



# SPEC<sup>®</sup> CFP2006 Result

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## Acer Incorporated

### SPECfp<sup>®</sup>\_rate2006 = 210

### Acer AR385 F1 (AMD Opteron 6124 HE)

### SPECfp\_rate\_base2006 = 193

CPU2006 license: 97

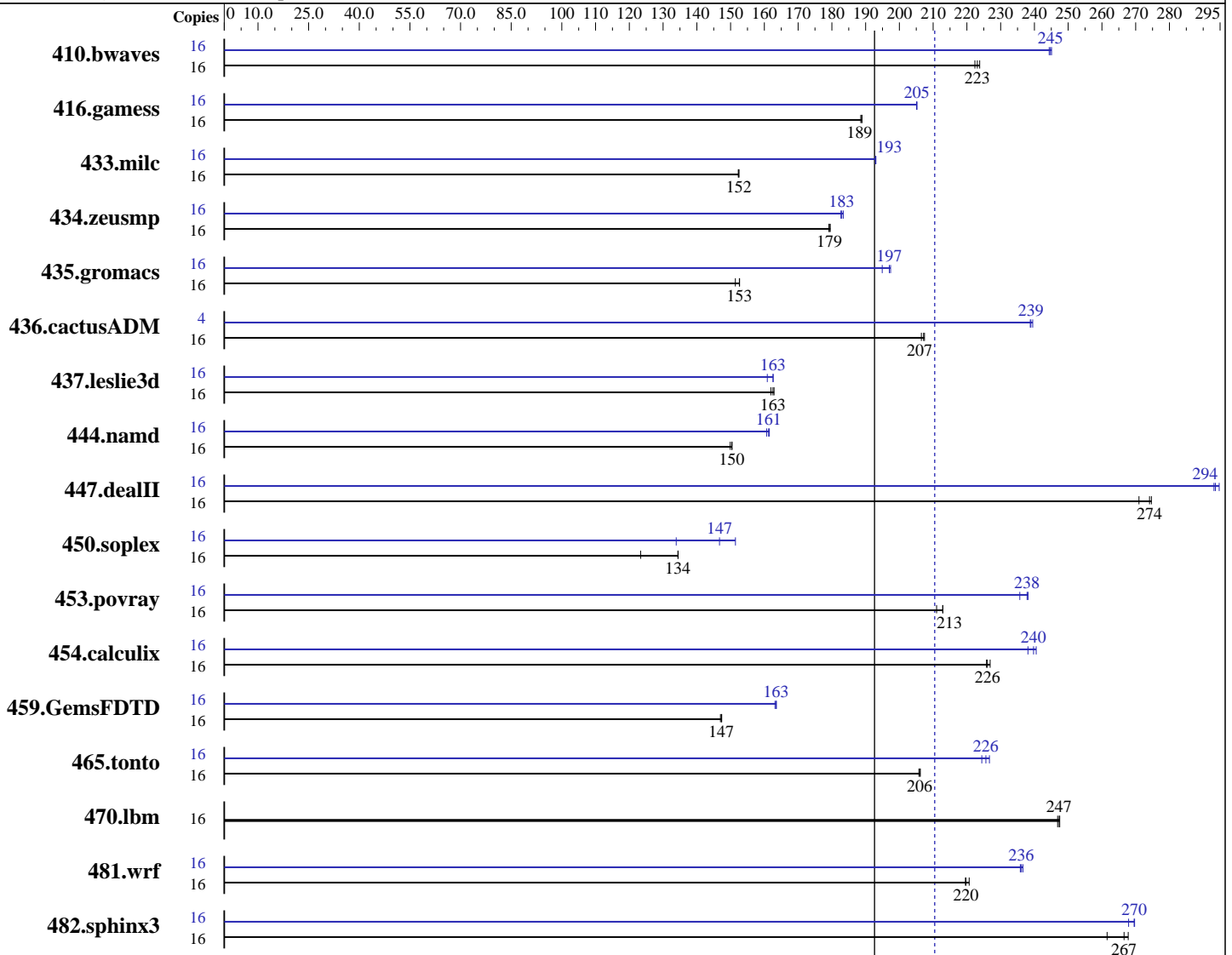
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Aug-2010

