



SPEC® CFP2006 Result

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Acer Incorporated

SPECfp®_rate2006 = 727

Acer AR585 F1 (AMD Opteron 6276)

SPECfp_rate_base2006 = 670

CPU2006 license: 97

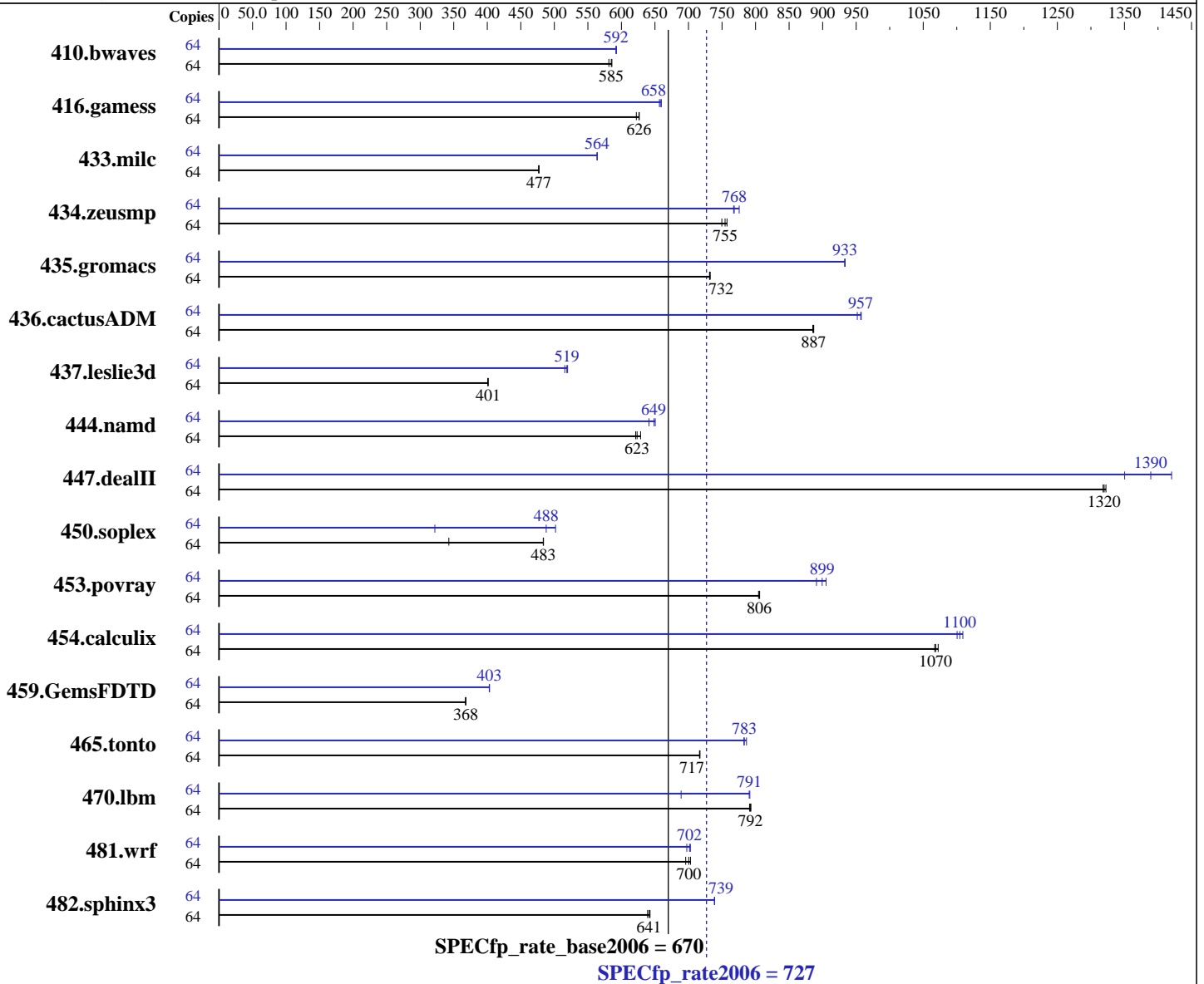
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Apr-2012

Hardware Availability: Nov-2011

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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2, Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++/Fortran: 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: 64-bit
 Peak Pointers: 32/64-bit

