



# SPEC® CINT2006 Result

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## Acer Incorporated

SPECint®\_rate2006 = 234

## Acer AR385 F1 (AMD Opteron 6124 HE)

SPECint\_rate\_base2006 = 204

CPU2006 license: 97

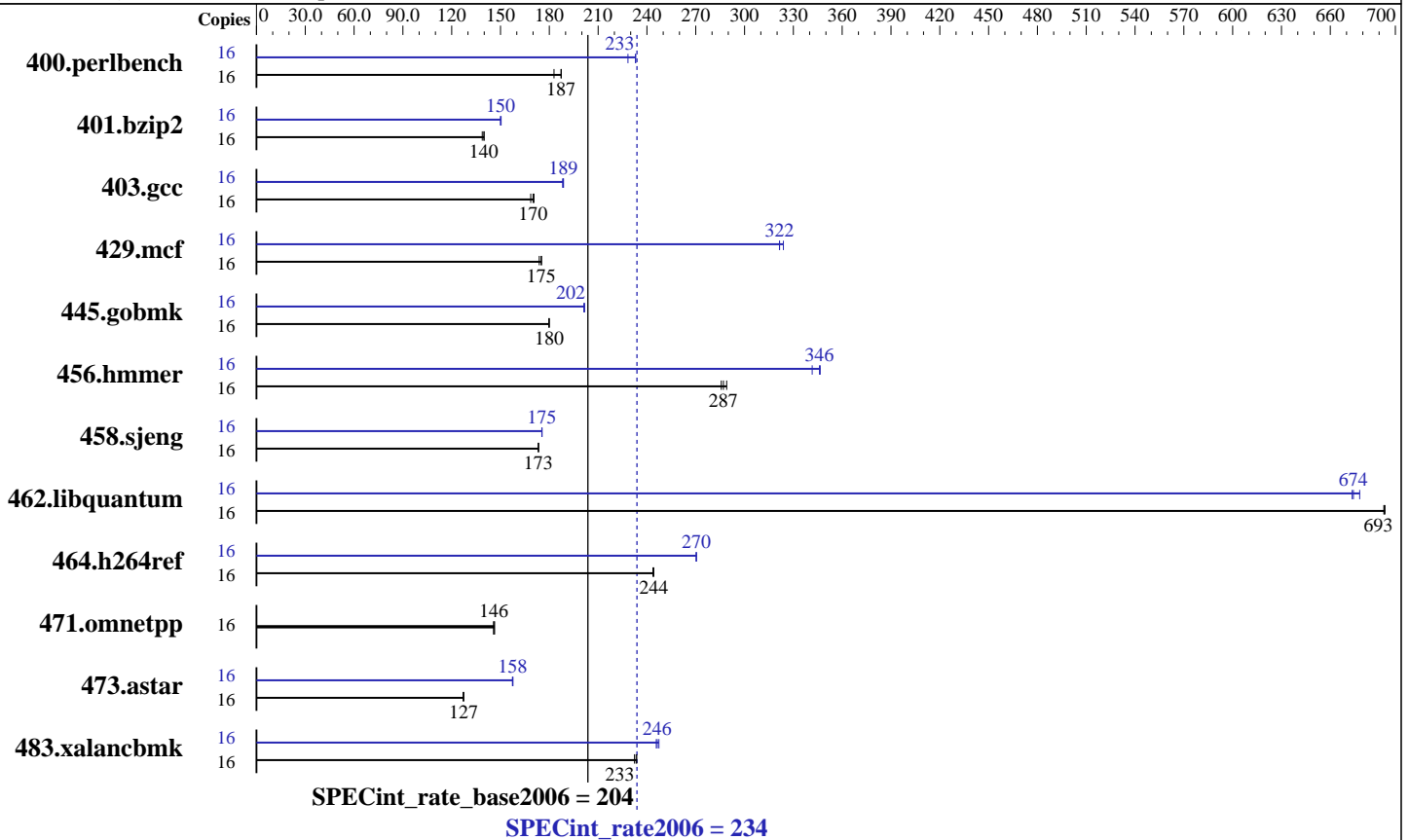
Test date: Aug-2010

Test sponsor: Acer Incorporated

Hardware Availability: Sep-2010

Tested by: Acer Incorporated

Software Availability: Jul-2010



### Hardware

CPU Name: AMD Opteron 6124 HE  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 12 MB I+D on chip per chip, 6 MB shared / 4 cores  
 Other Cache: None  
 Memory: 64 GB (16 x 4 GB DDR3-1333 RDIMM, CL9, Dual Rank)  
 Disk Subsystem: 1 x 1000 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.4, Advanced Platform with patch RHSA-2009:1670, Kernel 2.6.18-164.9.1.el5  
 Compiler: x86 Open64 4.2.4 Compiler Suite (from AMD)  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.18, SmartHeap 8.1 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	16	855	183	834	187	<b>835</b>	<b>187</b>	16	685	228	671	233	<b>671</b>	<b>233</b>
401.bzip2	16	1113	139	1103	140	<b>1105</b>	<b>140</b>	16	<b>1029</b>	<b>150</b>	1029	150	1027	150
403.gcc	16	755	171	<b>758</b>	<b>170</b>	764	169	16	685	188	<b>683</b>	<b>189</b>	682	189
429.mcf	16	840	174	<b>834</b>	<b>175</b>	833	175	16	454	321	<b>454</b>	<b>322</b>	451	324
445.gobmk	16	933	180	934	180	<b>933</b>	<b>180</b>	16	834	201	<b>833</b>	<b>202</b>	832	202
456.hammer	16	523	286	<b>520</b>	<b>287</b>	517	289	16	431	346	<b>431</b>	<b>346</b>	437	342
458.sjeng	16	1117	173	<b>1117</b>	<b>173</b>	1118	173	16	<b>1104</b>	<b>175</b>	1103	176	1104	175
462.libquantum	16	478	693	478	694	<b>478</b>	<b>693</b>	16	492	673	489	678	<b>492</b>	<b>674</b>
464.h264ref	16	<b>1451</b>	<b>244</b>	1450	244	1453	244	16	1310	270	1309	270	<b>1310</b>	<b>270</b>
471.omnetpp	16	683	146	686	146	<b>685</b>	<b>146</b>	16	683	146	686	146	<b>685</b>	<b>146</b>
473.astar	16	<b>882</b>	<b>127</b>	884	127	882	127	16	<b>713</b>	<b>158</b>	713	158	714	157
483.xalancbmk	16	472	234	<b>473</b>	<b>233</b>	475	232	16	449	246	446	247	<b>448</b>	<b>246</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 vm/nr\_hugepages=14336 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## General Notes

