



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]_rate2006 = 263

IBM System x3690 X5 (Intel Xeon X7550)

SPECfp_rate_base2006 = 255

CPU2006 license: 11

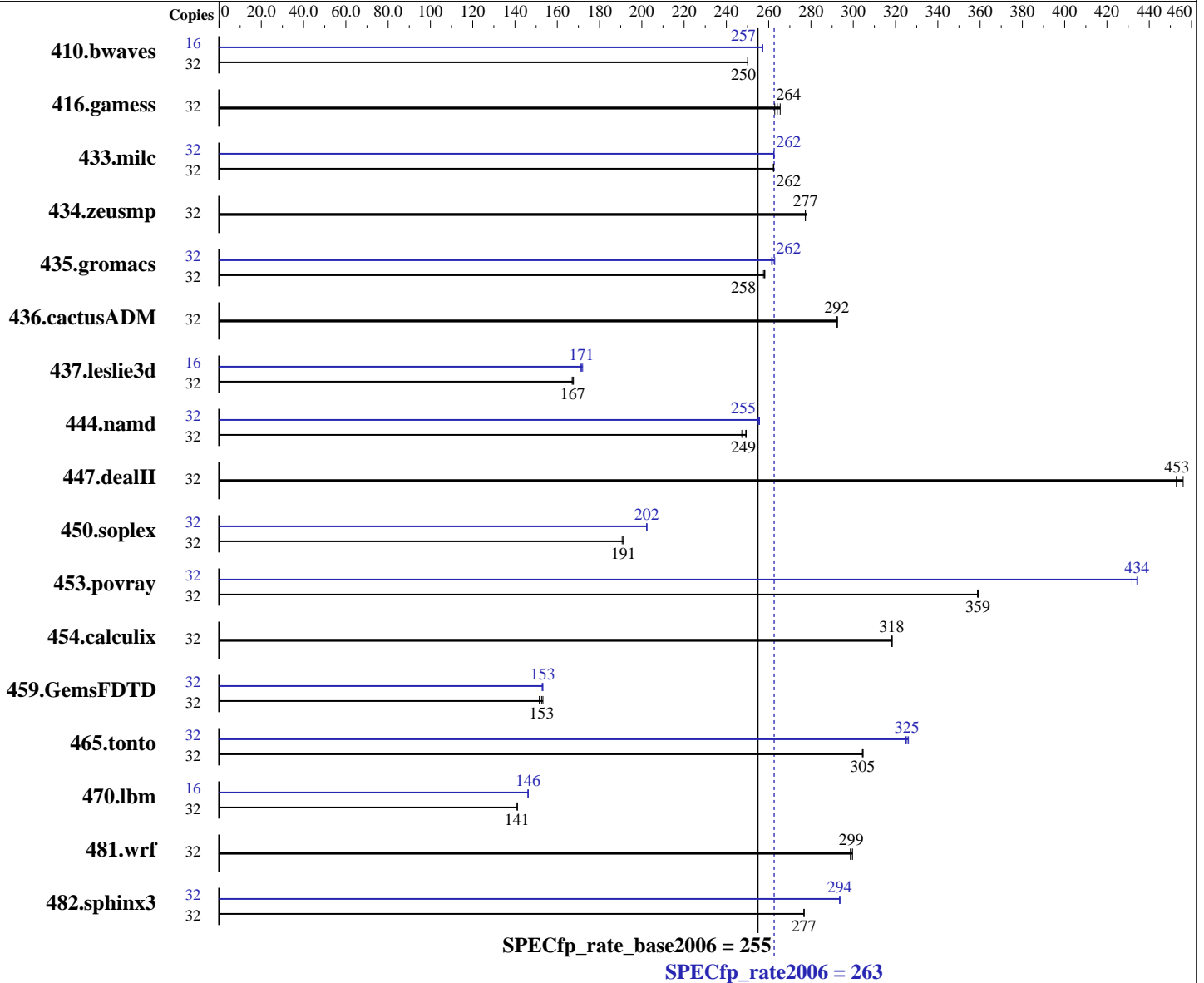
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2010

