# SPEC® CFP2006 Result

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## Itautec

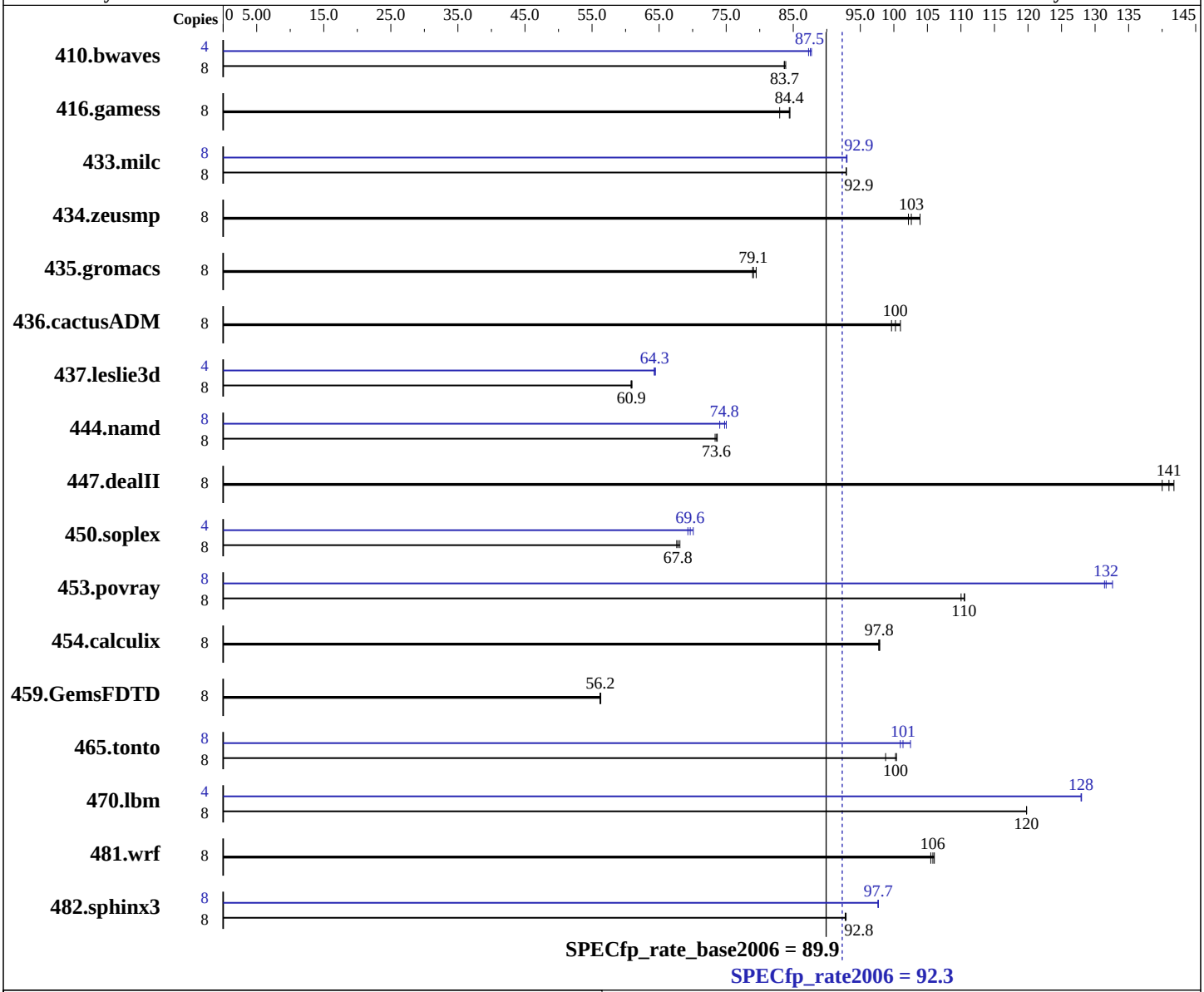
## Servidor Itautec MX223+ (Intel Xeon E5620)

