# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## IBM Corporation

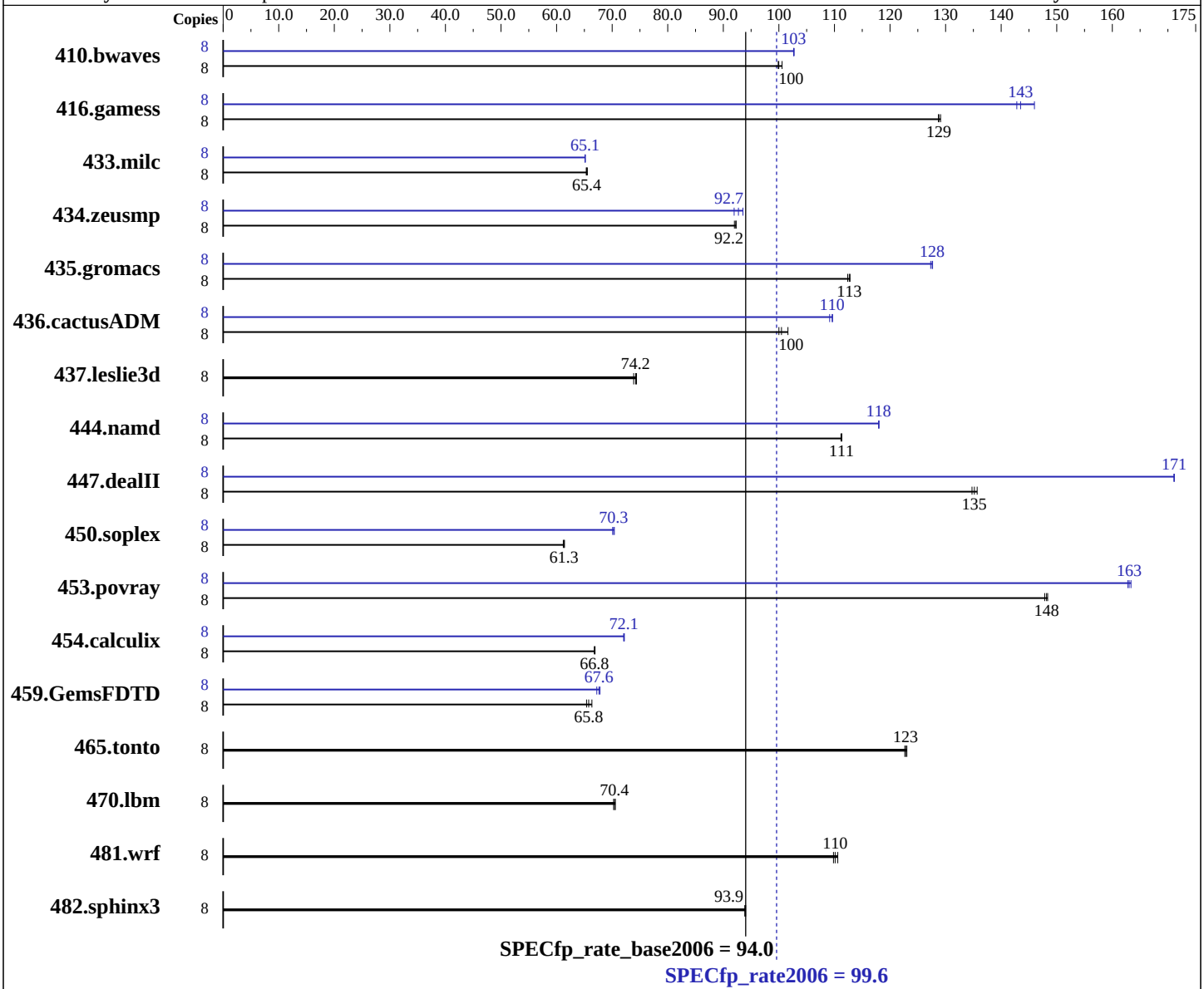
## IBM System x3755 (AMD Opteron 8224 SE)

**SPECfp®_rate2006 = 99.6**

**SPECfp_rate_base2006 = 94.0**

**CPU2006 license:** 11
**Test sponsor:** IBM Corporation
**Tested by:** IBM Corporation

**Test date:** Aug-2007
**Hardware Availability:** Sep-2007
**Software Availability:** Mar-2007




### Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 8224 SE |
| CPU Characteristics: | |
| CPU MHz: | 3200 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 4 chips, 2 cores/chip |
| CPU(s) orderable: | 1, 2, 3, 4 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |

Continued on next page

### Software

| | |
|---|---|
| Operating System: | SLES 10 (x86_64), 2.6.16.21-0.8-smp |
| Compiler: | QLogic PathScale Compiler Suite, Release 3.0 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |

