# SPEC® CFP2006 Result

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## IBM Corporation

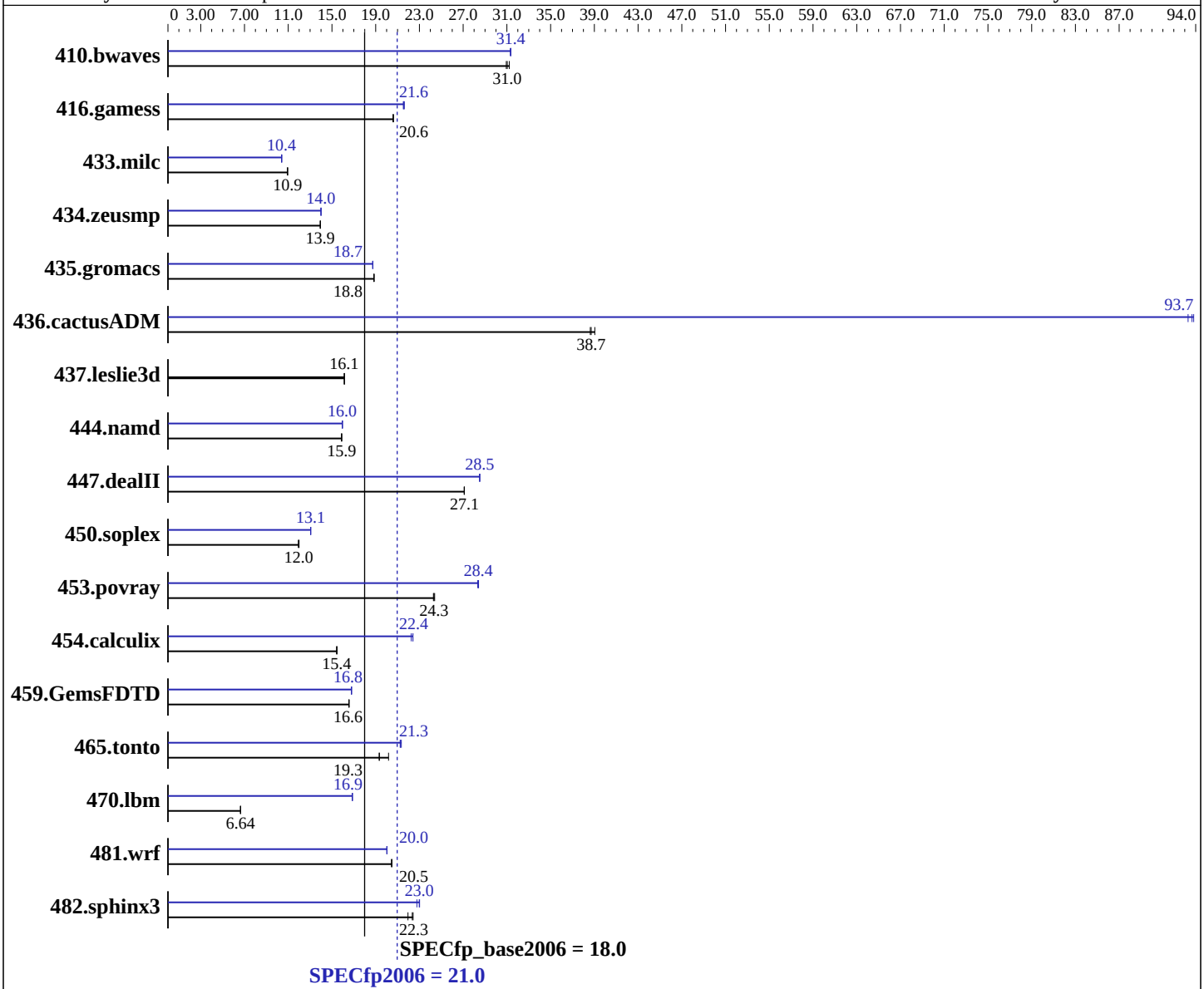
## IBM System x3650 (Intel Xeon X5365)

SPECfp®2006 = 21.0

SPECfp_base2006 = 18.0

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

**Test date:** Sep-2007
**Hardware Availability:** Sep-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5365 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | SLES 10 (x86_64), 2.6.16.21-0.8-smp |
| Compiler: | Intel C++ and Fortran Compiler for Linux version 10.1 Build 20070824 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2GB DRR2-5300F ECC)
Disk Subsystem: 1 x 36 GB SAS, 15000 RPM
Other Hardware: None