Continued on next page



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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 PC3-10600R-9, ECC)

Disk Subsystem: 1 x 500 GB SATA, 7200 RPM

Other Hardware: None

Other Software: None

Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	64	1496	581	<u>1487</u>	<u>585</u>	1485	586	64	1468	593	<u>1469</u>	<u>592</u>	1469	592		
416.gamess	64	2000	627	<u>2001</u>	<u>626</u>	2014	622	64	1900	660	1908	657	<u>1904</u>	<u>658</u>		
433.milc	64	<u>1232</u>	<u>477</u>	1231	477	1233	477	64	1042	564	<u>1042</u>	<u>564</u>	1042	564		
434.zeusmp	64	769	757	<u>772</u>	<u>755</u>	777	750	64	751	776	<u>758</u>	<u>768</u>	759	767		
435.gromacs	64	624	732	625	731	<u>625</u>	<u>732</u>	64	489	934	490	933	<u>490</u>	<u>933</u>		
436.cactusADM	64	<u>863</u>	<u>887</u>	862	887	864	885	64	<u>799</u>	<u>957</u>	799	958	804	952		
437.leslie3d	64	1501	401	1499	401	<u>1499</u>	<u>401</u>	64	<u>1160</u>	<u>519</u>	1157	520	1167	516		
444.namd	64	<u>823</u>	<u>623</u>	826	621	817	629	64	789	650	801	641	<u>791</u>	<u>649</u>		
447.dealII	64	<u>555</u>	<u>1320</u>	554	1320	555	1320	64	<u>527</u>	<u>1390</u>	516	1420	542	1350		
450.soplex	64	1558	343	<u>1104</u>	<u>483</u>	1103	484	64	1658	322	<u>1094</u>	<u>488</u>	1064	502		
453.povray	64	423	804	422	806	<u>423</u>	<u>806</u>	64	382	891	<u>379</u>	<u>899</u>	376	905		
454.calculix	64	<u>494</u>	<u>1070</u>	492	1070	495	1070	64	480	1100	476	1110	<u>478</u>	<u>1100</u>		
459.GemsFDTD	64	1847	368	<u>1846</u>	<u>368</u>	1846	368	64	1683	403	<u>1685</u>	<u>403</u>	1685	403		
465.tonto	64	878	717	<u>879</u>	<u>717</u>	879	716	64	<u>804</u>	<u>783</u>	805	783	801	787		
470.lbm	64	1112	791	<u>1110</u>	<u>792</u>	1109	793	64	1111	791	<u>1112</u>	<u>791</u>	1276	689		
481.wrf	64	1017	703	<u>1021</u>	<u>700</u>	1027	696	64	1017	703	1025	697	<u>1019</u>	<u>702</u>		
482.sphinx3	64	1952	639	<u>1945</u>	<u>641</u>	1941	643	64	1689	739	1688	739	<u>1688</u>	<u>739</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
Continued on next page



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Operating System Notes (Continued)

```
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"

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

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
```

Continued on next page



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Base Portability Flags (Continued)

```

447.deallI: -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_LINUX -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LP64
        -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

```

Base Optimization Flags

C benchmarks:

```

-march=bdver1 -Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso

```

C++ benchmarks:

```

-march=bdver1 -Ofast -static -CG:load_exe=0 -OPT:malloc_alg=1
-INLINE:aggressive=on -HP:bd=2m:heap=2m -D__OPEN64_FAST_SET

```

Fortran benchmarks:

```

-march=bdver1 -Ofast -LNO:blocking=off -OPT:rsqrt=2
-OPT:unroll_size=256 -HP:bd=2m:heap=2m -mso

```

Benchmarks using both Fortran and C:

```

-march=bdver1 -Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso -LNO:blocking=off
-OPT:rsqrt=2 -OPT:unroll_size=256

```

Peak Compiler Invocation

C benchmarks:

openc

C++ benchmarks:

openCC

Fortran benchmarks:

openf95

Benchmarks using both Fortran and C:

openc openf95



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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_LINUX -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LP64
-fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

```

Peak Optimization Flags

C benchmarks:

