



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp<sup>®</sup>\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

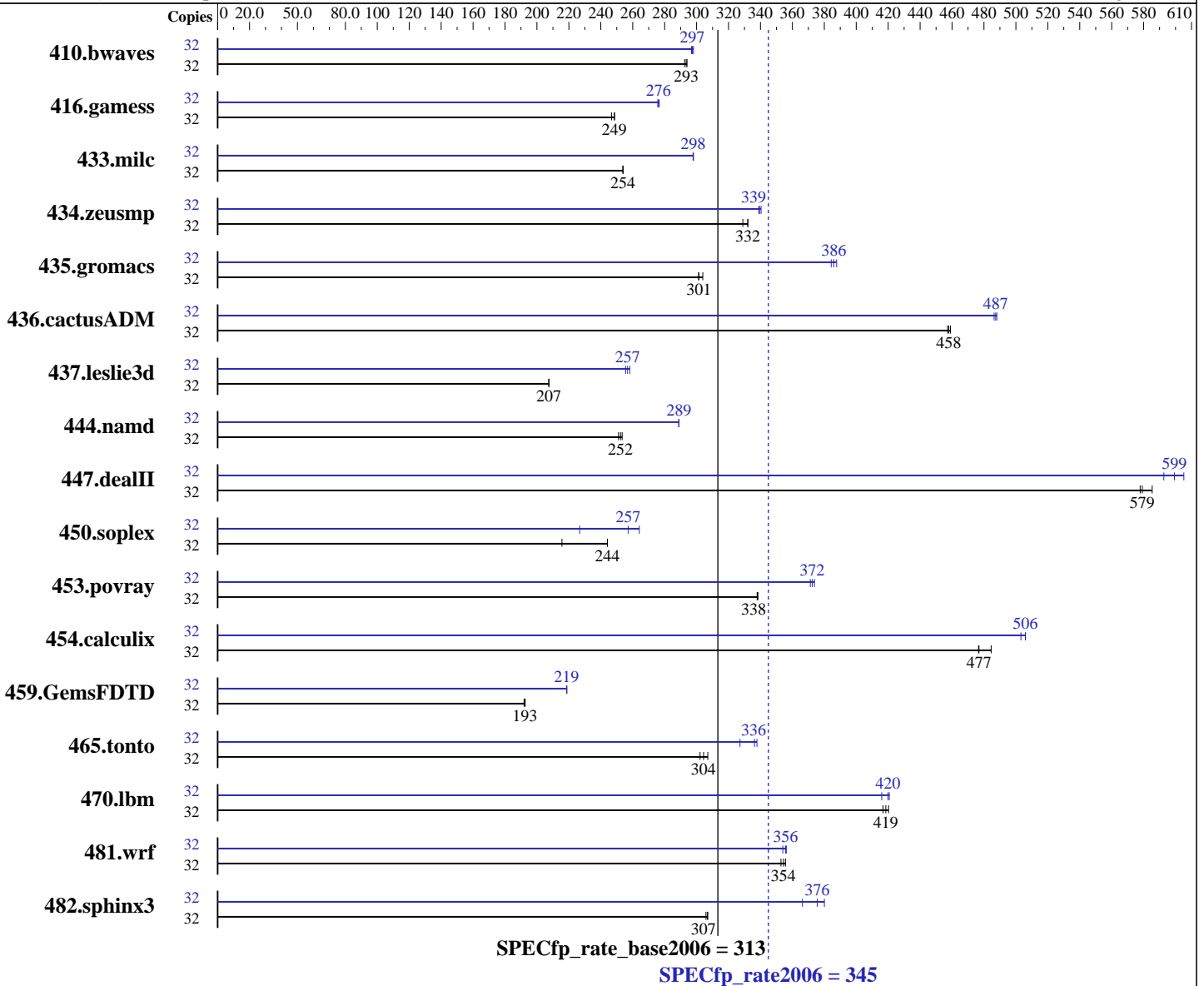
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012



### Hardware

CPU Name: AMD Opteron 6366 HE  
 CPU Characteristics: AMD Turbo CORE technology up to 3.10 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 cores/chip  
 CPU(s) orderable: 1,2 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 4.5.2 of x86 Open64  
Compiler Suite (from AMD)  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (Full multiuser with network)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