Hardware Availability: Aug-2010

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon X7550
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 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: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 18 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (32 x 4 GB PC3-8500R CL7, Quad Rank)
 Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
 Other Hardware: None

Base Pointers: 64-bit
 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 | 32 | 1739 | 250 | <u>1739</u> | <u>250</u> | 1738 | 250 | 16 | 846 | 257 | <u>846</u> | <u>257</u> | 846 | 257 |
| 416.gamess | 32 | 2360 | 265 | <u>2373</u> | <u>264</u> | 2384 | 263 | 32 | 2360 | 265 | <u>2373</u> | <u>264</u> | 2384 | 263 |
| 433.milc | 32 | 1119 | 262 | <u>1120</u> | <u>262</u> | 1120 | 262 | 32 | <u>1119</u> | <u>262</u> | 1119 | 263 | 1119 | 262 |
| 434.zeusmp | 32 | 1050 | 277 | <u>1050</u> | <u>277</u> | 1047 | 278 | 32 | 1050 | 277 | <u>1050</u> | <u>277</u> | 1047 | 278 |
| 435.gromacs | 32 | <u>885</u> | <u>258</u> | 885 | 258 | 887 | 258 | 32 | 869 | 263 | <u>873</u> | <u>262</u> | 874 | 261 |
| 436.cactusADM | 32 | <u>1308</u> | <u>292</u> | 1309 | 292 | 1307 | 293 | 32 | <u>1308</u> | <u>292</u> | 1309 | 292 | 1307 | 293 |
| 437.leslie3d | 32 | 1794 | 168 | 1801 | 167 | <u>1797</u> | <u>167</u> | 16 | 879 | 171 | 874 | 172 | <u>877</u> | <u>171</u> |
| 444.namd | 32 | 1029 | 249 | <u>1030</u> | <u>249</u> | 1038 | 247 | 32 | <u>1005</u> | <u>255</u> | 1004 | 256 | 1006 | 255 |
| 447.dealII | 32 | 808 | 453 | <u>808</u> | <u>453</u> | 803 | 456 | 32 | 808 | 453 | <u>808</u> | <u>453</u> | 803 | 456 |
| 450.soplex | 32 | 1400 | 191 | 1394 | 191 | <u>1395</u> | <u>191</u> | 32 | <u>1319</u> | <u>202</u> | 1319 | 202 | 1319 | 202 |
| 453.povray | 32 | 475 | 359 | 474 | 359 | <u>474</u> | <u>359</u> | 32 | <u>392</u> | <u>434</u> | 394 | 432 | 392 | 435 |
| 454.calculix | 32 | 829 | 318 | <u>830</u> | <u>318</u> | 830 | 318 | 32 | 829 | 318 | <u>830</u> | <u>318</u> | 830 | 318 |
| 459.GemsFDTD | 32 | 2241 | 151 | <u>2225</u> | <u>153</u> | 2216 | 153 | 32 | 2221 | 153 | <u>2217</u> | <u>153</u> | 2216 | 153 |
| 465.tonto | 32 | <u>1034</u> | <u>305</u> | 1035 | 304 | 1034 | 305 | 32 | 965 | 326 | 969 | 325 | <u>967</u> | <u>325</u> |
| 470.lbm | 32 | 3115 | 141 | <u>3118</u> | <u>141</u> | 3118 | 141 | 16 | 1504 | 146 | 1504 | 146 | <u>1504</u> | <u>146</u> |
| 481.wrf | 32 | 1193 | 300 | <u>1195</u> | <u>299</u> | 1197 | 299 | 32 | 1193 | 300 | <u>1195</u> | <u>299</u> | 1197 | 299 |
| 482.sphinx3 | 32 | 2253 | 277 | <u>2254</u> | <u>277</u> | 2254 | 277 | 32 | 2124 | 294 | <u>2124</u> | <u>294</u> | 2124 | 294 |

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

Platform Notes

Turbo Boost set to Traditional

General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502



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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.lelie3d: -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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static



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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) -static(pass 2) -prof-use(pass 2)
 -fno-alias -opt-prefetch

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

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Peak Optimization Flags (Continued)

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

C++ benchmarks:

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

447.deallI: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -auto -inline-calloc -opt-malloc-options=3

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) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes



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The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml>

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