Hardware Availability: Sep-2010

Software Availability: Jul-2010



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#### 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

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#### 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: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

Continued on next page



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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

Other Software: binutils 2.18

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	978	222	<b><u>975</u></b>	<b><u>223</u></b>	972	224	16	<b><u>888</u></b>	<b><u>245</u></b>	890	244	887	245
416.gamess	16	1658	189	1661	189	<b><u>1659</u></b>	<b><u>189</u></b>	16	1527	205	<b><u>1527</u></b>	<b><u>205</u></b>	1528	205
433.milc	16	965	152	<b><u>964</u></b>	<b><u>152</u></b>	963	152	16	<b><u>761</u></b>	<b><u>193</u></b>	761	193	761	193
434.zeusmp	16	811	180	813	179	<b><u>812</u></b>	<b><u>179</u></b>	16	<b><u>796</u></b>	<b><u>183</u></b>	797	183	794	183
435.gromacs	16	755	151	<b><u>749</u></b>	<b><u>153</u></b>	748	153	16	579	197	<b><u>580</u></b>	<b><u>197</u></b>	586	195
436.cactusADM	16	922	207	<b><u>923</u></b>	<b><u>207</u></b>	926	207	4	200	239	200	240	<b><u>200</u></b>	<b><u>239</u></b>
437.leslie3d	16	929	162	923	163	<b><u>925</u></b>	<b><u>163</u></b>	16	<b><u>925</u></b>	<b><u>163</u></b>	935	161	925	163
444.namd	16	856	150	<b><u>853</u></b>	<b><u>150</u></b>	853	150	16	799	161	<b><u>796</u></b>	<b><u>161</u></b>	795	161
447.dealII	16	675	271	<b><u>668</u></b>	<b><u>274</u></b>	666	275	16	<b><u>623</u></b>	<b><u>294</u></b>	624	293	621	295
450.soplex	16	1082	123	992	134	<b><u>993</u></b>	<b><u>134</u></b>	16	997	134	<b><u>910</u></b>	<b><u>147</u></b>	881	151
453.povray	16	403	211	<b><u>400</u></b>	<b><u>213</u></b>	400	213	16	361	236	357	238	<b><u>358</u></b>	<b><u>238</u></b>
454.calculix	16	582	227	<b><u>584</u></b>	<b><u>226</u></b>	585	226	16	<b><u>551</u></b>	<b><u>240</u></b>	554	238	549	241
459.GemsFDTD	16	<b><u>1153</u></b>	<b><u>147</u></b>	1155	147	1152	147	16	<b><u>1039</u></b>	<b><u>163</u></b>	1038	164	1041	163
465.tonto	16	764	206	<b><u>764</u></b>	<b><u>206</u></b>	765	206	16	<b><u>698</u></b>	<b><u>226</u></b>	702	224	695	227
470.lbm	16	890	247	888	247	<b><u>889</u></b>	<b><u>247</u></b>	16	890	247	888	247	<b><u>889</u></b>	<b><u>247</u></b>
481.wrf	16	<b><u>813</u></b>	<b><u>220</u></b>	814	220	810	221	16	758	236	<b><u>757</u></b>	<b><u>236</u></b>	755	237
482.sphinx3	16	1192	262	<b><u>1170</u></b>	<b><u>267</u></b>	1165	268	16	1164	268	1156	270	<b><u>1157</u></b>	<b><u>270</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=14336 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages



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**CPU2006 license:** 97

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## 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"

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 GR385 F1.

The Acer AR385 F1 and Gateway GR385 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/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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 10:09:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 14 September 2010.