# SPEC® CFP2006 Result

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## Itautec

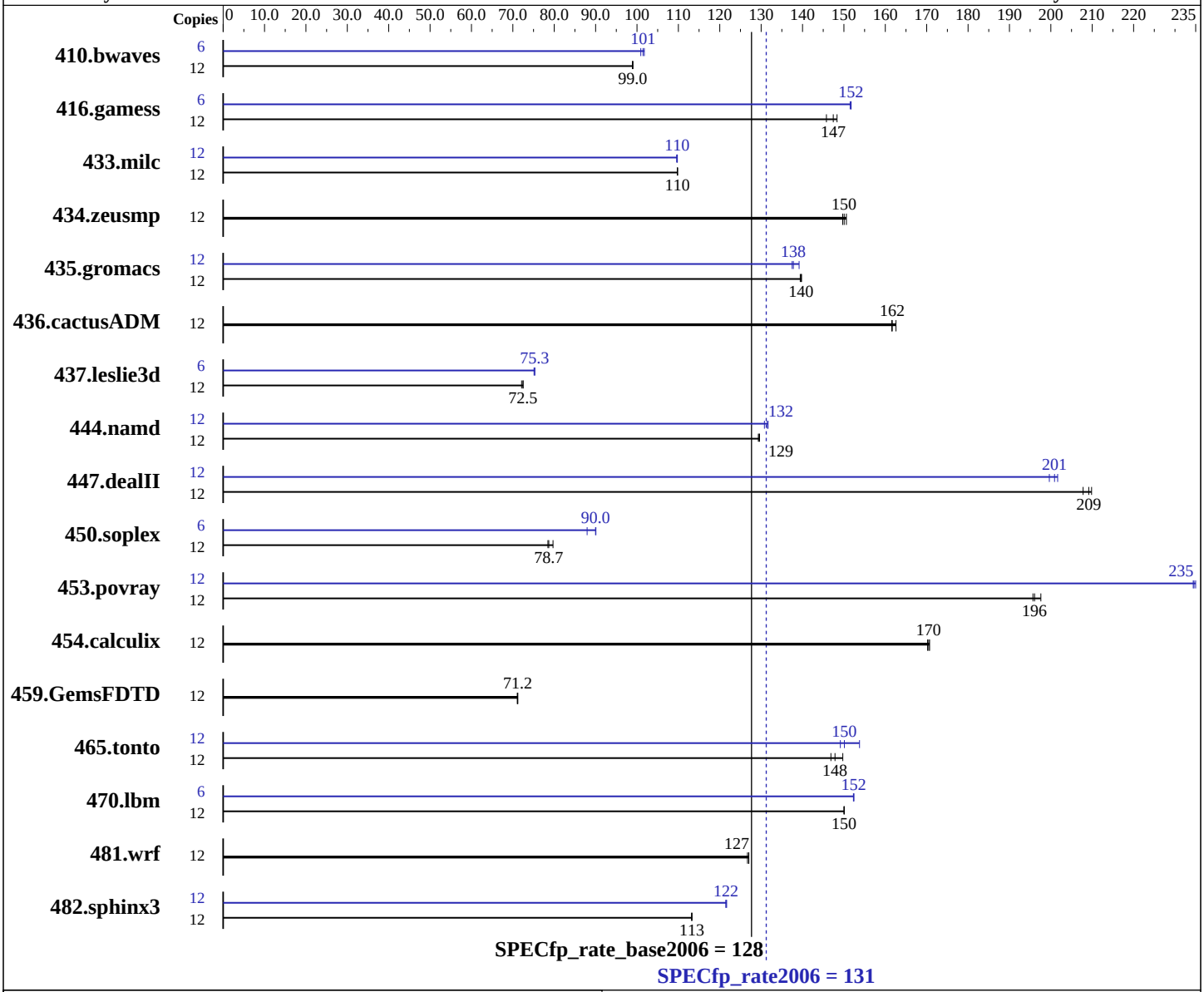
## Servidor Itautec MX223+ (Intel Xeon X5670)

**SPECfp®_rate2006 = 131**

**SPECfp_rate_base2006 = 128**

**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 X5670 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.33 GHz |
| CPU MHz: | 2933 |
| FPU: | Integrated |
| CPU(s) enabled: | 6 cores, 1 chip, 6 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 PC3-10600R-9, 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 | 12 | 1647 | 99.0 | **1648** | **99.0** | 1649 | 98.9 | 6 | 801 | 102 | **804** | **101** | 808 | 101 |
| 416.gamess | 12 | **1594** | **147** | 1584 | 148 | 1612 | 146 | 6 | **774** | **152** | 774 | 152 | 775 | 151 |
| 433.milc | 12 | 1003 | 110 | **1003** | **110** | 1004 | 110 | 12 | 1004 | 110 | **1004** | **110** | 1005 | 110 |
| 434.zeusmp | 12 | 729 | 150 | **728** | **150** | 725 | 151 | 12 | 729 | 150 | **728** | **150** | 725 | 151 |
| 435.gromacs | 12 | 613 | 140 | **614** | **140** | 614 | 139 | 12 | 616 | 139 | **622** | **138** | 623 | 137 |
| 436.cactusADM | 12 | 882 | 163 | 888 | 162 | **887** | **162** | 12 | 882 | 163 | 888 | 162 | **887** | **162** |
| 437.leslie3d | 12 | 1557 | 72.5 | 1564 | 72.1 | **1557** | **72.5** | 6 | **749** | **75.3** | 749 | 75.3 | 751 | 75.1 |
| 444.namd | 12 | 742 | 130 | **743** | **129** | 744 | 129 | 12 | 731 | 132 | 736 | 131 | **732** | **132** |
| 447.dealII | 12 | 661 | 208 | **656** | **209** | 654 | 210 | 12 | 681 | 202 | **683** | **201** | 688 | 200 |
| 450.soplex | 12 | 1275 | 78.5 | **1272** | **78.7** | 1256 | 79.7 | 6 | 569 | 87.9 | **556** | **90.0** | 556 | 90.1 |
| 453.povray | 12 | **326** | **196** | 323 | 198 | 326 | 196 | 12 | 272 | 234 | **272** | **235** | 272 | 235 |
| 454.calculix | 12 | **581** | **170** | 580 | 171 | 582 | 170 | 12 | **581** | **170** | 580 | 171 | 582 | 170 |
| 459.GemsFDTD | 12 | 1792 | 71.1 | **1789** | **71.2** | 1788 | 71.2 | 12 | 1792 | 71.1 | **1789** | **71.2** | 1788 | 71.2 |
| 465.tonto | 12 | 804 | 147 | 789 | 150 | **799** | **148** | 12 | **787** | **150** | 792 | 149 | 768 | 154 |
| 470.lbm | 12 | 1099 | 150 | **1099** | **150** | 1099 | 150 | 6 | **541** | **152** | 541 | 152 | 541 | 152 |
| 481.wrf | 12 | 1058 | 127 | 1055 | 127 | **1055** | **127** | 12 | 1058 | 127 | 1055 | 127 | **1055** | **127** |
| 482.sphinx3 | 12 | 2065 | 113 | 2066 | 113 | **2065** | **113** | 12 | 1925 | 121 | **1925** | **122** | 1922 | 122 |

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: -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

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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep- -static

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

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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-prefetch` `-static -auto-ilp32`

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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