



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp[®]_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176

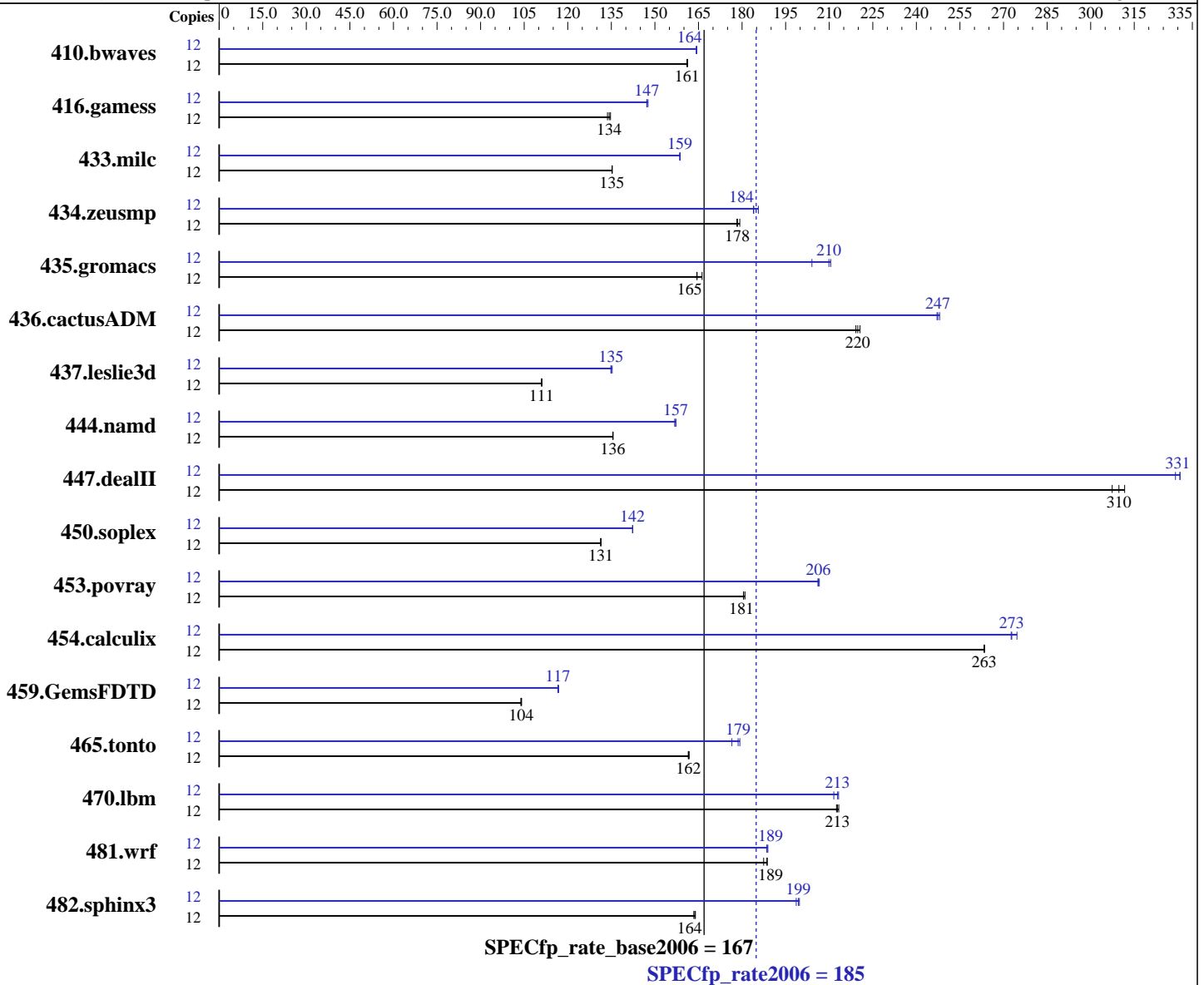
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012