SPECfp®_rate2006 = 92.3

SPECfp_rate_base2006 = 89.9

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

**Test date:** Jul-2011
**Hardware Availability:** Apr-2010
**Software Availability:** Jan-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5620 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.67 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default |
| Compiler: | Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.2 Build 20110112 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB 2Rx4 PC3-8500R-7, ECC)
Disk Subsystem: 1 x 500 GB SATA-2, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
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 | 1296 | 83.9 | **1299** | **83.7** | 1300 | 83.7 | 4 | 620 | 87.7 | **621** | **87.5** | 623 | 87.3 |
| 416.gamess | 8 | 1888 | 83.0 | **1856** | **84.4** | 1853 | 84.5 | 8 | 1888 | 83.0 | **1856** | **84.4** | 1853 | 84.5 |
| 433.milc | 8 | **791** | **92.9** | 791 | 92.9 | 790 | 92.9 | 8 | **790** | **92.9** | 790 | 93.0 | 790 | 92.9 |
| 434.zeusmp | 8 | 701 | 104 | 713 | 102 | **710** | **103** | 8 | 701 | 104 | 713 | 102 | **710** | **103** |
| 435.gromacs | 8 | 719 | 79.5 | 724 | 78.9 | **722** | **79.1** | 8 | 719 | 79.5 | 724 | 78.9 | **722** | **79.1** |
| 436.cactusADM | 8 | **954** | **100** | 947 | 101 | 959 | 99.7 | 8 | **954** | **100** | 947 | 101 | 959 | 99.7 |
| 437.leslie3d | 8 | **1235** | **60.9** | 1236 | 60.8 | 1234 | 61.0 | 4 | **584** | **64.3** | 585 | 64.3 | 583 | 64.5 |
| 444.namd | 8 | 871 | 73.7 | 875 | 73.4 | **872** | **73.6** | 8 | 855 | 75.0 | 867 | 74.0 | **858** | **74.8** |
| 447.dealII | 8 | **649** | **141** | 654 | 140 | 646 | 142 | 8 | **649** | **141** | 654 | 140 | 646 | 142 |
| 450.soplex | 8 | **984** | **67.8** | 980 | 68.1 | 987 | 67.6 | 4 | 481 | 69.3 | **479** | **69.6** | 476 | 70.1 |
| 453.povray | 8 | 387 | 110 | 385 | 111 | **385** | **110** | 8 | 321 | 133 | 324 | 131 | **323** | **132** |
| 454.calculix | 8 | 674 | 97.9 | 675 | 97.7 | **675** | **97.8** | 8 | 674 | 97.9 | 675 | 97.7 | **675** | **97.8** |
| 459.GemsFDTD | 8 | 1507 | 56.3 | 1511 | 56.2 | **1509** | **56.2** | 8 | 1507 | 56.3 | 1511 | 56.2 | **1509** | **56.2** |
| 465.tonto | 8 | 784 | 100 | 797 | 98.8 | **785** | **100** | 8 | 768 | 102 | 780 | 101 | **777** | **101** |
| 470.lbm | 8 | 918 | 120 | 918 | 120 | **918** | **120** | 4 | 429 | 128 | **430** | **128** | 430 | 128 |
| 481.wrf | 8 | 847 | 106 | **844** | **106** | 843 | 106 | 8 | 847 | 106 | **844** | **106** | 843 | 106 |
| 482.sphinx3 | 8 | 1679 | 92.9 | **1681** | **92.8** | 1681 | 92.7 | 8 | **1596** | **97.7** | 1596 | 97.7 | 1597 | 97.6 |

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

## Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run.
Large pages were not enabled for this run
```

## Platform Notes

```
Data Reuse disabled in BIOS.
```

## General Notes

```
This result was measured on the Servidor Itautec MX224.
The Servidor Itautec MX203+, Servidor Itautec MX223+ and the Servidor Itautec MX224
are electronically equivalent.
```

## Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

## 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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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## Base Optimization Flags (Continued)

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## 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`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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## Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html`
`http://www.spec.org/cpu2006/flags/Itautec-Intel-Linux64-Platform.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml`
`http://www.spec.org/cpu2006/flags/Itautec-Intel-Linux64-Platform.xml`


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