SPEC® CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

$SPECfp®\_rate2006 = 715$
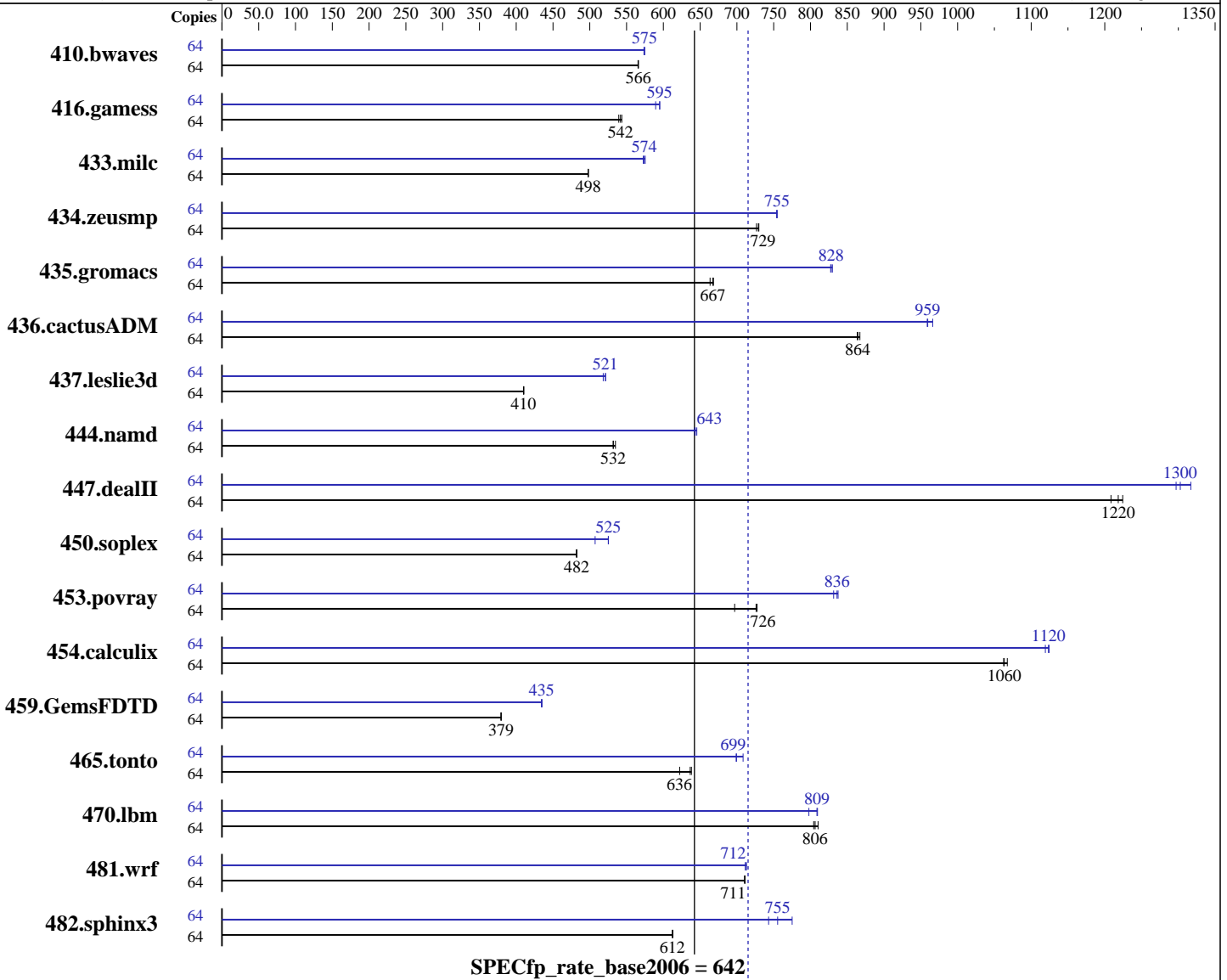
$SPECfp\_rate\_base2006 = 642$

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

Test date: Oct-2013
Hardware Availability: Jan-2014
Software Availability: Aug-2012

Graph of results (Copies = 64 for all benchmarks):

Benchmark	Peak	Base
410.bwaves	575	566
416.gamess	595	542
433.milc	574	498
434.zeusmp	755	729
435.gromacs	828	667
436.cactusADM	959	864
437.leslie3d	521	410
444.namd	643	532
447.dealII	1300	1220
450.soplex	525	482
453.povray	836	726
454.calculix	1120	1060
459.GemsFDTD	435	379
465.tonto	699	636
470.lbm	809	806
481.wrf	712	711
482.sphinx3	755	612

SPECfp_rate_base2006 = 642
SPECfp_rate2006 = 715

Hardware

CPU Name:	AMD Opteron 6370P
CPU Characteristics:	AMD Turbo CORE technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	64 cores, 4 chips, 16 cores/chip
CPU(s) orderable:	2,4 chips

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-358.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