Environment variables set by runspec before the start of the run:

HUGETLB\_LIMIT = "896"

LD\_LIBRARY\_PATH = "/usr/cpu2006/amd1002mc-rate-libs-revC/64:/usr/cpu2006/amd1002mc-rate-libs-revC/32"

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

This result was measured on the Gateway GR385 F1.  
The Acer AR385 F1 and Gateway GR385 F1 are electronically equivalent.



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## Base Compiler Invocation

C benchmarks:  
opencc

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=barcelona -mso -Ofast -CG:local\_sched\_alg=1  
-INLINE:aggressive=on -IPA:plimit=8000 -IPA:small\_pu=100  
-HP:bdt=2m:heap=2m

C++ benchmarks:  
-march=barcelona -mso -Ofast -m32 -INLINE:aggressive=on  
-CG:cmp\_peep=on -L/root/work/libraries/SmartHeap-8.1/lib -lsmartheap

## Peak Compiler Invocation

C benchmarks:  
opencc

C++ benchmarks:  
openCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

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## Peak Portability Flags (Continued)

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 -mso -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0  
 -OPT:unroll\_times\_max=8 -OPT:unroll\_size=256  
 -OPT:unroll\_level=2 -OPT:keep\_ext=on -WOPT:if\_conv=0  
 -CG:local\_sched\_alg=1 -CG:unroll\_fb\_req=on  
 -HP:bdt=2m:heap=2m

401.bzip2: -march=barcelona -mso -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -OPT:alias=disjoint  
 -OPT:goto=off -CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -mso -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -LNO:trip\_count=256  
 -LNO:prefetch Ahead=10 -CG:cmp\_peep=on -m32  
 -HP:bdt=2m:heap=2m -GRA:unspill=on -IPA:small\_pu=200

429.mcf: -march=barcelona -mso -O3 -ipa -INLINE:aggressive=on  
 -CG:gcm=off -GRA:prioritize\_by\_density=on -m32  
 -HP:bdt=2m:heap=2m

445.gobmk: -march=barcelona -mso -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -OPT:alias=restrict  
 -OPT:unroll\_times\_max=8 -OPT:unroll\_size=256  
 -OPT:unroll\_level=2 -OPT:keep\_ext=on -ipa -IPA:plimit=750  
 -IPA:min\_hotness=300 -IPA:pu\_reorder=1 -LNO:prefetch=1  
 -LNO:ignore\_feedback=off -CG:p2align=on  
 -CG:unroll\_fb\_req=on -HP:bdt=2m:heap=2m

456.hmmer: -march=barcelona -mso -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -LNO:prefetch=0  
 -OPT:alias=disjoint -OPT:unroll\_times\_max=8  
 -OPT:unroll\_size=256 -OPT:unroll\_level=2 -OPT:keep\_ext=on  
 -CG:local\_sched\_alg=1 -CG:cflow=0  
 -CG:push\_pop\_int\_saved\_regs=off -CG:cmp\_peep=on  
 -HP:bdt=2m:heap=2m

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## Peak Optimization Flags (Continued)

```
458.sjeng: -march=barcelona -mso -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -O3 -ipa -LNO:ignore_feedback=off
          -LNO:full_unroll=10 -LNO:fusion=0 -LNO:fission=2
          -IPA:pu_reorder=2 -CG:ptr_load_use=0
          -OPT:unroll_times_max=8 -INLINE:aggressive=on
```

```
462.libquantum: -march=barcelona -mso -Ofast -LNO:pf2=0 -CG:gcm=off
                -CG:use_prefetchnta=on -CG:cmp_peep=on -WOPT:aggstr=0
                -HP:bdt=2m:heap=2m -OPT:alias=disjoint
                -INLINE:aggressive=on -IPA:space=1000 -IPA:plimit=20000
```

```
464.h264ref: -march=barcelona -mso -fb_create fbdata(pass 1)
             -fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000
             -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
             -CG:push_pop_int_saved_regs=off
```

C++ benchmarks:

```
471.omnetpp: basepeak = yes
```

```
473.astar: -march=barcelona -mso -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
           -WOPT:if_conv=0 -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=barcelona -mso -Ofast -INLINE:aggressive=on -m32
               -CG:cmp_peep=on -GRA:unspill=on -TENV:frame_pointer=off
               -fno-emit-exceptions
               -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap
```

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20100901.html>

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20100901.xml>

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



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

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