# SPEC® CFP2006 Result

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## Itautec

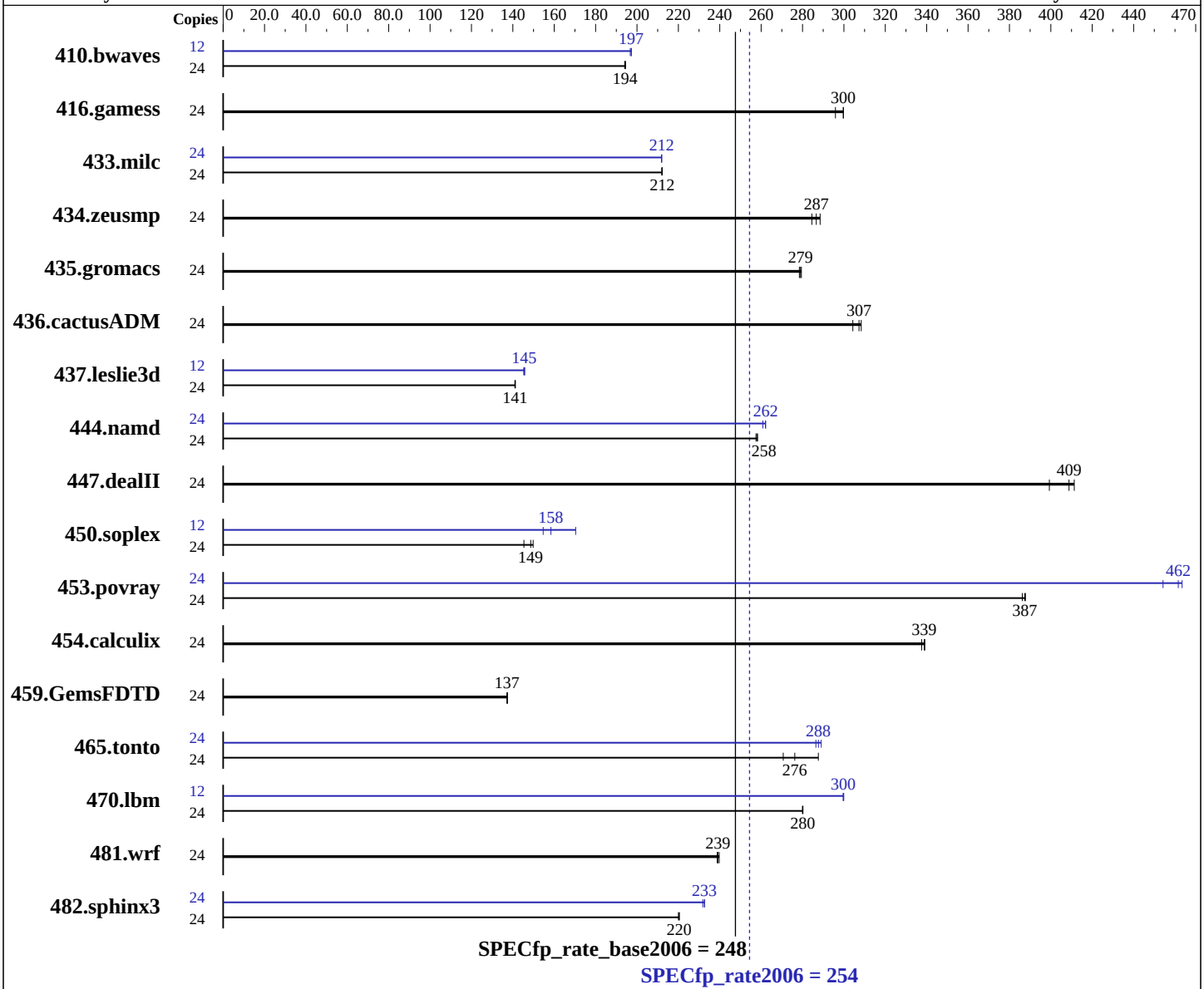
## Servidor Itautec MP224 (Intel Xeon X5650)

**SPECfp®_rate2006 = 254**

**SPECfp_rate_base2006 = 248**

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

**Test date:** Jul-2011
**Hardware Availability:** Feb-2011
**Software Availability:** Jan-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5650 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.06 GHz |
| CPU MHz: | 2667 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 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: 48 GB (12 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 | 24 | 1677 | 194 | **1679** | **194** | 1681 | 194 | 12 | **827** | **197** | 827 | 197 | 829 | 197 |
| 416.gamess | 24 | 1568 | 300 | 1588 | 296 | **1568** | **300** | 24 | 1568 | 300 | 1588 | 296 | **1568** | **300** |
| 433.milc | 24 | 1038 | 212 | **1039** | **212** | 1040 | 212 | 24 | 1040 | 212 | **1040** | **212** | 1039 | 212 |
| 434.zeusmp | 24 | 757 | 288 | 768 | 285 | **762** | **287** | 24 | 757 | 288 | 768 | 285 | **762** | **287** |
| 435.gromacs | 24 | 613 | 279 | **614** | **279** | 615 | 278 | 24 | 613 | 279 | **614** | **279** | 615 | 278 |
| 436.cactusADM | 24 | **933** | **307** | 930 | 308 | 942 | 304 | 24 | **933** | **307** | 930 | 308 | 942 | 304 |
| 437.leslie3d | 24 | 1597 | 141 | 1600 | 141 | **1599** | **141** | 12 | 774 | 146 | 776 | 145 | **775** | **145** |
| 444.namd | 24 | 748 | 257 | 745 | 258 | **746** | **258** | 24 | 734 | 262 | **734** | **262** | 738 | 261 |
| 447.dealII | 24 | 688 | 399 | **672** | **409** | 668 | 411 | 24 | 688 | 399 | **672** | **409** | 668 | 411 |
| 450.soplex | 24 | 1377 | 145 | **1347** | **149** | 1336 | 150 | 12 | 647 | 155 | **632** | **158** | 587 | 170 |
| 453.povray | 24 | 329 | 388 | 331 | 386 | **330** | **387** | 24 | **277** | **462** | 281 | 454 | 275 | 463 |
| 454.calculix | 24 | 584 | 339 | **584** | **339** | 587 | 338 | 24 | 584 | 339 | **584** | **339** | 587 | 338 |
| 459.GemsFDTD | 24 | 1854 | 137 | 1856 | 137 | **1855** | **137** | 24 | 1854 | 137 | 1856 | 137 | **1855** | **137** |
| 465.tonto | 24 | 872 | 271 | **855** | **276** | 821 | 288 | 24 | 824 | 286 | 817 | 289 | **821** | **288** |
| 470.lbm | 24 | **1177** | **280** | 1177 | 280 | 1178 | 280 | 12 | **550** | **300** | 550 | 300 | 550 | 300 |
| 481.wrf | 24 | 1118 | 240 | **1121** | **239** | 1123 | 239 | 24 | 1118 | 240 | **1121** | **239** | 1123 | 239 |
| 482.sphinx3 | 24 | 2126 | 220 | 2122 | 220 | **2123** | **220** | 24 | **2011** | **233** | 2018 | 232 | 2010 | 233 |

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.
```

## 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
```

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`

Continued on next page

## Peak Optimization Flags (Continued)

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

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/Itautec-Intel-Linux64-Platform.html
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html

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


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For other inquiries, please contact webmaster@spec.org.

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