



SPEC[®] CINT2006 Result

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Acer Incorporated

SPECint[®]_rate2006 = 563

Acer AR585 F1 (AMD Opteron 6212)

SPECint_rate_base2006 = 496

CPU2006 license: 97

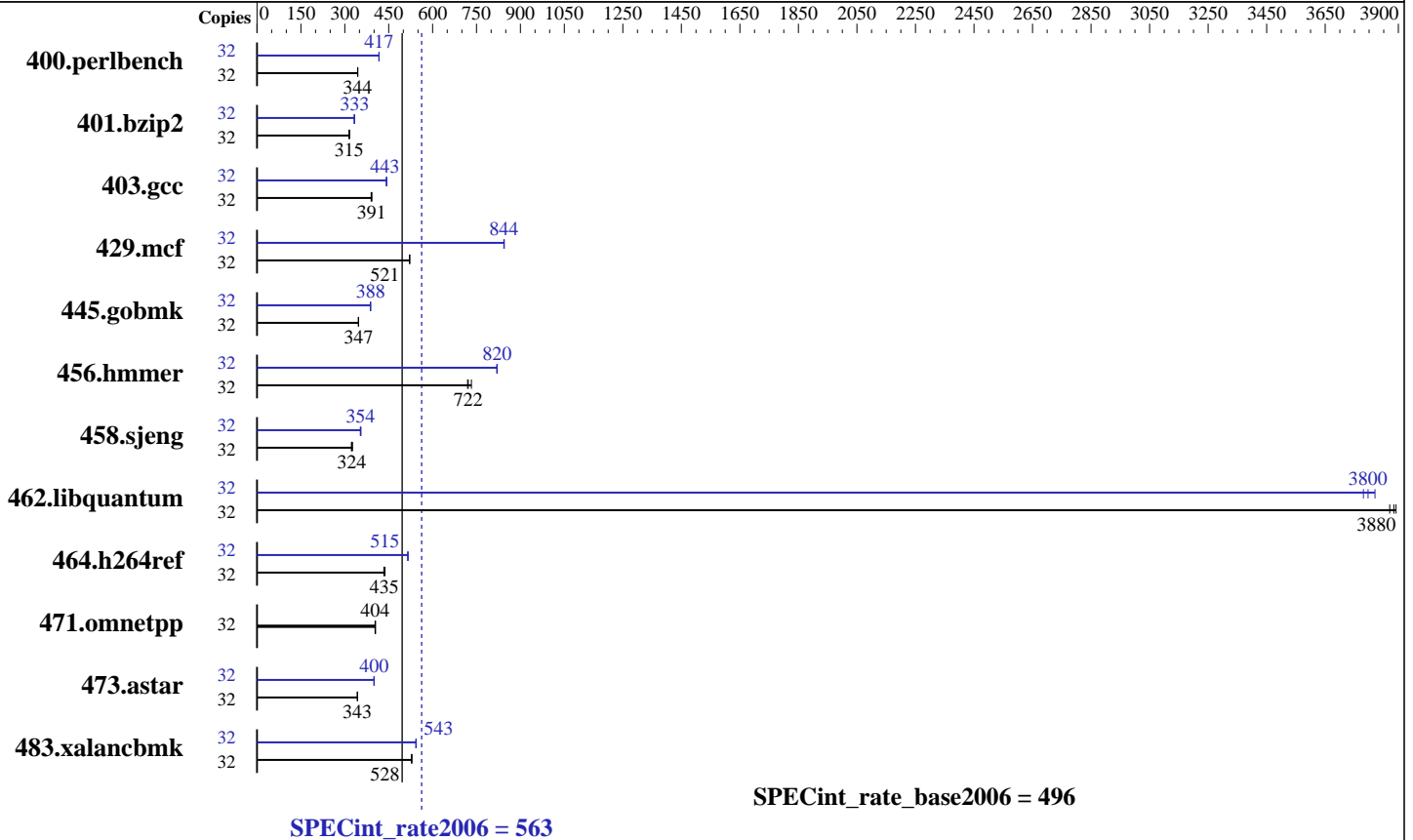
Test date: Apr-2012

Test sponsor: Acer Incorporated

Hardware Availability: Nov-2011

Tested by: Acer Incorporated

Software Availability: Dec-2011



Hardware

CPU Name: AMD Opteron 6212
 CPU Characteristics: AMD Turbo CORE technology up to 3.20 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 256 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core
 Secondary Cache: 8 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 / 4 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	32	908	344	<u>909</u>	<u>344</u>	909	344	32	750	417	750	417	<u>750</u>	<u>417</u>
401.bzip2	32	976	316	982	314	<u>981</u>	<u>315</u>	32	<u>926</u>	<u>333</u>	926	334	931	332
403.gcc	32	656	393	<u>658</u>	<u>391</u>	661	390	32	583	442	<u>582</u>	<u>443</u>	581	443
429.mcf	32	560	521	559	522	<u>560</u>	<u>521</u>	32	346	844	<u>346</u>	<u>844</u>	345	845
445.gobmk	32	<u>968</u>	<u>347</u>	969	346	967	347	32	865	388	<u>865</u>	<u>388</u>	866	388
456.hammer	32	<u>414</u>	<u>722</u>	415	720	408	733	32	364	821	<u>364</u>	<u>820</u>	364	819
458.sjeng	32	1200	323	1186	326	<u>1196</u>	<u>324</u>	32	1097	353	<u>1093</u>	<u>354</u>	1090	355
462.libquantum	32	<u>171</u>	<u>3880</u>	170	3890	171	3870	32	<u>175</u>	<u>3800</u>	175	3780	174	3820
464.h264ref	32	1619	437	<u>1630</u>	<u>435</u>	1633	434	32	<u>1374</u>	<u>515</u>	1374	515	1372	516
471.omnetpp	32	496	404	494	405	<u>496</u>	<u>404</u>	32	496	404	494	405	<u>496</u>	<u>404</u>
473.astar	32	<u>655</u>	<u>343</u>	656	343	654	344	32	<u>561</u>	<u>400</u>	562	399	561	401
483.xalancbmk	32	417	529	<u>418</u>	<u>528</u>	418	528	32	407	543	406	544	<u>406</u>	<u>543</u>

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=28672 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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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 05:09:44 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 May 2012.