# SPEC® CFP2006 Result

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## Itautec

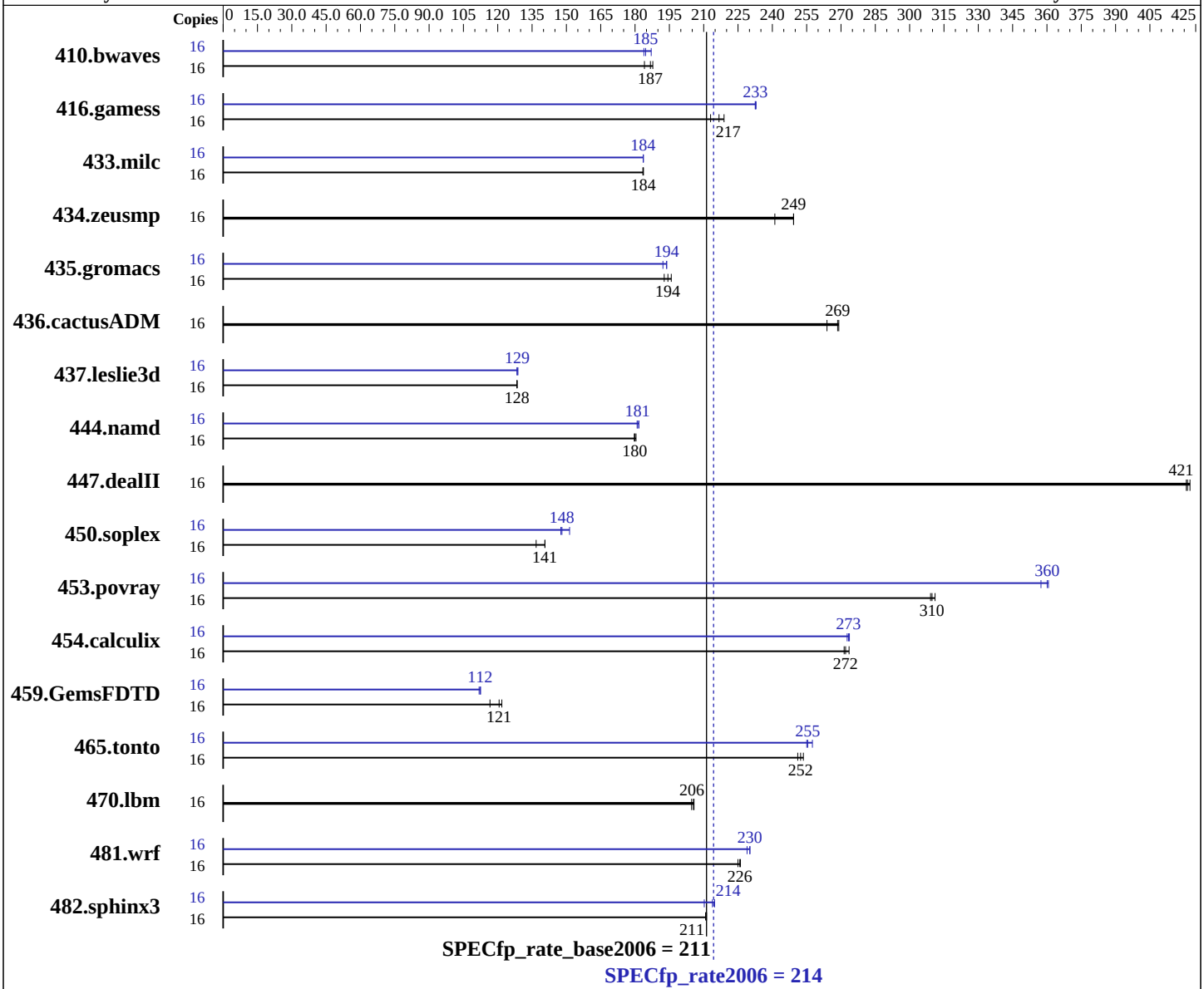
Servidor Itautec MX225+ (Intel Xeon E5-2660)

SPECfp®_rate2006 = 214

SPECfp_rate_base2006 = 211

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

**Test date:** Dec-2011
**Hardware Availability:** Jun-2012
**Software Availability:** Dec-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2660 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.00 GHz |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 1 chip, 8 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: | Red Hat Enterprise Linux Server Release 6.3, 2.6.32-279.el6.x86_64 |
| Compiler: | C/C++/Fortran: Version 12.1.0 of Intel Compiler XE Build 20111011 |
| Auto Parallel: | No |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (8 x 4 GB 1Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 500 GB, SATA-2, 7200 RPM
Other Hardware: None

