SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Tyan
(Test Sponsor: Advanced Micro Devices)

Tyan Thunder n425QE (S4985E), AMD Opteron 8360 SE

<table>
<thead>
<tr>
<th>SPECfp®_rate2006</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>NC</td>
</tr>
</tbody>
</table>

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

**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 8360 SE
- **CPU Characteristics:**
  - CPU MHz: 2500
  - FPU: Integrated
  - CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
  - CPU(s) orderable: 2, 4 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:** 32 GB (16x2GB, DDR2-667 CL5 Reg Dual Rank)
- **Disk Subsystem:** 1x250GB 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:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None
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.

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>416.gamess</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>433.milc</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>444.namd</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>447.dealII</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>450.soplex</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>453.povray</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>454.calculix</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>465.lbm</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>481.wrf</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>482.qdmc</td>
<td>16</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

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 4915200' was used to set environment lock pages quantity
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=2400 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150

Non-Compliant
SPEC CFP2006 Result

Tyan
(Test Sponsor: Advanced Micro Devices)

Tyan Thunder n425QE (S4985E), AMD Opteron 8360 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.

General Notes
The tested system can be assembled using a Zippy PSL-6701P 700W 12V power supply.

Base Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

Fortran benchmarks:
pgf95

Benchmarks using both Fortran and C:
pgcc pgf95

Base Portability Flags

416.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -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

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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.

**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`
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.

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.gusmp: 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

Non-Compliant
SPEC CFP2006 Result

Tyan
(Test Sponsor: Advanced Micro Devices)

Tyan Thunder n425QE (S4985E), AMD Opteron 8360 SE

SPECfp_rate2006 = NC
SPECfp_rate_base2006 = NC

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

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.

Peak Portability Flags (Continued)

416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -Dnomain
436.cactusADM: -DSPEC_CPU_LP64 -Dno_second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -Dnomain
459.GemsFDTD: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
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=roarg(pass 2) -Mpfo(pass 2) -fast -O4 --Mdse
        -Mrelaxed -Msmartalloc=448 -tp barcelon-a64
        -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 -Mvpcrelaxed -Msmartalloc=448 --zc_eh
        -tp barcelon-a64 -Mnodepckh -Mprefetch -Msafe_lastval
        -Msafepr=static -Mstride0 -Munroll=n:4 -Mvect=noidiom
        -Mvect=prefetch -Bstatic_pgi

Continued on next page
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.

Peak Optimization Flags (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Optimization Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>447.dealII</td>
<td>-Ofast -INLINE:aggressive=on -OPT:malloc_alg=1 -m32 -fno-exceptions</td>
</tr>
<tr>
<td>450.soplex</td>
<td>-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3 -OPT:IEEE_arith=3 -CG:movnti=1 -LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions</td>
</tr>
<tr>
<td>453.povray</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>Fortran benchmarks:</td>
<td></td>
</tr>
<tr>
<td>410.bwaves</td>
<td>-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -LNO:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off -LNO:ignore_feedback=off</td>
</tr>
<tr>
<td>416.gamess</td>
<td>-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2 -OPT:fast -OPT:ro=3 -OPT:unroll_size=256</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>-Ofast -OPT:malloc_alg=1</td>
</tr>
<tr>
<td>459.GemDFDTD</td>
<td>-fast -LNO:fission=2 -LNO:prefetch=0</td>
</tr>
</tbody>
</table>

Benchmarks using both Fortran and C:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Optimization Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>436.cactusADM</td>
<td>-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</td>
</tr>
</tbody>
</table>

Continued on next page
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.

Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmaxalloc large:448 -Mvect=noaltcode -tp barcelon-a64 -Bstatic_pgi

Peak Other Flags

C benchmarks:

433.milc: -w

C++ benchmarks (except as noted below):

447.dealII: -static

450.soplex: No flags used

Fortran benchmarks:

434.zeusmp: -w

465.tonto: -w

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

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
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.