



# SPEC® CFP2006 Result

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Itaotec

SPECfp®\_rate2006 = 188

Servidor Itaotec MP224 (Intel Xeon E5640)

SPECfp\_rate\_base2006 = 183

CPU2006 license: 9001

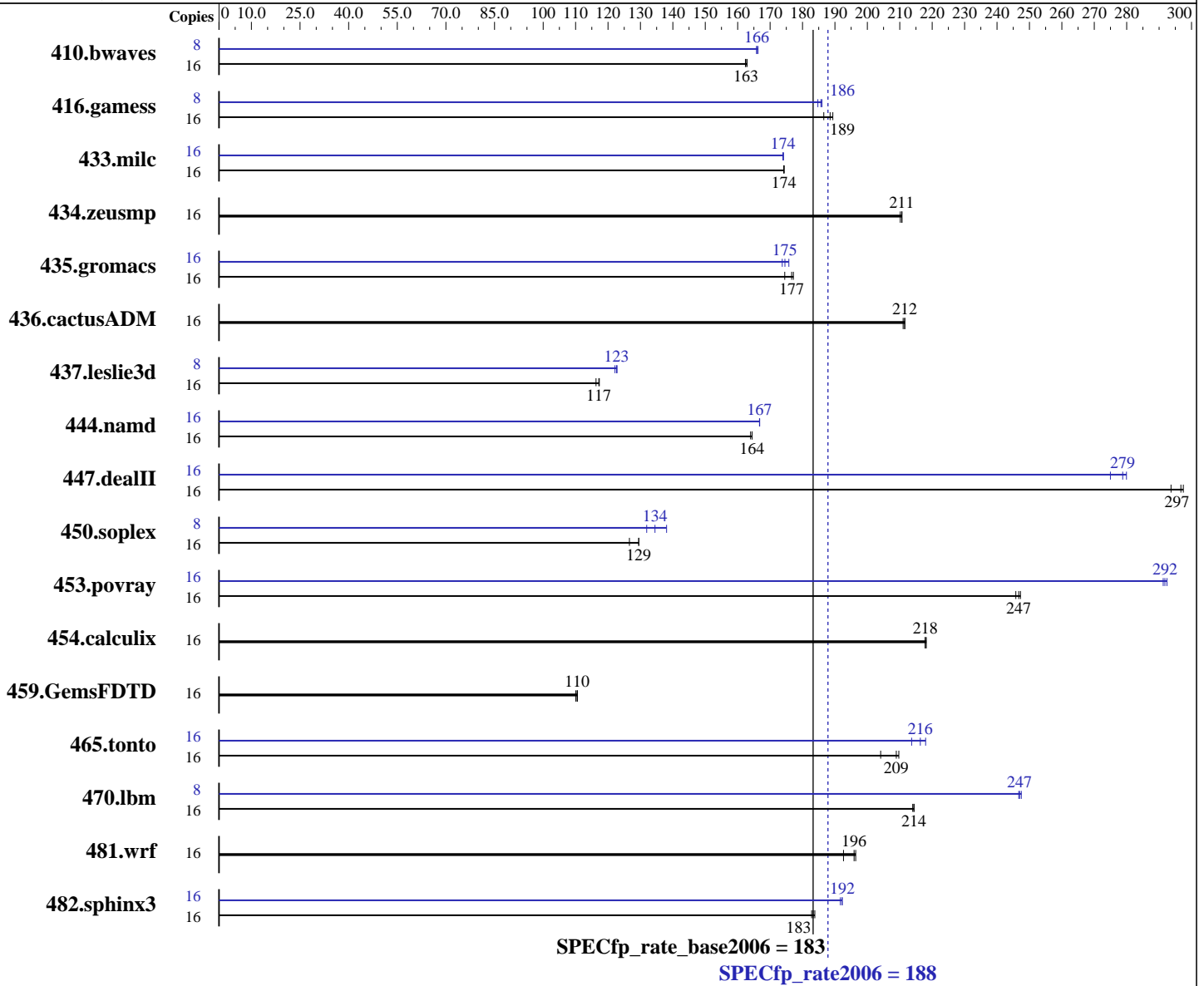
Test date: Aug-2011

Test sponsor: Itaotec

Hardware Availability: Feb-2011

Tested by: Itaotec

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E5640  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2667  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 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