Continued on next page

# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## IBM Corporation

## IBM System x3755 (AMD Opteron 8224 SE)

SPECfp_rate2006 = 99.6

SPECfp_rate_base2006 = 94.0

**CPU2006 license:** 11
**Test sponsor:** IBM Corporation
**Tested by:** IBM Corporation

**Test date:** Aug-2007
**Hardware Availability:** Sep-2007
**Software Availability:** Mar-2007

L3 Cache: None
Other Cache: None
Memory: 32 GB (16 x 2GB DDR2-5300 ECC)
Disk Subsystem: 1 x 36 GB SAS, 15000 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 | 8 | 1081 | 101 | 1088 | 99.9 | **1087** | **100** | 8 | 1058 | 103 | 1059 | 103 | **1059** | **103** |
| 416.gamess | 8 | 1217 | 129 | **1216** | **129** | 1213 | 129 | 8 | 1097 | 143 | **1092** | **143** | 1073 | 146 |
| 433.milc | 8 | **1123** | **65.4** | 1124 | 65.3 | 1121 | 65.5 | 8 | 1128 | 65.1 | 1127 | 65.2 | **1127** | **65.1** |
| 434.zeusmp | 8 | 789 | 92.3 | 791 | 92.0 | **789** | **92.2** | 8 | 778 | 93.5 | **785** | **92.7** | 792 | 91.9 |
| 435.gromacs | 8 | 508 | 112 | 506 | 113 | **507** | **113** | 8 | **448** | **128** | 447 | 128 | 449 | 127 |
| 436.cactusADM | 8 | 956 | 100 | 941 | 102 | **952** | **100** | 8 | **872** | **110** | 872 | 110 | 876 | 109 |
| 437.leslie3d | 8 | **1013** | **74.2** | 1011 | 74.4 | 1018 | 73.9 | 8 | **1013** | **74.2** | 1011 | 74.4 | 1018 | 73.9 |
| 444.namd | 8 | **576** | **111** | 576 | 111 | 577 | 111 | 8 | **544** | **118** | 544 | 118 | 544 | 118 |
| 447.dealII | 8 | 675 | 136 | 679 | 135 | **677** | **135** | 8 | **535** | **171** | 535 | 171 | 535 | 171 |
| 450.soplex | 8 | **1088** | **61.3** | 1086 | 61.4 | 1090 | 61.2 | 8 | 952 | 70.1 | **949** | **70.3** | 948 | 70.4 |
| 453.povray | 8 | **287** | **148** | 288 | 148 | 287 | 148 | 8 | 261 | 163 | **261** | **163** | 261 | 163 |
| 454.calculix | 8 | 988 | 66.8 | 986 | 66.9 | **987** | **66.8** | 8 | 914 | 72.2 | **915** | **72.1** | 916 | 72.1 |
| 459.GemsFDTD | 8 | **1290** | **65.8** | 1298 | 65.4 | 1279 | 66.4 | 8 | 1262 | 67.2 | **1255** | **67.6** | 1252 | 67.8 |
| 465.tonto | 8 | 640 | 123 | 642 | 123 | **641** | **123** | 8 | 640 | 123 | 642 | 123 | **641** | **123** |
| 470.lbm | 8 | **1561** | **70.4** | 1558 | 70.6 | 1564 | 70.3 | 8 | **1561** | **70.4** | 1558 | 70.6 | 1564 | 70.3 |
| 481.wrf | 8 | 808 | 111 | **811** | **110** | 814 | 110 | 8 | 808 | 111 | **811** | **110** | 814 | 110 |
| 482.sphinx3 | 8 | 1661 | 93.9 | 1658 | 94.0 | **1660** | **93.9** | 8 | 1661 | 93.9 | 1658 | 94.0 | **1660** | **93.9** |

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

## General Notes

```
 taskset utility used to bind CPU(s) to processes
DSPEC_CPU_TABLE_WORKAROUND was used for portability when compiling 447.dealII
due to compilation being performed on SLES 9 SP3
```

## Base Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Continued on next page

## Base Compiler Invocation (Continued)

Fortran benchmarks:
pathf95

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:
-Ofast

C++ benchmarks:
-Ofast

Fortran benchmarks:
-Ofast -OPT:malloc_alg=1

Benchmarks using both Fortran and C:
-Ofast -OPT:malloc_alg=1

## Base Other Flags

C benchmarks:
-IPA:max_jobs=2

Continued on next page

## Base Other Flags (Continued)

C++ benchmarks:
`-IPA:max_jobs=2`

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

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_TABLE_WORKAROUND`
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`

# Peak Optimization Flags

C benchmarks:

433.milc: `-Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -fno-exceptions`

447.dealII: `-Ofast -INLINE:aggressive=on -LNO:opt=0 -OPT:alias=disjoint -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: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -fno-fast-math`

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: `-Ofast -CG:local_fwd_sched=on -LNO:blocking=off -LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on`

437.leslie3d: `basepeak = yes`

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

465.tonto: `basepeak = yes`

Benchmarks using both Fortran and C:

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

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`

Continued on next page

# Peak Optimization Flags (Continued)

454.calculix: `-Ofast -LNO:simd=0 -WOPT:mem_opnds=on`

481.wrf: `basepeak = yes`

# 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.20090714.13.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.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 v1.0.
Report generated on Tue Sep 13 11:29:01 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 September 2007.