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: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, 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	32	<u>1482</u>	<u>293</u>	1479	294	1487	293	32	1465	297	1459	298	<u>1463</u>	<u>297</u>		
416.gamess	32	2521	249	<u>2521</u>	<u>249</u>	2540	247	32	2265	277	<u>2270</u>	<u>276</u>	2273	276		
433.milc	32	1157	254	<u>1157</u>	<u>254</u>	1157	254	32	987	298	986	298	<u>986</u>	<u>298</u>		
434.zeusmp	32	877	332	885	329	<u>877</u>	<u>332</u>	32	859	339	<u>858</u>	<u>339</u>	855	340		
435.gromacs	32	752	304	758	301	<u>758</u>	<u>301</u>	32	589	388	594	384	<u>592</u>	<u>386</u>		
436.cactusADM	32	<u>835</u>	<u>458</u>	833	459	836	457	32	<u>785</u>	<u>487</u>	786	486	784	488		
437.leslie3d	32	1449	208	1450	207	<u>1450</u>	<u>207</u>	32	1177	256	<u>1171</u>	<u>257</u>	1165	258		
444.namd	32	1022	251	1013	253	<u>1017</u>	<u>252</u>	32	889	289	<u>888</u>	<u>289</u>	888	289		
447.dealII	32	634	578	625	585	<u>632</u>	<u>579</u>	32	<u>611</u>	<u>599</u>	605	605	618	593		
450.soplex	32	1238	216	<u>1093</u>	<u>244</u>	1093	244	32	1177	227	<u>1038</u>	<u>257</u>	1010	264		
453.povray	32	504	338	503	338	<u>503</u>	<u>338</u>	32	455	374	<u>457</u>	<u>372</u>	459	371		
454.calculix	32	545	485	<u>554</u>	<u>477</u>	554	477	32	<u>522</u>	<u>506</u>	522	506	525	503		
459.GemsFDTD	32	1769	192	<u>1763</u>	<u>193</u>	1763	193	32	<u>1553</u>	<u>219</u>	1553	219	1552	219		
465.tonto	32	1042	302	1026	307	<u>1034</u>	<u>304</u>	32	932	338	<u>936</u>	<u>336</u>	962	327		
470.lbm	32	<u>1051</u>	<u>419</u>	1046	420	1055	417	32	<u>1047</u>	<u>420</u>	1045	421	1057	416		
481.wrf	32	1013	353	1005	356	<u>1009</u>	<u>354</u>	32	1010	354	<u>1005</u>	<u>356</u>	1003	356		
482.sphinx3	32	2039	306	<u>2032</u>	<u>307</u>	2032	307	32	<u>1661</u>	<u>376</u>	1641	380	1703	366		

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

Transparent huge pages were enabled for this run (OS default)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

## Operating System Notes (Continued)

Huge pages were not configured for this run.

## General Notes

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

LD\_LIBRARY\_PATH = "/home/spec/amd1206-rate-libs-revA/32:/home/spec/amd1206-rate-libs-revA/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 6386SE chips + 128GB Memory using RHEL 6.3

## Base Compiler Invocation

C benchmarks:  
openc

C++ benchmarks:  
openCC

Fortran benchmarks:  
openf95

Benchmarks using both Fortran and C:  
openc 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\_LINUX -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LP64  
-fno-second-underscore

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

## Base Portability Flags (Continued)

482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

### C benchmarks:

-Ofast -OPT:malloc\_alg=1 -HP:bd=2m:heap=2m -IPA:plimit=8000  
-IPA:small\_pu=100 -mso -march=bdver1

### C++ benchmarks:

-Ofast -static -CG:load\_exe=0 -OPT:malloc\_alg=1 -INLINE:aggressive=on  
-HP:bd=2m:heap=2m -D\_\_OPEN64\_FAST\_SET -march=bdver1

### Fortran benchmarks:

-Ofast -LNO:blocking=off -LNO:simd\_peel\_align=on -OPT:rsqrt=2  
-OPT:unroll\_size=256 -HP:bd=2m:heap=2m -mso -march=bdver1

