



# SPEC<sup>®</sup> CFP2006 Result

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## Acer Incorporated

### SPECfp<sup>®</sup>\_rate2006 = 606

## Acer AR585 F1 (AMD Opteron 6174)

### SPECfp\_rate\_base2006 = 559

CPU2006 license: 97

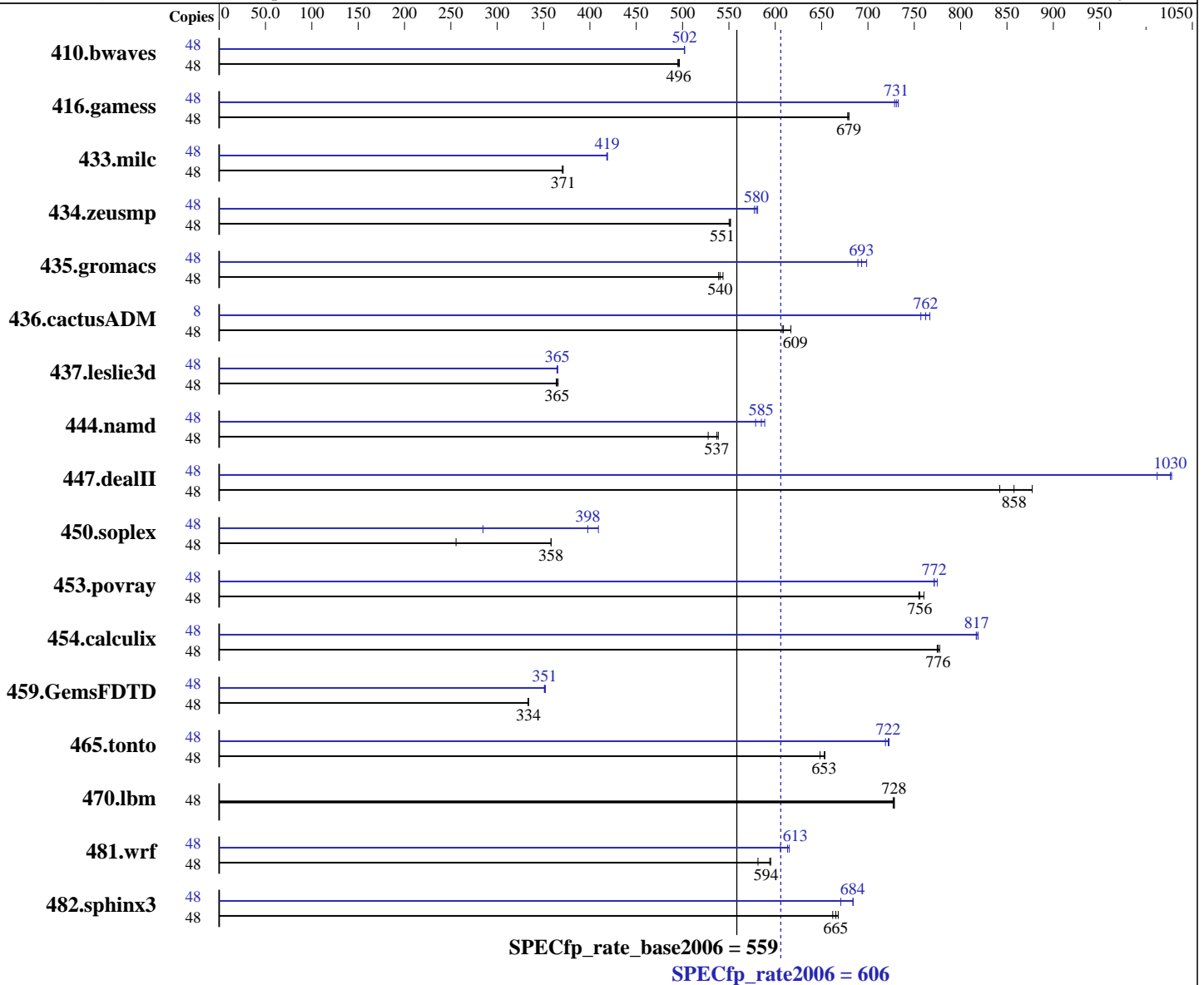
Test date: Jun-2010

Test sponsor: Acer Incorporated

Hardware Availability: Jul-2010

Tested by: Acer Incorporated

Software Availability: May-2010



### Hardware

CPU Name: AMD Opteron 6174  
 CPU Characteristics:  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core

### Software

Operating System: Red Hat Enterprise Linux Server release 5.5, Kernel 2.6.18-194.el5  
 Compiler: x86 Open64 4.2.3.2 Compiler Suite (from AMD)  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.18