Other Software: None

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 439 | 30.9 | 435 | 31.2 | **438** | **31.0** | 434 | 31.3 | **433** | **31.4** | 433 | 31.4 |
| 416.gamess | 951 | 20.6 | **950** | **20.6** | 950 | 20.6 | 906 | 21.6 | **908** | **21.6** | 910 | 21.5 |
| 433.milc | **839** | **10.9** | 839 | 10.9 | 839 | 10.9 | 883 | 10.4 | **883** | **10.4** | 882 | 10.4 |
| 434.zeusmp | 653 | 13.9 | 653 | 13.9 | **653** | **13.9** | **650** | **14.0** | 650 | 14.0 | 650 | 14.0 |
| 435.gromacs | 379 | 18.8 | **379** | **18.8** | 379 | 18.9 | 381 | 18.7 | 381 | 18.7 | **381** | **18.7** |
| 436.cactusADM | 309 | 38.6 | **309** | **38.7** | 306 | 39.0 | **128** | **93.7** | 127 | 93.8 | 128 | 93.3 |
| 437.leslie3d | 583 | 16.1 | **583** | **16.1** | 582 | 16.1 | 583 | 16.1 | **583** | **16.1** | 582 | 16.1 |
| 444.namd | 505 | 15.9 | **505** | **15.9** | 505 | 15.9 | 502 | 16.0 | **503** | **16.0** | 503 | 15.9 |
| 447.dealII | **422** | **27.1** | 422 | 27.1 | 422 | 27.1 | 401 | 28.5 | **401** | **28.5** | 401 | 28.5 |
| 450.soplex | 696 | 12.0 | **697** | **12.0** | 699 | 11.9 | 639 | 13.1 | 639 | 13.1 | **639** | **13.1** |
| 453.povray | 218 | 24.4 | 219 | 24.3 | **219** | **24.3** | 187 | 28.4 | **187** | **28.4** | 188 | 28.3 |
| 454.calculix | 534 | 15.5 | 535 | 15.4 | **534** | **15.4** | 371 | 22.2 | 368 | 22.4 | **368** | **22.4** |
| 459.GemsFDTD | **641** | **16.6** | 641 | 16.6 | 641 | 16.6 | 632 | 16.8 | **632** | **16.8** | 633 | 16.8 |
| 465.tonto | **509** | **19.3** | 509 | 19.3 | 488 | 20.2 | **463** | **21.3** | 463 | 21.2 | 461 | 21.3 |
| 470.lbm | 2069 | 6.64 | 2071 | 6.63 | **2070** | **6.64** | **815** | **16.9** | 815 | 16.9 | 814 | 16.9 |
| 481.wrf | **546** | **20.5** | 546 | 20.5 | 546 | 20.5 | **558** | **20.0** | 558 | 20.0 | 557 | 20.0 |
| 482.sphinx3 | **872** | **22.3** | 869 | 22.4 | 888 | 22.0 | 856 | 22.8 | 847 | 23.0 | **848** | **23.0** |

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

## General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

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## Base Compiler Invocation (Continued)

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## 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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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 -nofor_main
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

## Base Optimization Flags

C benchmarks:
-fast -parallel

C++ benchmarks:
-fast -parallel

Fortran benchmarks:
-fast -parallel

Benchmarks using both Fortran and C:
-fast -parallel

## Peak Compiler Invocation

C benchmarks (except as noted below):
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib

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## Peak Compiler Invocation (Continued)

C benchmarks (except as noted below) (continued):
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

## 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 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

433.milc: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias`
`-auto-ilp32`

470.lbm: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2`
`-scalar-rep- -prefetch -opt-malloc-options=3`

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# Peak Optimization Flags (Continued)

482.sphinx3: `-fast -unroll2`

C++ benchmarks:

444.namd: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

447.dealII: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -ansi-alias -scalar-rep-`

450.soplex: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -opt-malloc-options=3`

453.povray: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-fast -prefetch -parallel`

416.gamess: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -Ob0 -ansi-alias -scalar-rep-`

434.zeusmp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -Ob0 -prefetch -parallel`

465.tonto: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -prefetch -parallel -auto-ilp32`

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -parallel -prefetch -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.21.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.21.xml`

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