### Benchmarks using both Fortran and C:

-Ofast -OPT:malloc\_alg=1 -HP:bd=2m:heap=2m -IPA:plimit=8000  
-IPA:small\_pu=100 -mso -march=bdver1 -LNO:blocking=off  
-LNO:simd\_peel\_align=on -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

## 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

## Peak Portability Flags (Continued)

```

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

```

## Peak Optimization Flags

C benchmarks:

```

433.milc: -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
-march=bdver1

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

482.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-m32 -IPA:plimit=1000 -OPT:malloc_alg=2 -CG:cmp_peep=on
-CG:p2align=0 -CG:load_exe=1 -CG:dsched=on
-INLINE:aggressive=on -LNO:prefetch=2 -LNO:prefetch_ahead=4
-mso -march=bdver2

```

C++ benchmarks:

```

444.namd: -Ofast -IPA:plimit=3000 -LNO:ignore_feedback=off
-CG:local_sched_alg=0 -CG:load_exe=0 -OPT:unroll_size=256
-fno-exceptions -HP:bdt=2m:heap=2m -LNO:if_select_conv=1
-OPT:alias=disjoint -LNO:psimd_iso_unroll=ON -march=bdver1

447.deallI: -Ofast -D__OPEN64_FAST_SET -static -INLINE:aggressive=on
-LNO:opt=1 -LNO:simd=2 -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 -TENV:frame_pointer=off
-march=bdver1

450.soplex: -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 -mno-fma4 -HP:bdt=2m:heap=2m -WOPT:sib=on
-march=bdver1

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 345

SPECfp\_rate\_base2006 = 313

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

## Peak Optimization Flags (Continued)

453.povray: -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:bdt=2m:heap=2m  
-OPT:transform=2 -OPT:alias=disjoint -WOPT:aggcm=0  
-march=bdver2

### Fortran benchmarks:

410.bwaves: -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 -march=bdver1

416.gamess: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:fu=6 -LNO:blocking=0 -LNO:simd=2 -OPT:ro=3  
-OPT:recip=on -CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m  
-WOPT:sib=on -march=bdver1

434.zeusmp: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:blocking=off -LNO:interchange=off -IPA:plimit=1500  
-HP:bdt=2m:heap=2m -march=bdver1

437.leslie3d: -Ofast -CG:pre\_minreg\_level=2 -LNO:simd=0 -LNO:fusion=2  
-HP:bdt=2m:heap=2m -mso -march=bdver1

459.GemsFDTD: -Ofast -IPA:plimit=1500 -OPT:unroll\_size=1024  
-OPT:unroll\_times\_max=16 -LNO:fission=2  
-CG:local\_sched\_alg=2 -HP -march=bdver1

465.tonto: -Ofast -OPT:alias=no\_f90\_pointer\_alias -LNO:blocking=off  
-CG:load\_exe=1 -CG:local\_sched\_alg=3 -IPA:plimit=525  
-HP:bdt=2m:heap=2m -march=bdver1

### Benchmarks using both Fortran and C:

435.gromacs: -Ofast -OPT:rsqrt=2 -HP:bdt=2m:heap=2m  
-CG:local\_sched\_alg=2 -CG:load\_exe=3 -GRA:unspill=on  
-march=bdver1 -LNO:simd=3

436.cactusADM: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:blocking=off -LNO:prefetch=2 -LNO:pf2=0  
-LNO:prefetch\_ahead=4 -HP -CG:locs\_shallow\_depth=1  
-CG:load\_exe=0 -CG:dsched=on -WOPT:sib=on -march=bdver1

454.calculix: -Ofast -OPT:unroll\_size=256 -OPT:alias=disjoint  
-GRA:optimize\_boundary=on -CG:dsched=on -HP:bdt=2m:heap=2m  
-march=bdver1

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7222G-T2, (BHDGT,  
Opteron 6366) HE  
AMD Opteron 6366 HE

**SPECfp\_rate2006 = 345**

**SPECfp\_rate\_base2006 = 313**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Oct-2012

**Hardware Availability:** Nov-2012

**Software Availability:** Aug-2012

## Peak Optimization Flags (Continued)

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

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-I.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-I.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 v1.2.  
Report generated on Thu Jul 24 14:28:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 January 2013.