



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## ACTION S.A.

SPECfp<sup>®</sup>\_rate2006 = 323

ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)

SPECfp\_rate\_base2006 = 297

CPU2006 license: 9008

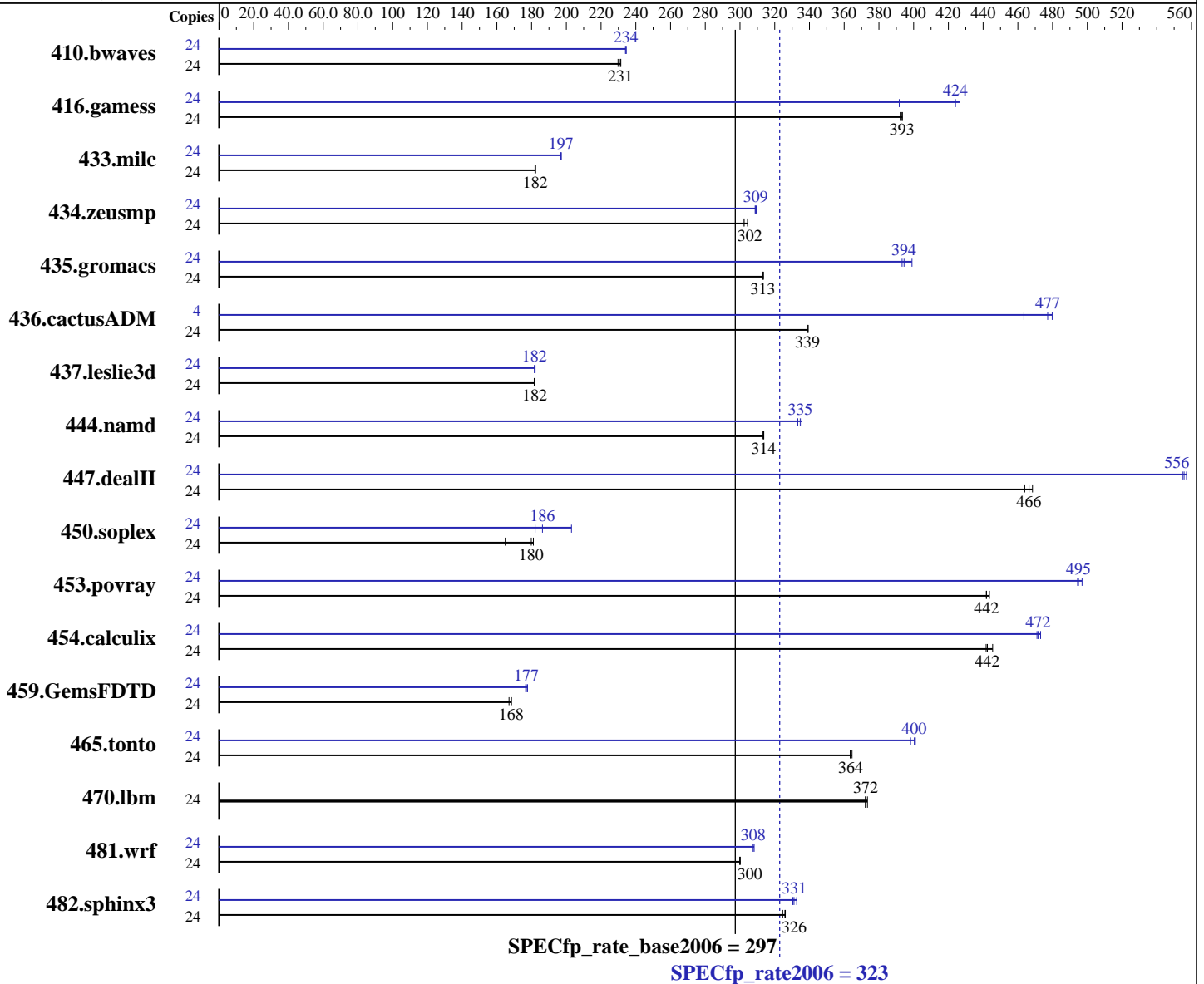
Test date: May-2011

Test sponsor: ACTION S.A.

Hardware Availability: Feb-2011

Tested by: ACTION S.A.

