IBM Corporation

IBM System x3455 (AMD Opteron 2222 SE)

**SPECfp®2006 = 14.5**

**SPECfp_base2006 = 13.6**

- **CPU2006 license:** 11
- **Test sponsor:** IBM Corporation
- **Tested by:** IBM Corporation
- **Test date:** Feb-2007
- **Hardware Availability:** Apr-2007
- **Software Availability:** Aug-2006

---

**Hardware**

- **CPU Name:** AMD Opteron 2222 SE
- **CPU Characteristics:**
  - **CPU MHz:** 3000
  - **Integrated**
  - **4 cores, 2 chips, 2 cores/chip**
  - **1 MB 1+D on chip per core**

---

**Software**

- **Operating System:** SLES9 SP3 for AMD64/EM64T
- **Compiler:** QLogic PathScale Compiler Suite 2.5
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Multi-user, run level 3
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None

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Continued on next page
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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2 GB DDR2-5300 ECC)
Disk Subsystem: 1 x 80 GB SATA, 7200 RPM
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</tr>
</tbody>
</table>

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

Operating System Notes

taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks: pathcc
C++ benchmarks: pathCC
Fortran benchmarks: pathf95

Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
IBM Corporation
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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
pathcc pathf95

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 -DSPEC_CPU_TABLE_WORKAROUND
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_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-march=auto -Ofast

C++ benchmarks:
-march=auto -Ofast

Fortran benchmarks:
-march=auto -Ofast

Benchmarks using both Fortran and C:
-march=auto -Ofast

Base Other Flags

C benchmarks:
-IPA:max_jobs=2

C++ benchmarks:
-IPA:max_jobs=2

Continued on next page
**SPEC CFP2006 Result**  

**IBM Corporation**  

**IBM System x3455 (AMD Opteron 2222 SE)**  

<table>
<thead>
<tr>
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**CPU2006 license:** 11  
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**Test sponsor:** IBM Corporation  
**Hardware Availability:** Apr-2007  
**Tested by:** IBM Corporation  
**Software Availability:** Aug-2006

### Base Other Flags (Continued)

- Fortran benchmarks:  
  - -IPA:max_jobs=2
- Benchmarks using both Fortran and C:  
  - -IPA:max_jobs=2

### Peak Compiler Invocation

- C benchmarks:  
  - pathcc
- C++ benchmarks:  
  - pathCC
- Fortran benchmarks:  
  - pathf95
- Benchmarks using both Fortran and C:  
  - pathcc pathf95

### Peak Portability Flags

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<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
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</tbody>
</table>

### Peak Optimization Flags

- C benchmarks:  
  - -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -0fast
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**SPEC CFP2006 Result**

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**Peak Optimization Flags (Continued)**

### C++ benchmarks:

444.namd: `-march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast`

447.dealII: `-march=auto -Ofast -m32 -fno-exceptions`

450.soplex: `-march=auto -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 -fno-exceptions`

453.povray: `-march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast -fno-fast-math`

### Fortran benchmarks:

410.bwaves: `-march=auto -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: `-march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256`


437.leslie3d: basepeak = yes

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

465.tonto: `-march=auto -Ofast -CG:local_fwd_sched=on -IPA:plimit=525`

### Benchmarks using both Fortran and C:

435.gromacs: `-march=auto -O3 -OPT:rsqrt=2 -OPT:ro=3`

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

454.calculix: `-march=auto -Ofast -CG:prefetch=off -LNO:simd=0 -OPT:unroll_times_max=8 -WOPT:mem_opnds=on`

481.wrf: basepeak = yes
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Peak Other Flags

C benchmarks:
-IPA:max_jobs=2

C++ benchmarks:
-IPA:max_jobs=2

Fortran benchmarks:
-IPA:max_jobs=2

Benchmarks using both Fortran and C:
-IPA:max_jobs=2

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.29.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.29.xml

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Tested with SPEC CPU2006 v1.0.