# SPEC® CFP2006 Result

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## IBM Corporation

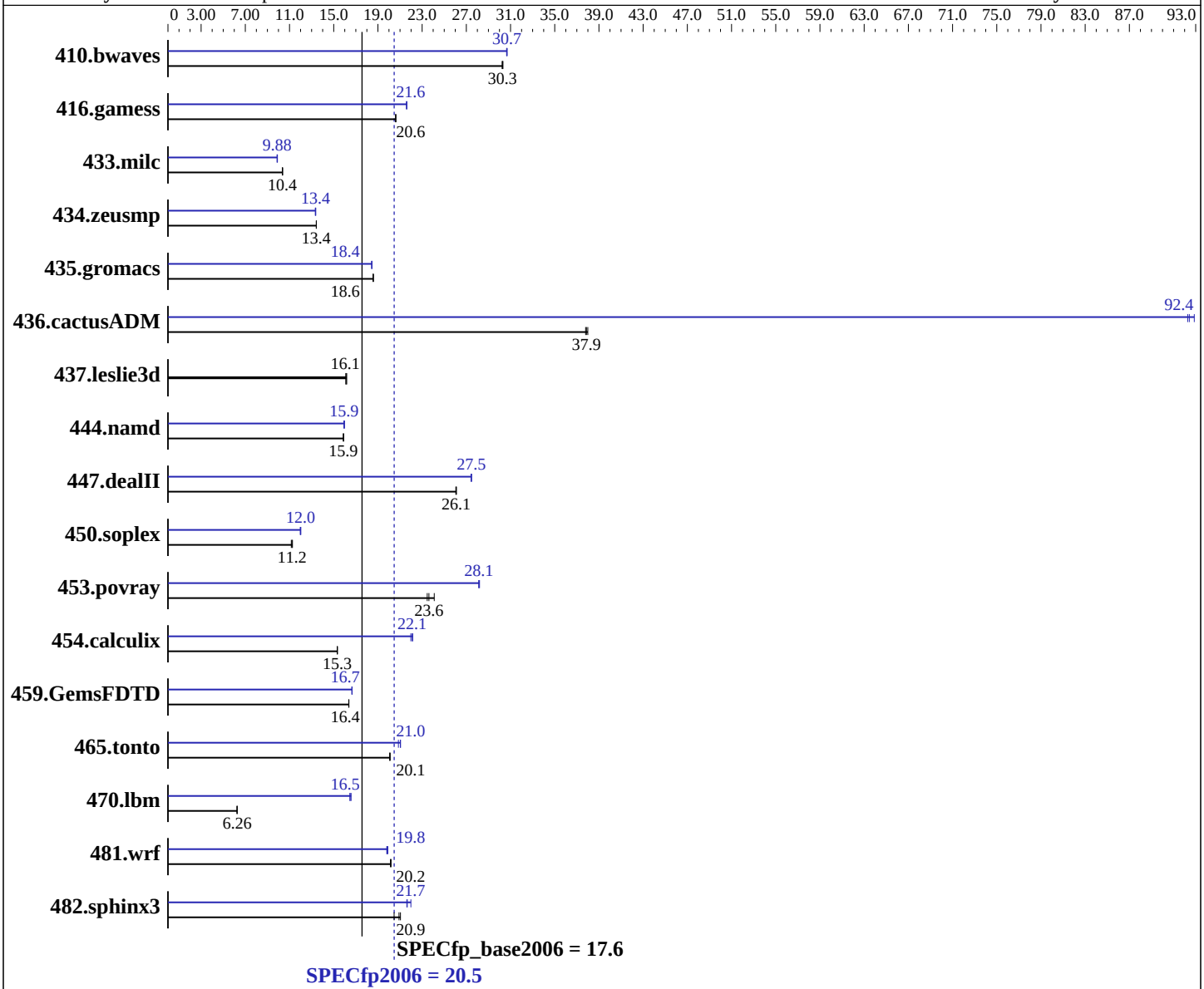
## IBM BladeCenter HS21 (Intel Xeon X5365)

SPECfp®2006 = 20.5

SPECfp_base2006 = 17.6

**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 2 GB DDR2-5300F ECC)
Disk Subsystem: 1 x 36 GB SAS, 10000 RPM
Other Hardware: Memory and I/O Expansion Unit (P/N 42C1600)

Other Software: None

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 449 | 30.2 | 448 | 30.3 | **449** | **30.3** | 443 | 30.7 | 443 | 30.6 | **443** | **30.7** |
| 416.gamess | **950** | **20.6** | 950 | 20.6 | 950 | 20.6 | 906 | 21.6 | **907** | **21.6** | 907 | 21.6 |
| 433.milc | 884 | 10.4 | 887 | 10.3 | **887** | **10.4** | **929** | **9.88** | 929 | 9.88 | 927 | 9.91 |
| 434.zeusmp | 678 | 13.4 | 678 | 13.4 | **678** | **13.4** | **681** | **13.4** | 681 | 13.4 | 683 | 13.3 |
| 435.gromacs | 385 | 18.6 | **384** | **18.6** | 384 | 18.6 | 387 | 18.5 | **387** | **18.4** | 387 | 18.4 |
| 436.cactusADM | 316 | 37.8 | 315 | 38.0 | **316** | **37.9** | 129 | 92.3 | 129 | 92.9 | **129** | **92.4** |
| 437.leslie3d | 584 | 16.1 | 581 | 16.2 | **583** | **16.1** | 584 | 16.1 | 581 | 16.2 | **583** | **16.1** |
| 444.namd | **505** | **15.9** | 505 | 15.9 | 505 | 15.9 | 502 | 16.0 | 504 | 15.9 | **503** | **15.9** |
| 447.dealII | 439 | 26.0 | 438 | 26.1 | **438** | **26.1** | **417** | **27.5** | 416 | 27.5 | 417 | 27.4 |
| 450.soplex | 740 | 11.3 | 747 | 11.2 | **743** | **11.2** | 697 | 12.0 | 693 | 12.0 | **695** | **12.0** |
| 453.povray | **225** | **23.6** | 227 | 23.5 | 221 | 24.1 | 189 | 28.1 | **189** | **28.1** | 189 | 28.2 |
| 454.calculix | 538 | 15.3 | 539 | 15.3 | **538** | **15.3** | **373** | **22.1** | 372 | 22.1 | 375 | 22.0 |
| 459.GemsFDTD | **648** | **16.4** | 649 | 16.4 | 648 | 16.4 | 637 | 16.7 | 637 | 16.7 | **637** | **16.7** |
| 465.tonto | 490 | 20.1 | **490** | **20.1** | 489 | 20.1 | 472 | 20.9 | 468 | 21.0 | **468** | **21.0** |
| 470.lbm | 2191 | 6.27 | 2201 | 6.24 | **2195** | **6.26** | **834** | **16.5** | 834 | 16.5 | 829 | 16.6 |
| 481.wrf | 555 | 20.1 | 554 | 20.2 | **554** | **20.2** | 561 | 19.9 | **563** | **19.8** | 564 | 19.8 |
| 482.sphinx3 | 952 | 20.5 | 926 | 21.0 | **932** | **20.9** | 887 | 22.0 | **900** | **21.7** | 902 | 21.6 |

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`

Continued on next page

# 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.20090714.22.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.20090714.22.xml`

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 14:45:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 November 2007.