



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]2006 = **25.7**

IBM System x3400 M3 (Intel Xeon E5503)

SPECfp_base2006 = **24.1**

CPU2006 license: 11

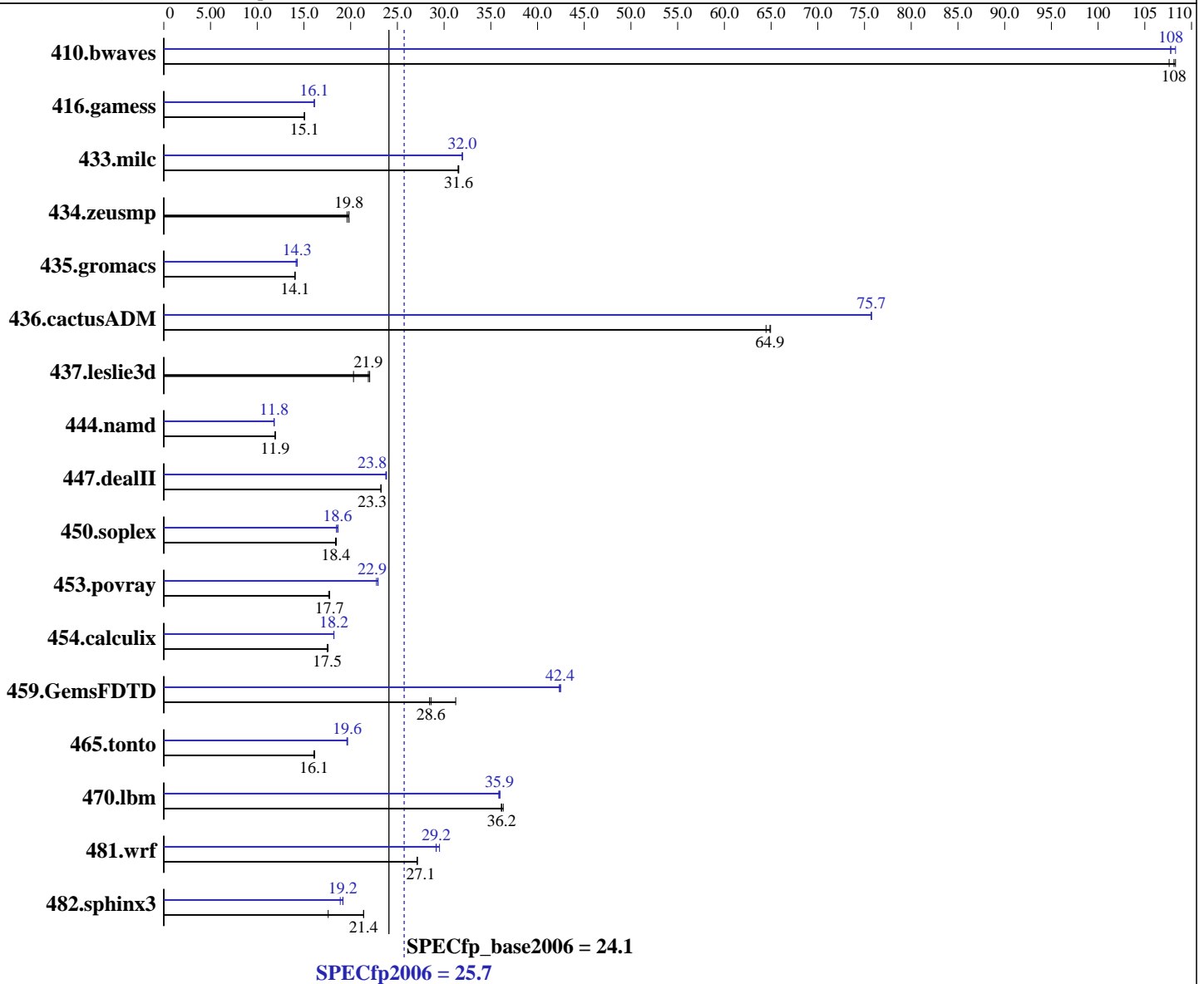
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon E5503
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 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: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB PC3-10600R CL9, 2 Rank)
Disk Subsystem: 1 x 73 GB SAS, 15000 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	126	108	<u>126</u>	<u>108</u>	125	108	125	108	<u>126</u>	<u>108</u>	126	108
416.gamess	<u>1300</u>	<u>15.1</u>	1302	15.0	1300	15.1	1216	16.1	1214	16.1	<u>1216</u>	<u>16.1</u>
433.milc	<u>291</u>	<u>31.6</u>	291	31.6	291	31.5	287	31.9	<u>287</u>	<u>32.0</u>	287	32.0
434.zeusmp	<u>460</u>	<u>19.8</u>	459	19.8	464	19.6	<u>460</u>	<u>19.8</u>	459	19.8	464	19.6
435.gromacs	510	14.0	<u>508</u>	<u>14.1</u>	508	14.1	<u>501</u>	<u>14.3</u>	504	14.2	500	14.3
436.cactusADM	184	64.9	185	64.5	<u>184</u>	<u>64.9</u>	158	75.7	<u>158</u>	<u>75.7</u>	158	75.7
437.leslie3d	463	20.3	<u>429</u>	<u>21.9</u>	427	22.0	463	20.3	<u>429</u>	<u>21.9</u>	427	22.0
444.namd	672	11.9	<u>672</u>	<u>11.9</u>	673	11.9	679	11.8	679	11.8	<u>679</u>	<u>11.8</u>
447.dealII	<u>492</u>	<u>23.3</u>	492	23.2	492	23.3	<u>480</u>	<u>23.8</u>	481	23.8	480	23.8
450.soplex	452	18.5	<u>453</u>	<u>18.4</u>	454	18.4	<u>448</u>	<u>18.6</u>	451	18.5	447	18.7
453.povray	300	17.8	<u>300</u>	<u>17.7</u>	301	17.6	234	22.8	232	22.9	<u>232</u>	<u>22.9</u>
454.calculix	469	17.6	<u>471</u>	<u>17.5</u>	472	17.5	453	18.2	<u>453</u>	<u>18.2</u>	453	18.2
459.GemsFDTD	340	31.2	<u>371</u>	<u>28.6</u>	373	28.4	<u>250</u>	<u>42.4</u>	250	42.5	251	42.3
465.tonto	609	16.2	<u>612</u>	<u>16.1</u>	612	16.1	502	19.6	<u>501</u>	<u>19.6</u>	500	19.7
470.lbm	380	36.1	378	36.3	<u>380</u>	<u>36.2</u>	382	36.0	383	35.9	<u>382</u>	<u>35.9</u>
481.wrf	412	27.1	<u>412</u>	<u>27.1</u>	412	27.1	383	29.1	<u>383</u>	<u>29.2</u>	379	29.5
482.sphinx3	<u>911</u>	<u>21.4</u>	911	21.4	1108	17.6	1032	18.9	<u>1018</u>	<u>19.2</u>	1016	19.2

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

Turbo Mode Enable
Turbo Boost set to Traditional
CPU C State Enable

General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M



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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 -parallel -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch



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Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

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)
-ansi-alias

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)
-parallel -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
-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.dealII: -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 -ansi-alias -scalar-rep- -auto-ilp32

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 -auto-ilp32

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Peak Optimization Flags (Continued)

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
-parallel

416.gamess: -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 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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 -opt-prefetch -parallel

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)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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: -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 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

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.20100601.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.20100601.xml>



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