



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp<sup>®</sup>\_rate2006 = 683

SPECfp\_rate\_base2006 = 616

CPU2006 license: 001176

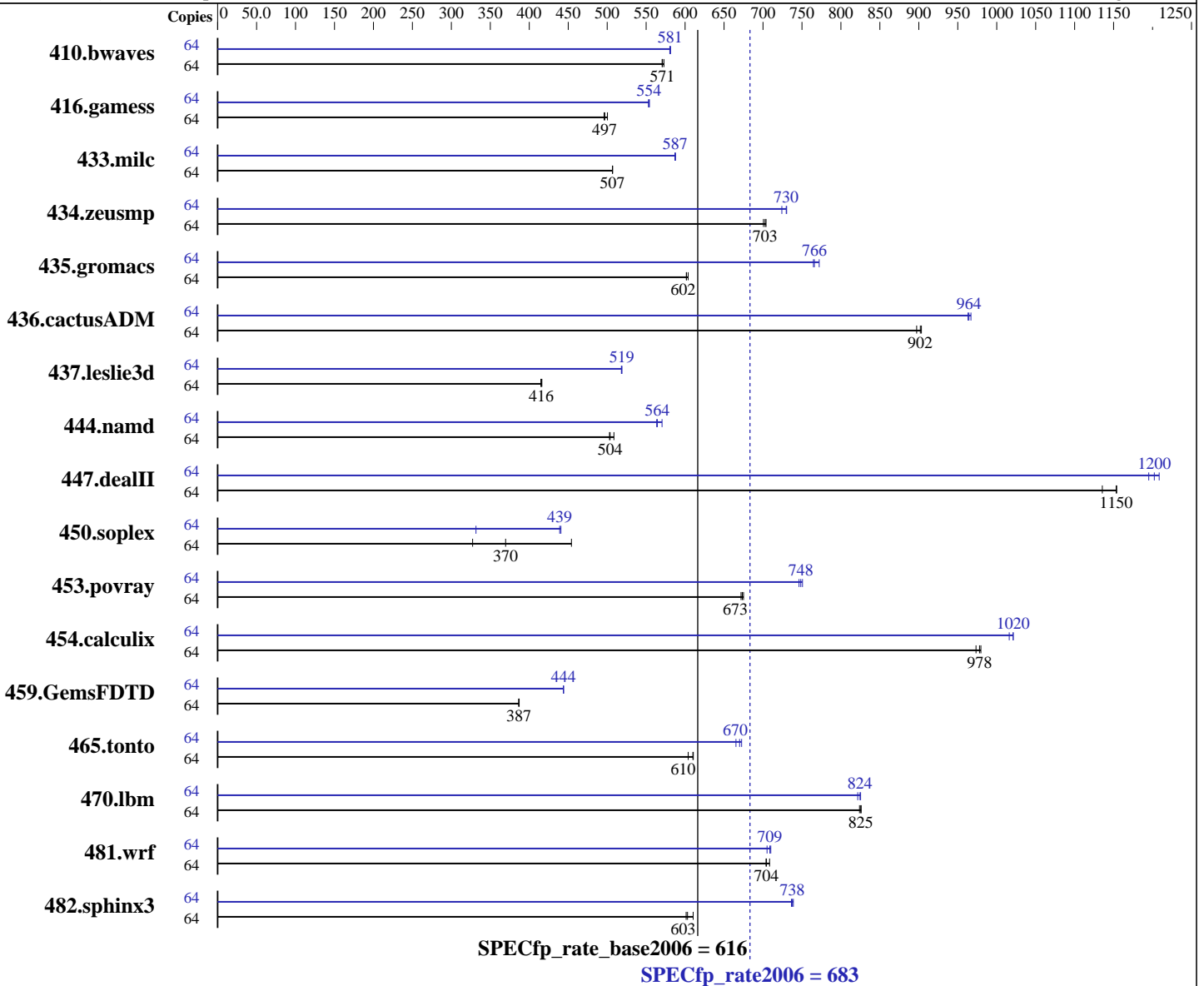
Test sponsor: Supermicro

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: 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 4.5.2 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 A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp\_rate2006 = **683**

SPECfp\_rate\_base2006 = **616**

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: 128 GB (16 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	64	1524	571	1518	573	<b>1523</b>	<b>571</b>	64	1499	580	1496	581	<b>1497</b>	<b>581</b>
416.gamess	64	<b>2522</b>	<b>497</b>	2505	500	2526	496	64	2261	554	2266	553	<b>2263</b>	<b>554</b>
433.milc	64	1159	507	<b>1159</b>	<b>507</b>	1159	507	64	1000	588	1001	587	<b>1001</b>	<b>587</b>
434.zeusmp	64	831	701	827	704	<b>829</b>	<b>703</b>	64	797	730	<b>798</b>	<b>730</b>	804	724
435.gromacs	64	757	604	760	602	<b>759</b>	<b>602</b>	64	<b>597</b>	<b>766</b>	592	772	598	765
436.cactusADM	64	847	903	<b>848</b>	<b>902</b>	852	897	64	791	967	<b>793</b>	<b>964</b>	794	963
437.leslie3d	64	1446	416	1450	415	<b>1448</b>	<b>416</b>	64	1159	519	<b>1160</b>	<b>519</b>	1161	518
444.namd	64	1020	503	1009	509	<b>1019</b>	<b>504</b>	64	<b>909</b>	<b>564</b>	900	570	911	564
447.dealII	64	<b>635</b>	<b>1150</b>	645	1140	634	1150	64	606	1210	613	1200	<b>609</b>	<b>1200</b>
450.soplex	64	1631	327	1175	454	<b>1444</b>	<b>370</b>	64	1610	332	1211	441	<b>1216</b>	<b>439</b>
453.povray	64	507	672	504	675	<b>506</b>	<b>673</b>	64	<b>455</b>	<b>748</b>	454	751	456	746
454.calculix	64	<b>540</b>	<b>978</b>	542	973	539	980	64	517	1020	520	1020	<b>517</b>	<b>1020</b>
459.GemsFDTD	64	<b>1756</b>	<b>387</b>	1754	387	1757	386	64	<b>1530</b>	<b>444</b>	1530	444	1529	444
465.tonto	64	1043	604	1031	611	<b>1032</b>	<b>610</b>	64	<b>940</b>	<b>670</b>	936	673	947	665
470.lbm	64	1067	824	1065	826	<b>1065</b>	<b>825</b>	64	<b>1067</b>	<b>824</b>	1070	822	1066	825
481.wrf	64	1016	704	1009	708	<b>1015</b>	<b>704</b>	64	1014	705	<b>1009</b>	<b>709</b>	1007	710
482.sphinx3	64	2044	610	<b>2068</b>	<b>603</b>	2074	601	64	1694	736	<b>1691</b>	<b>738</b>	1688	739

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 A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 683

SPECfp\_rate\_base2006 = 616

**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 A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 683

SPECfp\_rate\_base2006 = 616

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:

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 683

SPECfp\_rate\_base2006 = 616

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 A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

SPECfp\_rate2006 = 683

SPECfp\_rate\_base2006 = 616

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:bd=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:bd=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:bd=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:bd=2m:heap=2m -march=bdver1

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

### Benchmarks using both Fortran and C:

435.gromacs: -Ofast -OPT:rsqrt=2 -HP:bd=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:bd=2m:heap=2m  
-march=bdver1

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 1042G-LTF (H8QGL-iF+,  
Opteron 6366 HE)  
AMD Opteron 6366 HE

**SPECfp\_rate2006 = 683**

**SPECfp\_rate\_base2006 = 616**

**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 14:19:46 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 January 2013.