# SPEC® CFP2006 Result



## Itautec

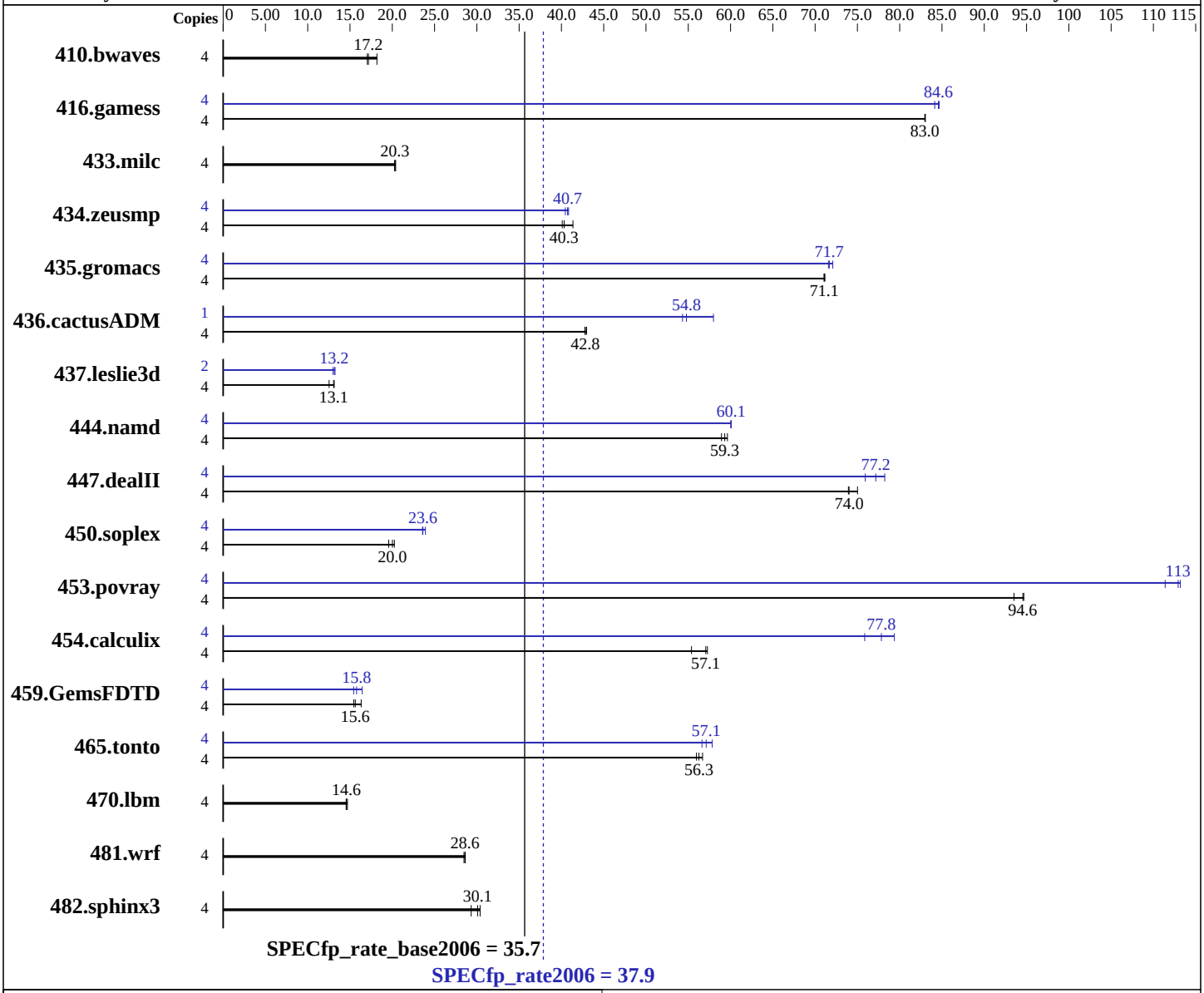
## Servidor Itautec LX211 (Intel Xeon E5440)

SPECfp®_rate2006 = 37.9

SPECfp_rate_base2006 = 35.7

**CPU2006 license:** 9001
**Test sponsor:** Itautec
**Tested by:** Itautec

**Test date:** May-2008
**Hardware Availability:** Dec-2007
**Software Availability:** Jan-2008




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5440 |
| CPU Characteristics: | |
| CPU MHz: | 2830 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

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## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ and Fortran Compiler for Linux version 10.1<br>Build 20080112 Package ID: l_cc_p_10.1.012, l_fc_p_10.1.012 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run Level 3 (multi-user) |

