



# SPEC® CINT2006 Result

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## Acer Incorporated

### SPECint®\_rate2006 = 991

## Acer AR585 F1 (AMD Opteron 6276)

### SPECint\_rate\_base2006 = 868

CPU2006 license: 97

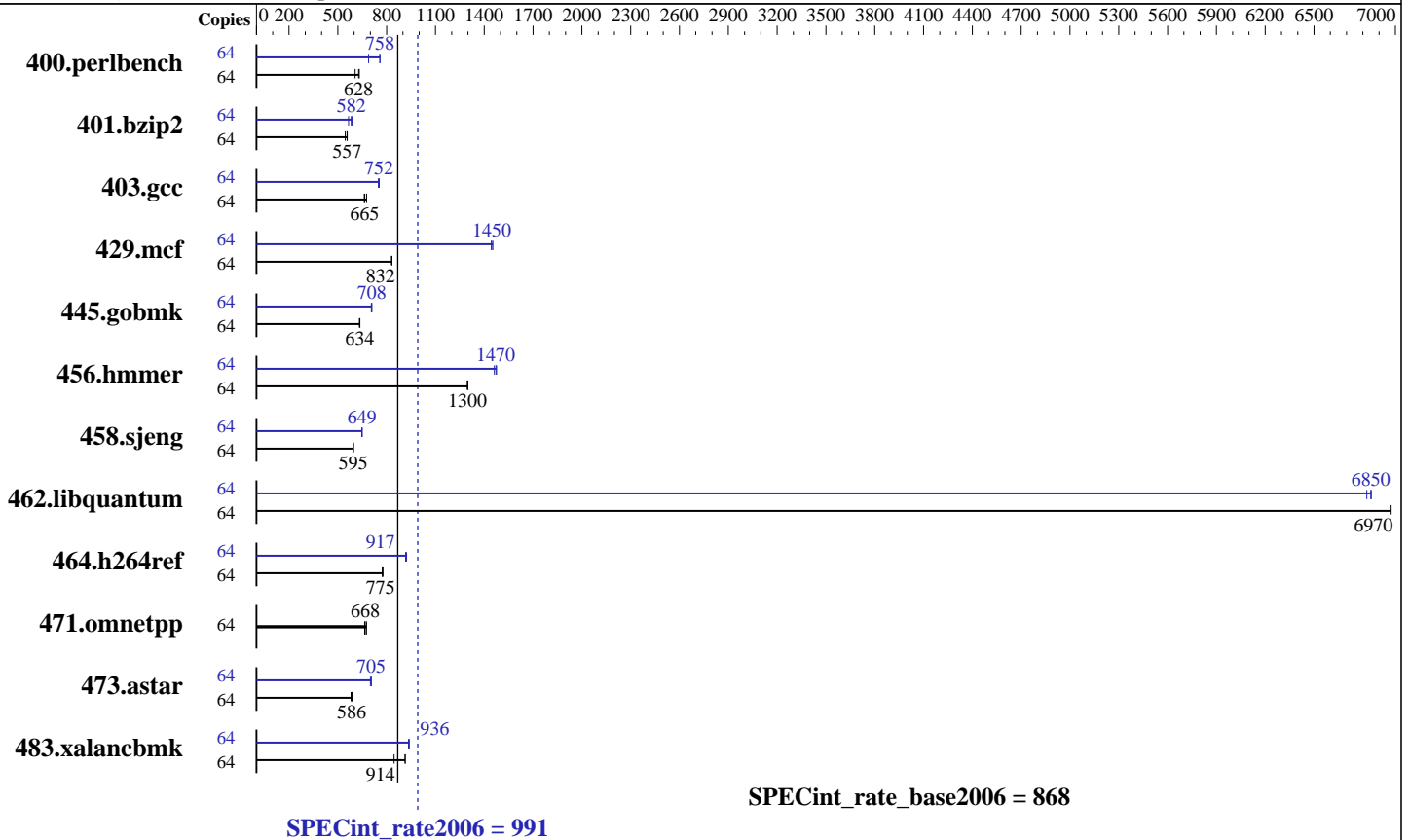
Test date: May-2012

Test sponsor: Acer Incorporated

Hardware Availability: Nov-2011

Tested by: Acer Incorporated

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 PC3-12800R-11, 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     | 1031       | 606         | 990         | 632        | <b>996</b>  | <b>628</b>  | 64     | 907         | 689        | 823        | 759         | <b>825</b>  | <b>758</b> |
| 401.bzip2      | 64     | 1132       | 546         | 1107        | 558        | <b>1109</b> | <b>557</b>  | 64     | 1091        | 566        | 1051       | 588         | <b>1061</b> | <b>582</b> |
| 403.gcc        | 64     | 778        | 663         | <b>774</b>  | <b>665</b> | 761         | 677         | 64     | 683         | 755        | <b>685</b> | <b>752</b>  | 687         | 750        |
| 429.mcf        | 64     | 709        | 823         | <b>702</b>  | <b>832</b> | 701         | 832         | 64     | 404         | 1440       | <b>404</b> | <b>1450</b> | 402         | 1450       |
| 445.gobmk      | 64     | 1056       | 636         | 1061        | 633        | <b>1058</b> | <b>634</b>  | 64     | 947         | 709        | 951        | 706         | <b>948</b>  | <b>708</b> |
| 456.hammer     | 64     | 461        | 1300        | 460         | 1300       | <b>460</b>  | <b>1300</b> | 64     | 408         | 1460       | <b>406</b> | <b>1470</b> | 405         | 1480       |
| 458.sjeng      | 64     | 1302       | 595         | <b>1302</b> | <b>595</b> | 1301        | 595         | 64     | 1197        | 647        | 1193       | 649         | <b>1194</b> | <b>649</b> |
| 462.libquantum | 64     | <b>190</b> | <b>6970</b> | 190         | 6970       | 190         | 6970        | 64     | 194         | 6820       | <b>194</b> | <b>6850</b> | 194         | 6850       |
| 464.h264ref    | 64     | 1823       | 777         | <b>1827</b> | <b>775</b> | 1831        | 773         | 64     | <b>1544</b> | <b>917</b> | 1535       | 923         | 1545        | 917        |
| 471.omnetpp    | 64     | <b>599</b> | <b>668</b>  | 592         | 676        | 602         | 665         | 64     | <b>599</b>  | <b>668</b> | 592        | 676         | 602         | 665        |
| 473.astar      | 64     | 773        | 581         | <b>766</b>  | <b>586</b> | 766         | 586         | 64     | 642         | 700        | 637        | 705         | <b>637</b>  | <b>705</b> |
| 483.xalancbmk  | 64     | 522        | 846         | <b>483</b>  | <b>914</b> | 483         | 914         | 64     | 470         | 939        | 473        | 935         | <b>472</b>  | <b>936</b> |

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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**Test date:** May-2012

**Hardware Availability:** Nov-2011

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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/x86-open64-451-flags-rate-revC-I.html>

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

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

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

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



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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