290</u>	469	1270	460	1300	64	408	1460	409	1460	<u>408</u>	<u>1460</u>
458.sjeng	64	1305	594	1301	595	<u>1304</u>	<u>594</u>	64	1192	650	<u>1192</u>	<u>650</u>	1194	648
462.libquantum	64	193	6890	192	6900	<u>192</u>	<u>6890</u>	64	<u>195</u>	<u>6800</u>	195	6800	195	6780
464.h264ref	64	1836	771	1877	755	<u>1839</u>	<u>770</u>	64	1544	917	<u>1536</u>	<u>922</u>	1535	923
471.omnetpp	64	621	644	<u>618</u>	<u>648</u>	613	652	64	621	644	<u>618</u>	<u>648</u>	613	652
473.astar	64	790	569	<u>787</u>	<u>571</u>	787	571	64	649	692	<u>648</u>	<u>694</u>	645	696
483.xalancbmk	64	492	897	<u>493</u>	<u>896</u>	494	893	64	<u>482</u>	<u>916</u>	482	916	482	917

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

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set transparent_hugepage=never as a boot parameter in /boot/grub/menu.lst

Set vm/nr_hugepages=57344 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Settings:
PowerNow = Disabled
Fan Speed Control Modes = Full Speed

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/usr/cpu2006/amd1104-rate-libs-revC/32:/usr/cpu2006/amd1104-rate-libs-revC/64"

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General Notes (Continued)

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at <http://developer.amd.com/cpu/open64>

Binaries were compiled on a system with 2x AMD Opteron 6274 chips + 64GB Memory using RHEL 6.1

Base Compiler Invocation

C benchmarks:
openc

C++ benchmarks:
openCC

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:
-march=bdver1 -Ofast -CG:local_sched_alg=1 -INLINE:aggressive=ON
-IPA:plimit=8000 -IPA:small_pu=100 -HP:bd=2m:heap=2m -mso
-LNO:prefetch=2

C++ benchmarks:
-march=bdver1 -Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on
-D__OPEN64_FAST_SET -L/root/work/libraries/SmartHeap-10/lib -lsmartheap

Peak Compiler Invocation

C benchmarks:
openc

C++ benchmarks:
openCC



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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=bdver1 -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:prefetch=2 -LNO:opt=0
 -IPA:plimit=20000 -OPT:unroll_times_max=8
 -OPT:unroll_size=256 -OPT:unroll_level=2 -OPT:keep_ext=on
 -WOPT:if_conv=0 -WOPT:sib=on -CG:local_sched_alg=1
 -CG:unroll_fb_req=on -CG:movext_icmp=off -HP:bd=2m:heap=2m

401.bzip2: -march=bdver1 -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -LNO:prefetch=2 -LNO:pf2=0
 -OPT:alias=disjoint -OPT:goto=off -CG:local_sched_alg=1
 -HP:bd=2m:heap=2m

403.gcc: -march=bdver1 -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:trip_count=256
 -CG:cmp_peep=on -CG:pre_minreg_level=2 -m32
 -HP:bd=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200
 -WOPT:sib=on

429.mcf: -march=bdver1 -O3 -OPT:unroll_times_max=5 -ipa
 -INLINE:aggressive=on -CG:gcm=off -CG:dsched=on
 -GRA:prioritize_by_density=on -m32 -HP:bd=2m:heap=2m -mso

445.gobmk: -march=bdver1 -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -OPT:unroll_size=256
 -OPT:unroll_times_max=8 -OPT:keep_ext=on -IPA:plimit=750
 -IPA:min_hotness=300 -IPA:pu_reorder=1
 -LNO:ignore_feedback=off -WOPT:if_conv=2 -HP:bd=2m:heap=2m

456.hmmer: -march=bdver1 -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:prefetch=2
 -OPT:alias=disjoint -OPT:unroll_times_max=16
 -OPT:unroll_size=512 -OPT:unroll_level=2 -OPT:keep_ext=on
 -CG:cflow=0 -CG:cmp_peep=on -CG:pre_local_sched=off
 -HP:bd=2m:heap=2m

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Peak Optimization Flags (Continued)

```
458.sjeng: -march=bdver1 -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -Ofast -CG:ptr_load_use=0
          -CG:divrem_opt=on -CG:movext_icmp=off -CG:locs_best=on
          -LNO:full_unroll=10 -IPA:pu_reorder=2 -HP:heap=2m:bd=2m
          -WOPT:sib=on
```

```
462.libquantum: -march=bdver1 -Ofast -mso -OPT:unroll_size=512
               -OPT:unroll_times_max=16 -LNO:prefetch=2
               -LNO:prefetch_ahead=4 -LNO:pf2=0 -CG:local_sched_alg=1
               -CG:p2align=0 -INLINE:aggressive=ON -IPA:plimit=15000
               -IPA:small_pu=100 -HP:bdt=2m:heap=2m,limit=300
```

```
464.h264ref: -march=bdver1 -fb_create fbdata(pass 1)
             -fb_opt fbdata(pass 2) -O3 -OPT:unroll_size=256
             -OPT:unroll_times_max=2 -IPA:plimit=20000
             -OPT:alias=disjoint -CG:ptr_load_use=0
             -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m
```

C++ benchmarks:

471.omnetpp: basepeak = yes

```
473.astar: -march=bdver1 -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
           -WOPT:if_conv=0 -WOPT:sib=on -CG:divrem_opt=on
           -CG:p2align=1 -CG:dsched=on -GRA:optimize_boundary=on
           -OPT:alias=disjoint -INLINE:aggressive=on
           -IPA:small_pu=3000 -IPA:plimit=3000 -m32
           -HP:bdt=2m:heap=2m
```

```
483.xalancbmk: -march=bdver1 -Ofast -LNO:prefetch=2 -OPT:unroll_size=512
               -OPT:unroll_times_max=8 -D__OPEN64_FAST_SET
               -INLINE:aggressive=on -m32 -CG:cmp_peep=on
               -CG:local_sched=off -CG:p2align=1 -GRA:unspill=on
               -TENV:frame_pointer=off -fno-emit-exceptions
               -L/root/work/libraries/SmartHeap-10/lib -lsmartheap
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd-acer-platform-rate-revC.html>

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/amd-acer-platform-rate-revC.xml>

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.xml>



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