



# SPEC® CFP2006 Result

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## Acer Incorporated

### SPECfp®\_rate2006 = 424

### Acer AR585 F1 (AMD Opteron 6124 HE)

### SPECfp\_rate\_base2006 = 376

CPU2006 license: 97

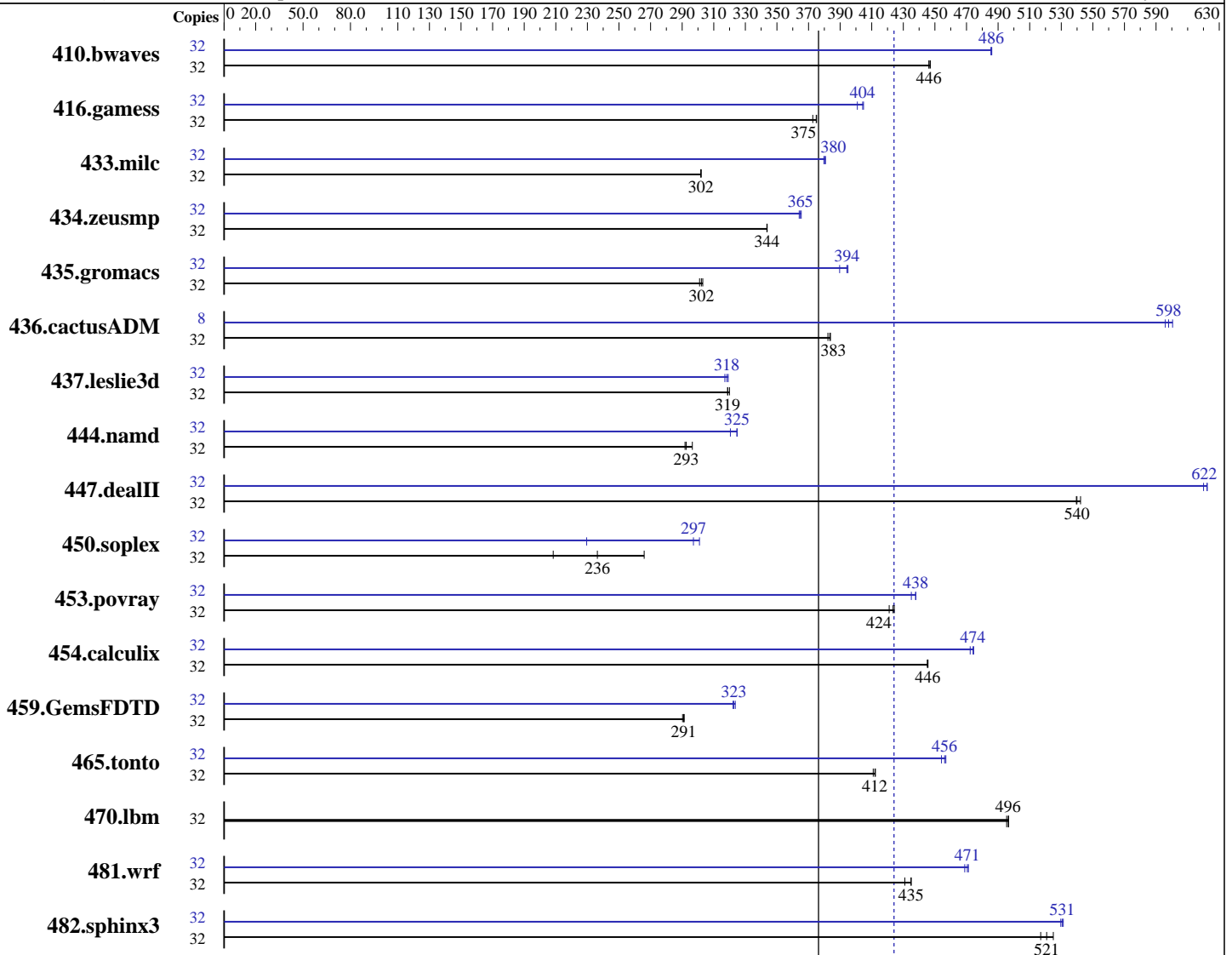
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Jul-2010

Hardware Availability: Jul-2010

Software Availability: May-2010



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#### Hardware

CPU Name: AMD Opteron 6124 HE  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 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

Continued on next page

#### 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 / 4 cores  
Other Cache: None  
Memory: 128 GB (32 x 4 GB DDR3-1333 RDIMM, CL9, Dual Rank)  
Disk Subsystem: 1 x 1000 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	32	973	447	<b>974</b>	<b>446</b>	975	446	32	896	485	<b>895</b>	<b>486</b>	895	486
416.gamess	32	1681	373	<b>1671</b>	<b>375</b>	1670	375	32	<b>1550</b>	<b>404</b>	1563	401	1548	405
433.milc	32	973	302	<b>973</b>	<b>302</b>	973	302	32	771	381	774	380	<b>773</b>	<b>380</b>
434.zeusmp	32	847	344	847	344	<b>847</b>	<b>344</b>	32	<b>798</b>	<b>365</b>	797	365	800	364
435.gromacs	32	759	301	<b>756</b>	<b>302</b>	754	303	32	586	390	578	395	<b>579</b>	<b>394</b>
436.cactusADM	32	996	384	1000	382	<b>997</b>	<b>383</b>	8	159	600	<b>160</b>	<b>598</b>	160	596
437.leslie3d	32	944	319	<b>943</b>	<b>319</b>	940	320	32	949	317	<b>945</b>	<b>318</b>	942	319
444.namd	32	880	292	<b>877</b>	<b>293</b>	866	296	32	801	321	<b>791</b>	<b>325</b>	790	325
447.dealII	32	675	542	<b>678</b>	<b>540</b>	678	540	32	588	622	590	620	<b>588</b>	<b>622</b>
450.soplex	32	<b>1129</b>	<b>236</b>	1281	208	1004	266	32	1163	230	<b>898</b>	<b>297</b>	887	301
453.povray	32	<b>402</b>	<b>424</b>	404	421	401	424	32	391	435	389	438	<b>389</b>	<b>438</b>
454.calculix	32	593	445	592	446	<b>593</b>	<b>446</b>	32	559	472	556	475	<b>557</b>	<b>474</b>
459.GemsFDTD	32	<b>1167</b>	<b>291</b>	1170	290	1166	291	32	<b>1052</b>	<b>323</b>	1054	322	1049	324
465.tonto	32	<b>764</b>	<b>412</b>	764	412	766	411	32	689	457	693	454	<b>690</b>	<b>456</b>
470.lbm	32	<b>886</b>	<b>496</b>	885	497	887	495	32	<b>886</b>	<b>496</b>	885	497	887	495
481.wrf	32	829	431	<b>822</b>	<b>435</b>	822	435	32	762	469	759	471	<b>760</b>	<b>471</b>
482.sphinx3	32	<b>1198</b>	<b>521</b>	1206	517	1188	525	32	1174	531	1177	530	<b>1176</b>	<b>531</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=28672 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 = "896"

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

OMP\_NUM\_THREADS = "4"

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`  
482.sphinx3: `-DSPEC_CPU_LP64`



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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/amd-platform-revA.html>

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

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

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

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

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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