Continued on next page

### 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

Continued on next page



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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 PC3-8500R-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    | 16     | 1335       | 163        | <u>1338</u> | <u>163</u> | 1339        | 162        | 8      | 655         | 166        | 654         | 166        | <u>655</u> | <u>166</u> |
| 416.gamess    | 16     | 1654       | 189        | 1679        | 187        | <u>1662</u> | <u>189</u> | 8      | 842         | 186        | <u>844</u>  | <u>186</u> | 848        | 185        |
| 433.milc      | 16     | <u>843</u> | <u>174</u> | 843         | 174        | 843         | 174        | 16     | <u>844</u>  | <u>174</u> | 844         | 174        | 844        | 174        |
| 434.zeusmp    | 16     | 693        | 210        | 691         | 211        | <u>691</u>  | <u>211</u> | 16     | 693         | 210        | 691         | 211        | <u>691</u> | <u>211</u> |
| 435.gromacs   | 16     | 645        | 177        | 655         | 175        | <u>647</u>  | <u>177</u> | 16     | <u>654</u>  | <u>175</u> | 650         | 176        | 658        | 174        |
| 436.cactusADM | 16     | 906        | 211        | <u>904</u>  | <u>212</u> | 904         | 212        | 16     | 906         | 211        | <u>904</u>  | <u>212</u> | 904        | 212        |
| 437.leslie3d  | 16     | 1293       | 116        | <u>1284</u> | <u>117</u> | 1282        | 117        | 8      | <u>613</u>  | <u>123</u> | 616         | 122        | 612        | 123        |
| 444.namd      | 16     | 783        | 164        | <u>780</u>  | <u>164</u> | 780         | 164        | 16     | <u>769</u>  | <u>167</u> | 769         | 167        | 770        | 167        |
| 447.dealII    | 16     | 623        | 294        | 615         | 297        | <u>617</u>  | <u>297</u> | 16     | 654         | 280        | 666         | 275        | <u>657</u> | <u>279</u> |
| 450.soplex    | 16     | 1054       | 127        | <u>1031</u> | <u>129</u> | 1030        | 130        | 8      | <u>496</u>  | <u>134</u> | 506         | 132        | 483        | 138        |
| 453.povray    | 16     | 346        | 246        | <u>345</u>  | <u>247</u> | 344         | 247        | 16     | 292         | 291        | <u>292</u>  | <u>292</u> | 291        | 292        |
| 454.calculix  | 16     | 606        | 218        | 605         | 218        | <u>606</u>  | <u>218</u> | 16     | 606         | 218        | 605         | 218        | <u>606</u> | <u>218</u> |
| 459.GemsFDTD  | 16     | 1535       | 111        | <u>1537</u> | <u>110</u> | 1543        | 110        | 16     | 1535        | 111        | <u>1537</u> | <u>110</u> | 1543       | 110        |
| 465.tonto     | 16     | 771        | 204        | <u>754</u>  | <u>209</u> | 751         | 210        | 16     | 722         | 218        | 737         | 214        | <u>728</u> | <u>216</u> |
| 470.lbm       | 16     | 1025       | 214        | 1027        | 214        | <u>1026</u> | <u>214</u> | 8      | 444         | 247        | <u>445</u>  | <u>247</u> | 446        | 247        |
| 481.wrf       | 16     | 910        | 196        | <u>912</u>  | <u>196</u> | 928         | 193        | 16     | 910         | 196        | <u>912</u>  | <u>196</u> | 928        | 193        |
| 482.sphinx3   | 16     | 1697       | 184        | 1706        | 183        | <u>1701</u> | <u>183</u> | 16     | <u>1622</u> | <u>192</u> | 1627        | 192        | 1622       | 192        |

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.



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CPU2006 license: 9001  
Test sponsor: Itaotec  
Tested by: Itaotec

Test date: Aug-2011  
Hardware Availability: Feb-2011  
Software Availability: Jan-2011

## 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



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## 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

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## 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: -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

### 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

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Itautec

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Tested by: Itautec

Test date: Aug-2011

Hardware Availability: Feb-2011

Software Availability: Jan-2011

## Peak Optimization Flags (Continued)

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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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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