Hardware

CPU Name: AMD Opteron 6344
 CPU Characteristics: AMD Turbo CORE technology up to 3.20 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 12 cores, 1 chip, 12 cores/chip
 CPU(s) orderable: 1 chip

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.3, Kernel 2.6.32-279.el6.x86_64
 Compiler: C/C++/Fortran: Version 4.5.2 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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

Primary Cache: 384 KB I on chip per chip,
64 KB I shared / 2 cores;
16 KB D on chip per core

Secondary Cache: 12 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 / 6 cores

Other Cache: None

Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)

Disk Subsystem: 1 x 2048 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	12	1011	161	<u>1012</u>	<u>161</u>	1013	161	12	<u>992</u>	<u>164</u>	992	164	993	164		
416.gamess	12	1744	135	<u>1750</u>	<u>134</u>	1758	134	12	<u>1595</u>	<u>147</u>	1596	147	1591	148		
433.milc	12	815	135	<u>815</u>	<u>135</u>	814	135	12	695	159	<u>695</u>	<u>159</u>	694	159		
434.zeusmp	12	609	179	613	178	<u>612</u>	<u>178</u>	12	588	186	<u>593</u>	<u>184</u>	594	184		
435.gromacs	12	515	166	<u>521</u>	<u>165</u>	521	164	12	<u>408</u>	<u>210</u>	420	204	407	211		
436.cactusADM	12	<u>652</u>	<u>220</u>	650	221	654	219	12	<u>580</u>	<u>247</u>	578	248	580	247		
437.leslie3d	12	1015	111	<u>1016</u>	<u>111</u>	1016	111	12	<u>836</u>	<u>135</u>	834	135	837	135		
444.namd	12	710	136	710	135	<u>710</u>	<u>136</u>	12	<u>612</u>	<u>157</u>	612	157	614	157		
447.dealII	12	<u>443</u>	<u>310</u>	447	307	440	312	12	415	331	<u>415</u>	<u>331</u>	417	329		
450.soplex	12	761	131	762	131	<u>762</u>	<u>131</u>	12	703	142	<u>703</u>	<u>142</u>	703	142		
453.povray	12	<u>354</u>	<u>181</u>	353	181	354	180	12	309	207	310	206	<u>310</u>	<u>206</u>		
454.calculix	12	376	263	<u>376</u>	<u>263</u>	376	263	12	360	275	<u>363</u>	<u>273</u>	363	273		
459.GemsFDTD	12	1226	104	<u>1224</u>	<u>104</u>	1223	104	12	1089	117	<u>1092</u>	<u>117</u>	1092	117		
465.tonto	12	730	162	731	161	<u>731</u>	<u>162</u>	12	<u>661</u>	<u>179</u>	669	177	659	179		
470.lbm	12	773	213	776	213	<u>775</u>	<u>213</u>	12	<u>775</u>	<u>213</u>	773	213	779	212		
481.wrf	12	<u>711</u>	<u>189</u>	710	189	715	187	12	711	189	<u>711</u>	<u>189</u>	710	189		
482.sphinx3	12	1431	163	1427	164	<u>1428</u>	<u>164</u>	12	1171	200	<u>1173</u>	<u>199</u>	1177	199		

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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Sep-2012
Hardware Availability: Nov-2012
Software Availability: Aug-2012

Operating System Notes (Continued)

```
Set vm/nr_hugepages=10752 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

General Notes

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

```
HUGETLB_LIMIT = "896"
```

```
LD_LIBRARY_PATH = "/usr/cpu2006/amd1206-rate-libs-revA/32:/usr/cpu2006/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:
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.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
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

Base Portability Flags (Continued)

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:

-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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012

Peak Portability Flags (Continued)

```

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

```

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.dealIII: -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

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Sep-2012
Hardware Availability: Nov-2012
Software Availability: Aug-2012

Peak Optimization Flags (Continued)

450.soplex (continued):

-march=bdver1

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 1012G-MTF
(H8SGL-F, AMD Opteron 6344)

SPECfp_rate2006 = 185

SPECfp_rate_base2006 = 167

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 14:15:43 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 January 2013.