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L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 6 cores  
Other Cache: None  
Memory: 128 GB (32 x 4 GB DDR3-1333 RDIMM)  
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
Other Hardware: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	1318	495	<b><u>1316</u></b>	<b><u>496</u></b>	1314	497	48	1299	502	1300	502	<b><u>1299</u></b>	<b><u>502</u></b>
416.gamess	48	<b><u>1384</u></b>	<b><u>679</u></b>	1386	678	1383	679	48	1283	733	1290	729	<b><u>1286</u></b>	<b><u>731</u></b>
433.milc	48	1190	370	<b><u>1188</u></b>	<b><u>371</u></b>	1188	371	48	1054	418	1052	419	<b><u>1052</u></b>	<b><u>419</u></b>
434.zeusmp	48	<b><u>792</u></b>	<b><u>551</u></b>	794	550	792	552	48	756	577	752	581	<b><u>754</u></b>	<b><u>580</u></b>
435.gromacs	48	636	539	630	544	<b><u>634</u></b>	<b><u>540</u></b>	48	497	689	<b><u>494</u></b>	<b><u>693</u></b>	491	699
436.cactusADM	48	944	608	930	617	<b><u>942</u></b>	<b><u>609</u></b>	8	<b><u>125</u></b>	<b><u>762</u></b>	126	757	125	767
437.leslie3d	48	1234	366	<b><u>1238</u></b>	<b><u>365</u></b>	1240	364	48	<b><u>1236</u></b>	<b><u>365</u></b>	1238	364	1235	365
444.namd	48	730	528	715	539	<b><u>717</u></b>	<b><u>537</u></b>	48	665	579	<b><u>658</u></b>	<b><u>585</u></b>	654	589
447.dealII	48	652	842	626	877	<b><u>640</u></b>	<b><u>858</u></b>	48	<b><u>535</u></b>	<b><u>1030</u></b>	543	1010	534	1030
450.soplex	48	1566	256	1118	358	<b><u>1118</u></b>	<b><u>358</u></b>	48	1406	285	<b><u>1007</u></b>	<b><u>398</u></b>	978	409
453.povray	48	<b><u>338</u></b>	<b><u>756</u></b>	338	755	336	760	48	330	775	<b><u>331</u></b>	<b><u>772</u></b>	331	771
454.calculix	48	509	777	511	775	<b><u>510</u></b>	<b><u>776</u></b>	48	484	819	485	817	<b><u>485</u></b>	<b><u>817</u></b>
459.GemsFDTD	48	<b><u>1526</u></b>	<b><u>334</u></b>	1528	333	1526	334	48	1452	351	<b><u>1450</u></b>	<b><u>351</u></b>	1447	352
465.tonto	48	<b><u>723</u></b>	<b><u>653</u></b>	723	654	728	648	48	653	723	657	719	<b><u>654</u></b>	<b><u>722</u></b>
470.lbm	48	<b><u>906</u></b>	<b><u>728</u></b>	905	729	907	727	48	<b><u>906</u></b>	<b><u>728</u></b>	905	729	907	727
481.wrf	48	922	581	<b><u>903</u></b>	<b><u>594</u></b>	901	595	48	885	606	872	615	<b><u>874</u></b>	<b><u>613</u></b>
482.sphinx3	48	1413	662	1401	668	<b><u>1406</u></b>	<b><u>665</u></b>	48	1395	671	1368	684	<b><u>1368</u></b>	<b><u>684</u></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=21600 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages



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## General Notes

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

HUGETLB\_LIMIT = "450"

LD\_LIBRARY\_PATH = "/spec/amd1002mc-rate-libs-revB/64:/spec/amd1002mc-rate-libs-revB/32"

OMP\_NUM\_THREADS = "6"

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 GR585 F1.

The Acer AR585 F1 and Gateway GR585 F1 are electronically equivalent.

## Base Compiler Invocation

C benchmarks:  
opencc

C++ benchmarks:  
openCC

Fortran benchmarks:  
openf95

Benchmarks using both Fortran and C:  
opencc openf95

## Base Portability Flags

```

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG
-fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

```



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## Base Optimization Flags

C benchmarks:

-march=barcelona -mso -Ofast -OPT:malloc\_alg=1 -HP:bdt=2m

C++ benchmarks:

-march=barcelona -mso -Ofast -static -INLINE:aggressive=on  
-OPT:malloc\_alg=1 -HP:bdt=2m

Fortran benchmarks:

-march=barcelona -mso -Ofast -HP

Benchmarks using both Fortran and C:

-march=barcelona -mso -Ofast -OPT:malloc\_alg=1 -HP:bdt=2m -HP

## Peak Compiler Invocation

C benchmarks:

opencc

C++ benchmarks:

openCC

Fortran benchmarks:

openf95

Benchmarks using both Fortran and C:

opencc openf95

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64  
436.cactusADM: -DSPEC\_CPU\_LP64 -fno-second-underscore  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64  
459.GemsFDTD: -DSPEC\_CPU\_LP64  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX -DSPEC\_CPU\_CASE\_FLAG  
-fno-second-underscore  
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## Peak Optimization Flags

### C benchmarks:

433.milc: -march=barcelona -mso -Ofast -CG:movnti=1  
-CG:local\_sched\_alg=1 -CG:locs\_shallow\_depth=1  
-HP:bdt=2m:heap=2m -LNO:prefetch=3

470.lbm: basepeak = yes

482.sphinx3: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -OPT:malloc\_alg=2  
-CG:sse\_cse\_regs=0 -CG:locs\_shallow\_depth=1 -CG:cmp\_peep=on  
-CG:local\_sched\_alg=1 -INLINE:aggressive=on

### C++ benchmarks:

444.namd: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -LNO:ignore\_feedback=off  
-CG:local\_sched\_alg=2 -CG:load\_exe=0 -CG:compute\_to=on  
-OPT:unroll\_size=256 -fno-exceptions -HP:bdt=2m:heap=2m

447.deallI: -march=barcelona -mso -Ofast -static -INLINE:aggressive=on  
-LNO:opt=0 -fno-emit-exceptions -m32  
-OPT:unroll\_times\_max=8 -OPT:unroll\_size=256  
-OPT:unroll\_level=2 -HP:bdt=2m:heap=2m -GRA:unspill=on  
-CG:cmp\_peep=on -TENV:frame\_pointer=off

450.soplex: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -O3 -INLINE:aggressive=on  
-OPT:IEEE\_arith=3 -OPT:IEEE\_NaN\_Inf=off  
-OPT:fold\_unsigned\_relops=on -OPT:malloc\_alg=1  
-CG:load\_exe=0 -fno-exceptions -m32 -HP:bdt=2m

453.povray: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on

### Fortran benchmarks:

410.bwaves: -march=barcelona -mso -O3 -OPT:Ofast -OPT:treeheight=on  
-LNO:blocking=off -LNO:prefetch\_ahead=5  
-LNO:ignore\_feedback=off -WOPT:aggstr=0 -HP:bdt=2m:heap=2m  
-CG:cmp\_peep=on

416.gamess: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -O3 -LNO:fu=6 -LNO:blocking=0  
-LNO:prefetch=0 -OPT:Ofast -OPT:ro=3 -OPT:unroll\_size=256  
-HP:bdt=2m:heap=2m

434.zeusmp: -march=barcelona -mso -Ofast -LNO:blocking=off  
-LNO:interchange=off -OPT:treeheight=on -OPT:unroll\_size=256  
-CG:cmp\_peep=on -GRA:prioritize\_by\_density=on -HP

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## Peak Optimization Flags (Continued)

437.leslie3d: -march=barcelona -mso -Ofast -HP:bdt=2m:heap=2m

459.GemsFDTD: -march=barcelona -mso -Ofast -LNO:fission=2  
-LNO:prefetch\_ahead=1 -CG:load\_exe=0 -CG:local\_sched\_alg=1  
-HP

465.tonto: -march=barcelona -mso -Ofast  
-OPT:alias=no\_f90\_pointer\_alias -LNO:blocking=off  
-CG:load\_exe=1 -IPA:plimit=525 -HP

Benchmarks using both Fortran and C:

435.gromacs: -march=barcelona -mso -Ofast -OPT:rsqrt=2  
-HP:bdt=2m:heap=2m

436.cactusADM: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -apo -LNO:prefetch\_ahead=1  
-HP:bdt=2m:heap=2m -LANG:heap\_allocation\_threshold=100

454.calculix: -march=barcelona -mso -Ofast -CG:load\_exe=0  
-CG:ptr\_load\_use=0 -CG:local\_sched\_alg=2 -CG:compute\_to=on  
-LNO:prefetch\_ahead=30 -WOPT:unroll=2  
-GRA:optimize\_boundary=on -HP:bdt=2m:heap=2m

481.wrf: -march=barcelona -mso -Ofast -LNO:blocking=off  
-LNO:prefetch\_ahead=10 -LANG:copyinout=off  
-IPA:callee\_limit=5000 -GRA:prioritize\_by\_density=on -m3dnow  
-HP

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.3-flags-revA.20100721.html>

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.3-flags-revA.20100721.xml>

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

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

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