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L3 Cache: None
Other Cache: None
Memory: 12 GB (6 * 2 GB PC2-5300 FBDIMM, CL-5-5-5, ECC)
Disk Subsystem: 1 x SCSI, 73GB, 10000 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.10.50

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 2989 | 18.2 | 3189 | 17.0 | **3164** | **17.2** | 4 | 2989 | 18.2 | 3189 | 17.0 | **3164** | **17.2** |
| 416.gamess | 4 | 943 | 83.0 | 944 | 83.0 | **944** | **83.0** | 4 | 931 | 84.1 | 925 | 84.7 | **926** | **84.6** |
| 433.milc | 4 | **1806** | **20.3** | 1811 | 20.3 | 1800 | 20.4 | 4 | **1806** | **20.3** | 1811 | 20.3 | 1800 | 20.4 |
| 434.zeusmp | 4 | **903** | **40.3** | 880 | 41.4 | 908 | 40.1 | 4 | **894** | **40.7** | 891 | 40.8 | 900 | 40.5 |
| 435.gromacs | 4 | 402 | 71.1 | 401 | 71.2 | **402** | **71.1** | 4 | **398** | **71.7** | 396 | 72.1 | 399 | 71.6 |
| 436.cactusADM | 4 | **1116** | **42.8** | 1112 | 43.0 | 1118 | 42.8 | 1 | 206 | 58.0 | 220 | 54.3 | **218** | **54.8** |
| 437.leslie3d | 4 | 3001 | 12.5 | 2863 | 13.1 | **2879** | **13.1** | 2 | 1421 | 13.2 | **1429** | **13.2** | 1446 | 13.0 |
| 444.namd | 4 | 538 | 59.6 | **541** | **59.3** | 544 | 58.9 | 4 | 534 | 60.1 | 534 | 60.0 | **534** | **60.1** |
| 447.dealII | 4 | 610 | 75.0 | 619 | 73.9 | **618** | **74.0** | 4 | 585 | 78.2 | 603 | 75.9 | **593** | **77.2** |
| 450.soplex | 4 | 1704 | 19.6 | **1666** | **20.0** | 1648 | 20.2 | 4 | 1395 | 23.9 | **1412** | **23.6** | 1415 | 23.6 |
| 453.povray | 4 | 228 | 93.5 | **225** | **94.6** | 225 | 94.7 | 4 | 188 | 113 | **188** | **113** | 191 | 111 |
| 454.calculix | 4 | 596 | 55.4 | **578** | **57.1** | 576 | 57.3 | 4 | 416 | 79.4 | **424** | **77.8** | 435 | 75.9 |
| 459.GemsFDTD | 4 | 2601 | 16.3 | **2716** | **15.6** | 2746 | 15.5 | 4 | 2580 | 16.4 | **2690** | **15.8** | 2750 | 15.4 |
| 465.tonto | 4 | 703 | 56.0 | **700** | **56.3** | 694 | 56.7 | 4 | 681 | 57.8 | **689** | **57.1** | 695 | 56.6 |
| 470.lbm | 4 | **3770** | **14.6** | 3779 | 14.5 | 3740 | 14.7 | 4 | **3770** | **14.6** | 3779 | 14.5 | 3740 | 14.7 |
| 481.wrf | 4 | 1560 | 28.6 | **1563** | **28.6** | 1569 | 28.5 | 4 | 1560 | 28.6 | **1563** | **28.6** | 1569 | 28.5 |
| 482.sphinx3 | 4 | 2658 | 29.3 | 2566 | 30.4 | **2591** | **30.1** | 4 | 2658 | 29.3 | 2566 | 30.4 | **2591** | **30.1** |

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

## Compiler Invocation Notes

```
OMP_NUM_THREADS set to number of cores
KMP_STACK_SIZE set to 64M
KMP_AFFINITY set to physical,0
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run.
'/usr/bin/taskset' is used to bind benchmark copies to processor, except for 436.cactusADM at peak.
```

## Platform Notes

```
BIOS configuration:
Hardware Prefetch Disabled
```

## Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

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

C++ benchmarks:
-fast

Continued on next page

## Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast`

Benchmarks using both Fortran and C:
`-fast`

## Peak Compiler Invocation

C benchmarks:
`icc`

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

450.soplex: `/opt/intel/cc/10.1.012/bin/icpc -L/opt/intel/cc/10.1.012/lib -I/opt/intel/cc/10.1.012/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.012/bin/ifort -L/opt/intel/fc/10.1.012/lib -I/opt/intel/fc/10.1.012/include`

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`
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`
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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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: basepeak = yes

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: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

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

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

Continued on next page

## Peak Optimization Flags (Continued)

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Itautec-ic10.1-FP-intel64-linux-flags.20090714.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Itautec-ic10.1-FP-intel64-linux-flags.20090714.xml`



For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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