SPEC® CFP2006 Result
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Supermicro
(Test Sponsor: Advanced Micro Devices)

Supermicro H8DMU+, AMD Opteron 2360 SE

SPECfp®_rate2006 = NC

SPECfp_rate_base2006 = NC

CPU2006 license: 49
Test sponsor: Advanced Micro Devices
Tested by: Advanced Micro Devices

Test date: Sep-2007
Hardware Availability: Dec-2007
Software Availability: Oct-2007

SPEC has determined that this result was not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter reported that the result would not meet the 3 month availability requirement in the SPEC CPU2006 run rules due to a change in the availability date of the processor.

Hardware
CPU Name: AMD Opteron 2360 SE
CPU Characteristics:
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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
L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (8x2GB, DDR2-667 CL5 Reg Dual Rank)
Disk Subsystem: 1x400GB SATA, 7200 RPM
Other Hardware: None

Software
Operating System: SuSE Linux Enterprise Server 10 SP1 64-bit kernel
Compiler: The Portland Group (PGI)
PGI pgf90 7.1-0 Fortran Compiler
PGI pgcc 7.1-0 C Compiler
PGI pgCC 7.1-0 C++ Compiler
The PathScale Compiler v3.0
PathScale pathf95 3.0 Fortran Compiler
PathScale pathcc 3.0 C Compiler
PathScale pathCC 3.0 C++ Compiler
Auto Parallel: No
File System: ReiserFS
System State: Multi-user, run level 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
416.gamess	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
433.milc	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
434.zeusmp	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
435.gromacs	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
436.cactusADM	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
437.leslie3d	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
444.namd	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
447.dealII	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
450.soplex	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
453.povray	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
454.calculix	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
459.GemsFDTD	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
465.tonto	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
470.lbm	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
481.wrf	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC
482.sphinx3	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
'ulimit -s unlimited' used to set environment stack size
'ulimit -l 2457600' was used to set environment lock pages quantity
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150
```

Non-Compliant

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General Notes

The test system can be assembled using two
Ablecom PWS-702A-1R 700W 12V redundant power supplies.

Base Compiler Invocation

C benchmarks:
    pgcc

C++ benchmarks:
    pgcpp

Fortran benchmarks:
    pgf95

Benchmarks using both Fortran and C:
    pgcc pgf95

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 -Mnomain
    436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
     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 -Mnomain
    459.GemsFDTD: -DSPEC_CPU_LP64
       465.tonto: -DSPEC_CPU_LP64
        470.lbm: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

```
  481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

```
C benchmarks:
    -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
    -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
    -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
    --zc_eh -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:
    -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
    -tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:
    -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
    -tp barcelona-64 -Bstatic_pgi
```

Base Other Flags

```
C benchmarks:
    -w

C++ benchmarks:
    -w

Fortran benchmarks:
    -w
```

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Base Other Flags (Continued)

Benchmarks using both Fortran and C:
        -w

Peak Compiler Invocation

C benchmarks (except as noted below):
        pathcc

        433.milc: pgcc

C++ benchmarks (except as noted below):
        pathCC

        444.namd: pgcpp

        453.povray: pgcpp

Fortran benchmarks (except as noted below):
        pathf95

        434.zeusmp: pgf95

        465.tonto: pgf95

Benchmarks using both Fortran and C (except as noted below):
        pgcc pgf95

        436.cactusADM: pathcc pathf95

Peak Portability Flags

        410.bwaves: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

```
   416.gamess: -DSPEC_CPU_LP64
     433.milc: -DSPEC_CPU_LP64
   434.zeusmp: -DSPEC_CPU_LP64
   435.gromacs: -DSPEC_CPU_LP64 -Mnomain
 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 -Mnomain
 459.GemsFDTD: -DSPEC_CPU_LP64
     465.tonto: -DSPEC_CPU_LP64
      470.lbm: -DSPEC_CPU_LP64
      481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
   482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
    433.milc: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
              -Mipa=noarg(pass 2) -Mpfo(pass 2) -fast -O4 -Mdse
              -Mfprelaxed -Msmartalloc=huge:448 -tp barcelona-64
              -Bstatic_pgi

     470.lbm: -Ofast

   482.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
              -OPT:Ofast -WOPT:aggstr=0 -m32
```

C++ benchmarks:

```
    444.namd: -fast -O4 -Mfprelaxed -Msmartalloc=huge:448 --zc_eh
              -tp barcelona-64 -Mnodepchk -Mprefetch -Msafe_lastval
              -Msafeptr=static -Mstride0 -Munroll=n:4 -Mvect=noidiom
              -Mvect=prefetch -Bstatic_pgi
```

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Peak Optimization Flags (Continued)

447.dealII: `-Ofast -INLINE:aggressive=on -OPT:malloc_alg=1 -m32 -fno-exceptions`

450.soplex: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3 -OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1 -LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions`

453.povray: `basepeak = yes`

Fortran benchmarks:

410.bwaves: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off -LNO:ignore_feedback=off`

416.gamess: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256`

434.zeusmp: `basepeak = yes`

437.leslie3d: `-Ofast -OPT:malloc_alg=1`

459.GemsFDTD: `-Ofast -LNO:fission=2 -LNO:prefetch=0`

465.tonto: `-fast -O4 -Mfprelaxed -Msmartalloc=huge:448 -Mipa=fast -Mipa=inline -Mvect=noaltcode -tp barcelona-64 -Bstatic_pgi`

Benchmarks using both Fortran and C:

435.gromacs: `-fast -Mfpapprox=rsqrt -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448 -tp barcelona-64 -Bstatic_pgi`

436.cactusADM: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa`

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Peak Optimization Flags (Continued)

```
454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmartalloc huge:448 -Mvect=noaltcode
         -tp barcelona-64 -Bstatic_pgi
```

Peak Other Flags

C benchmarks:

```
433.milc: -w
```

C++ benchmarks (except as noted below):
```
-w
```

```
447.dealII: -static
```

```
450.soplex: No flags used
```

Fortran benchmarks:

```
434.zeusmp:
```

```
465.tonto: -w
```

Benchmarks using both Fortran and C (except as noted below):
```
-w
```

```
436.cactusADM: No flags used
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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