Software Availability: Jul-2010



### Hardware

CPU Name: AMD Opteron 6180 SE  
 CPU Characteristics:  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) SP1  
 Kernel 2.6.32.12-0.7-default  
 Compiler: x86 Open64 4.2.4 Compiler Suite (from AMD)  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (Full multiuser with network)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**ACTION S.A.**

**SPECfp\_rate2006 = 323**

**ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)**

**SPECfp\_rate\_base2006 = 297**

**CPU2006 license:** 9008

**Test date:** May-2011

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Feb-2011

**Tested by:** ACTION S.A.

**Software Availability:** Jul-2010

**L3 Cache:** 12 MB I+D on chip per chip, 6 MB shared / 6 cores  
**Other Cache:** None  
**Memory:** 64 GB (16 x 4 GB 2Rx4 PC3-10600R-9, ECC)  
**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	24	1419	230	1410	231	<u>1411</u>	<u>231</u>	24	1394	234	<u>1391</u>	<u>234</u>	1391	234
416.gamess	24	1198	392	<u>1195</u>	<u>393</u>	1194	394	24	1200	392	<u>1108</u>	<u>424</u>	1101	427
433.milc	24	1211	182	<u>1209</u>	<u>182</u>	1209	182	24	1119	197	1118	197	<u>1119</u>	<u>197</u>
434.zeusmp	24	724	302	<u>722</u>	<u>302</u>	718	304	24	707	309	706	309	<u>707</u>	<u>309</u>
435.gromacs	24	<u>547</u>	<u>313</u>	548	313	547	314	24	429	399	<u>434</u>	<u>394</u>	436	393
436.cactusADM	24	845	339	847	339	<u>846</u>	<u>339</u>	4	<u>100</u>	<u>477</u>	99.6	480	103	463
437.leslie3d	24	1243	182	<u>1241</u>	<u>182</u>	1240	182	24	<u>1241</u>	<u>182</u>	1242	182	1239	182
444.namd	24	614	314	<u>614</u>	<u>314</u>	615	313	24	573	336	<u>575</u>	<u>335</u>	578	333
447.dealII	24	<u>589</u>	<u>466</u>	586	468	592	464	24	<u>494</u>	<u>556</u>	495	555	493	557
450.soplex	24	1214	165	<u>1113</u>	<u>180</u>	1106	181	24	1100	182	<u>1075</u>	<u>186</u>	986	203
453.povray	24	289	442	288	444	<u>289</u>	<u>442</u>	24	258	494	257	497	<u>258</u>	<u>495</u>
454.calculix	24	444	445	448	442	<u>447</u>	<u>442</u>	24	<u>420</u>	<u>472</u>	420	471	419	473
459.GemsFDTD	24	<u>1514</u>	<u>168</u>	1525	167	1512	168	24	1442	177	1433	178	<u>1439</u>	<u>177</u>
465.tonto	24	650	363	<u>649</u>	<u>364</u>	648	365	24	593	398	<u>590</u>	<u>400</u>	589	401
470.lbm	24	883	373	<u>886</u>	<u>372</u>	886	372	24	883	373	<u>886</u>	<u>372</u>	886	372
481.wrf	24	<u>894</u>	<u>300</u>	893	300	894	300	24	870	308	<u>871</u>	<u>308</u>	873	307
482.sphinx3	24	<u>1435</u>	<u>326</u>	1441	325	1434	326	24	<u>1413</u>	<u>331</u>	1416	330	1406	333

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=10800 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**ACTION S.A.**

**SPECfp\_rate2006 = 323**

**ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)**

**SPECfp\_rate\_base2006 = 297**

**CPU2006 license:** 9008

**Test date:** May-2011

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Feb-2011

**Tested by:** ACTION S.A.

**Software Availability:** Jul-2010

## General Notes

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

HUGETLB\_LIMIT = "450"

LD\_LIBRARY\_PATH = "/cpu2006.1.1/amd1002-rate-libs-revC/64:/cpu2006.1.1/amd1002-rate-libs-revC/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>

## 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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**ACTION S.A.**

**SPECfp\_rate2006 = 323**

**ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)**

**SPECfp\_rate\_base2006 = 297**

**CPU2006 license:** 9008

**Test date:** May-2011

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Feb-2011

**Tested by:** ACTION S.A.

**Software Availability:** Jul-2010

## 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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**ACTION S.A.**

**SPECfp\_rate2006 = 323**

**ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)**

**SPECfp\_rate\_base2006 = 297**

**CPU2006 license:** 9008

**Test date:** May-2011

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Feb-2011

**Tested by:** ACTION S.A.

**Software Availability:** Jul-2010

## 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**ACTION S.A.**

**SPECfp\_rate2006 = 323**

**ACTINA SOLAR 220 A2 (AMD Opteron 6180 SE)**

**SPECfp\_rate\_base2006 = 297**

**CPU2006 license:** 9008

**Test date:** May-2011

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Feb-2011

**Tested by:** ACTION S.A.

**Software Availability:** Jul-2010

## 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>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 17:40:13 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 21 June 2011.