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

SPECfp_rate2006 =   715

SPECfp_rate_base2006 =   642

CPU2006 license: 001176			**Test date:** Oct-2013
Test sponsor:	Supermicro		**Hardware Availability:** Jan-2014
Tested by:	Supermicro		**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	Other Software:	None
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:	256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)		
Disk Subsystem:	1 x 500 GB SATA II, 7200 RPM		
Other Hardware:	None		

Results Table

				Base							Peak				
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**		**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	64	1538	566	**1537**	**566**	1537	566		64	1516	574	1514	575	**1514**	**575**
416.gamess	64	**2313**	**542**	2323	539	2306	543		64	2126	590	2105	595	**2106**	**595**
433.milc	64	**1180**	**498**	1180	498	1180	498		64	1021	575	1026	573	**1024**	**574**
434.zeusmp	64	798	730	802	727	**799**	**729**		64	772	755	**772**	**755**	772	754
435.gromacs	64	684	668	**685**	**667**	689	663		64	551	830	**552**	**828**	552	827
436.cactusADM	64	886	864	**885**	**864**	882	867		64	798	959	**797**	**959**	792	966
437.leslie3d	64	1467	410	**1467**	**410**	1466	410		64	1154	521	1161	518	**1154**	**521**
444.namd	64	965	532	960	535	**965**	**532**		64	795	646	799	643	**798**	**643**
447.dealII	64	606	1210	**601**	**1220**	598	1220		64	565	1300	**562**	**1300**	556	1320
450.soplex	64	**1107**	**482**	1108	482	1106	482		64	1052	507	**1016**	**525**	1016	525
453.povray	64	489	697	**469**	**726**	468	727		64	407	838	409	831	**407**	**836**
454.calculix	64	**496**	**1060**	497	1060	495	1070		64	**470**	**1120**	472	1120	470	1120
459.GemsFDTD	64	1789	380	1790	379	**1789**	**379**		64	1561	435	1564	434	**1562**	**435**
465.tonto	64	**989**	**636**	1012	622	987	638		64	**900**	**699**	901	699	889	708
470.lbm	64	**1091**	**806**	1085	810	1093	804		64	**1087**	**809**	1102	798	1086	810
481.wrf	64	1006	710	**1006**	**711**	1005	711		64	1005	712	1003	713	**1005**	**712**
482.sphinx3	64	2038	612	2035	613	**2037**	**612**		64	**1651**	**755**	1679	743	1609	775

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

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,
Opteron 6370P)
AMD Opteron 6370P

$SPECfp\_rate2006 =$ 715

$SPECfp\_rate\_base2006 =$ 642

CPU2006 license: 001176		**Test date:**	Oct-2013
Test sponsor:	Supermicro	**Hardware Availability:**	Jan-2014
Tested by:	Supermicro	**Software Availability:**	Aug-2012

Operating System Notes (Continued)

```
Set vm/nr_hugepages=57344 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

Platform Notes

```
C State mode set to disabled under Processor & Clock Options in BIOS.
HPC Mode set to enabled under Processor & Clock Options in BIOS.
C1E Support set to disabled under Processor & Clock Options in BIOS.
Power Down Enable set to disabled in Memory Configuration in BIOS.
```

General Notes

```
Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
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:
    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
```

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

$SPECfp_rate2006 = $ 715

$SPECfp_rate_base2006 = $ 642

CPU2006 license:	001176	**Test date:**	Oct-2013
Test sponsor:	Supermicro	**Hardware Availability:**	Jan-2014
Tested by:	Supermicro	**Software Availability:**	Aug-2012

Base Portability Flags (Continued)

```
   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
  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
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

$SPECfp_rate2006 = $ 715

$SPECfp_rate_base2006 = $ 642

CPU2006 license:	001176	**Test date:**	Oct-2013
Test sponsor:	Supermicro	**Hardware Availability:**	Jan-2014
Tested by:	Supermicro	**Software Availability:**	Aug-2012

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_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.dealII: -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
```

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

SPECfp_rate2006 =   715

SPECfp_rate_base2006 =   642

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

Peak Optimization Flags (Continued)

```
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

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: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
```

Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE, Opteron 6370P)
AMD Opteron 6370P

$SPECfp_rate2006 = $ 715

$SPECfp_rate_base2006 = $ 642

CPU2006 license: 001176		**Test date:**	Oct-2013
Test sponsor:	Supermicro	**Hardware Availability:**	Jan-2014
Tested by:	Supermicro	**Software Availability:**	Aug-2012

Peak Optimization Flags (Continued)

```
454.calculix: -Ofast -OPT:unroll_size=256 -OPT:alias=disjoint
              -GRA:optimize_boundary=on -CG:dsched=on -HP:bdt=2m:heap=2m
              -march=bdver1

     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 files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.html
http://www.spec.org/cpu2006/flags/amd-Supermicro-platform-rate-revC-I.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.xml
http://www.spec.org/cpu2006/flags/amd-Supermicro-platform-rate-revC-I.xml

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 22:06:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 February 2014.