```

433.milc: -march=bdver1 -Ofast -CG:movnti=1 -CG:locs_best=on
-HP:bdt=2m:heap=2m -IPA:plimit=7000 -IPA:callee_limit=1200
-OPT:struct_array_copy=2 -OPT:alias=field_sensitive -mso

```

```

470.lbm: -march=bdver1 -Ofast -CG:cmp_peep=on
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -HP:bdt=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso

```

```

482.sphinx3: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=1000
-OPT:malloc_alg=2 -CG:cmp_peep=on -CG:local_sched_alg=2
-CG:p2align=0 -INLINE:aggressive=on -LNO:prefetch=2
-LNO:prefetch_ahead=4 -mso

```

C++ benchmarks:

```

444.namd: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=3000
-LNO:ignore_feedback=off -CG:local_sched_alg=2
-CG:load_exe=0 -OPT:unroll_size=256 -fno-exceptions
-HP:bdt=2m:heap=2m

```

```

447.dealIII: -march=bdver1 -Ofast -D__OPEN64_FAST_SET -static
-INLINE:aggressive=on -LNO:opt=0 -LNO:simd=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 -CG:movext_icmp=off

```

Continued on next page



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Peak Optimization Flags (Continued)

447.dealIII (continued):

-TENV:frame_pointer=off

450.soplex:

-march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -LNO:ignore_feedback=off
-INLINE:aggressive=on -OPT:RO=1 -OPT:IEEE_arith=3
-OPT:IEEE_NaN_Inf=off -OPT:fold_unsigned_relops=on
-fno-exceptions -CG:p2align=0 -m32 -HP:bdt=2m:heap=2m
-WOPT:sib=on

453.povray:

-march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -CG:pre_local_sched=off
-CG:p2align=0 -CG:p2align_split=on -CG:dsched=on
-INLINE:aggressive=on -HP:bd=2m:heap=2m -OPT:transform=2
-OPT:alias=disjoint -WOPT:aggcm=0

Fortran benchmarks:

410.bwaves:

-march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -OPT:Ofast -OPT:treeheight=on
-LNO:blocking=off -LNO:ignore_feedback=off -LNO:fu=4
-LNO:loop_model_simd=on -LNO:simd_rm_unity_remainder=on
-WOPT:aggstr=0 -HP:bdt=2m:heap=2m -CG:cmp_peep=on

416.gamess:

-march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -LNO:fu=6 -LNO:blocking=0
-LNO:simd=0 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256
-OPT:unroll_times_max=2 -CG:local_sched_alg=1
-HP:bdt=2m:heap=2m -WOPT:sib=on

434.zeusmp:

-march=bdver1 -Ofast -LNO:blocking=off -LNO:interchange=off
-IPA:plimit=1500 -HP:bdt=2m:heap=2m

437.leslie3d:

-march=bdver1 -Ofast -CG:pre_minreg_level=2 -LNO:simd=0
-LNO:fusion=2 -HP:bdt=2m:heap=2m -mso

459.GemsFDTD:

-march=bdver1 -Ofast -IPA:plimit=1500 -OPT:unroll_size=0
-LNO:fission=2 -CG:load_exe=0 -CG:local_sched_alg=2 -HP

465.tonto:

-march=bdver1 -Ofast -OPT:alias=no_f90_pointer_alias
-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525
-HP:bdt=2m:heap=2m

Benchmarks using both Fortran and C:

435.gromacs:

-march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -OPT:rsqrt=2
-HP:bdt=2m:heap=2m -CG:local_sched_alg=2 -GRA:unspill=ON
-CG:load_exe=3 -LNO:simd=3

Continued on next page



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Peak Optimization Flags (Continued)

436.cactusADM: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off
-LNO:prefetch=2 -HP -CG:locs_shallow_depth=1 -CG:load_exe=0
-CG:dsched=on -WOPT:sib=on

454.calculix: -march=bdver1 -Ofast -OPT:unroll_size=256
-GRA:optimize_boundary=on -CG:dsched=on -HP:bdt=2m:heap=2m

481.wrf: -march=bdver1 -Ofast -LNO:blocking=off -LANG:copyinout=off
-IPA:callee_limit=5000 -GRA:prioritize_by_density=on
-CG:load_exe=1 -HP -WOPT:sib=on

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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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Standard Performance Evaluation Corporation

info@spec.org

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Page 7