Other Software: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 16 | 1158 | 188 | 1181 | 184 | **1165** | **187** | 16 | 1162 | 187 | **1178** | **185** | 1182 | 184 |
| 416.gamess | 16 | 1471 | 213 | **1446** | **217** | 1431 | 219 | 16 | **1347** | **233** | 1347 | 233 | 1345 | 233 |
| 433.milc | 16 | **800** | **184** | 800 | 184 | 801 | 183 | 16 | 800 | 184 | 800 | 184 | **800** | **184** |
| 434.zeusmp | 16 | 584 | 249 | 604 | 241 | **584** | **249** | 16 | 584 | 249 | 604 | 241 | **584** | **249** |
| 435.gromacs | 16 | **588** | **194** | 583 | 196 | 593 | 193 | 16 | 589 | 194 | **589** | **194** | 594 | 192 |
| 436.cactusADM | 16 | 725 | 264 | 711 | 269 | **712** | **269** | 16 | 725 | 264 | 711 | 269 | **712** | **269** |
| 437.leslie3d | 16 | **1172** | **128** | 1172 | 128 | 1170 | 129 | 16 | 1167 | 129 | 1172 | 128 | **1170** | **129** |
| 444.namd | 16 | **713** | **180** | 711 | 180 | 714 | 180 | 16 | 706 | 182 | **708** | **181** | 709 | 181 |
| 447.dealII | 16 | **434** | **421** | 435 | 421 | 433 | 423 | 16 | **434** | **421** | 435 | 421 | 433 | 423 |
| 450.soplex | 16 | **949** | **141** | 976 | 137 | 949 | 141 | 16 | **901** | **148** | 904 | 148 | 881 | 151 |
| 453.povray | 16 | 275 | 309 | **275** | **310** | 274 | 311 | 16 | 236 | 361 | 238 | 357 | **236** | **360** |
| 454.calculix | 16 | 486 | 271 | **485** | **272** | 483 | 274 | 16 | 482 | 274 | 484 | 273 | **483** | **273** |
| 459.GemsFDTD | 16 | 1456 | 117 | 1394 | 122 | **1408** | **121** | 16 | 1509 | 112 | 1518 | 112 | **1511** | **112** |
| 465.tonto | 16 | **624** | **252** | 627 | 251 | 621 | 254 | 16 | **616** | **255** | 617 | 255 | 611 | 258 |
| 470.lbm | 16 | 1068 | 206 | 1074 | 205 | **1070** | **206** | 16 | 1068 | 206 | 1074 | 205 | **1070** | **206** |
| 481.wrf | 16 | **792** | **226** | 794 | 225 | 791 | 226 | 16 | **777** | **230** | 781 | 229 | 776 | 230 |
| 482.sphinx3 | 16 | **1479** | **211** | 1479 | 211 | 1476 | 211 | 16 | 1452 | 215 | 1483 | 210 | **1458** | **214** |

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

```
Sysinfo program /home/rcaneca/cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on itautec2fam5 Thu Dec 22 06:28:38 2011
```

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## Platform Notes (Continued)

```
This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Genuine Intel(R) CPU @ 2.20GHz
      1 "physical id"s (chips)
      16 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       32824768 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux itautec2fam5 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 21 17:06

SPEC is set to: /home/rcaneca/cpu2006
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/vg_itautec2fam5-lv_home
                  ext4     94G  2.1G   87G   3% /home

(End of data from sysinfo program)
```

## General Notes

```
This result was measured on the Servidor Itautec MX205.
The Servidor Itautec LX205, Servidor Itautec MX205 and the Servidor Itautec MX225+
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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

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

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

## 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`
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:

Continued on next page

## Peak Optimization Flags (Continued)

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 -opt-mem-layout-trans=3

470.lbm: basepeak = yes

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

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 -static -opt-prefetch -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: -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,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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: -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 -opt-mem-layout-trans=3

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## Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-mem-layout-trans=3 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

481.wrf: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-mem-layout-trans=3`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Itautec-Servidor_Itautec-Intel-Linux-Platform.html
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Itautec-Servidor_Itautec-Intel-Linux-Platform.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml


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