



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 94.7

IBM System x3850 M2 (Intel Xeon E7320)

SPECfp_rate_base2006 = 90.0

CPU2006 license: 11

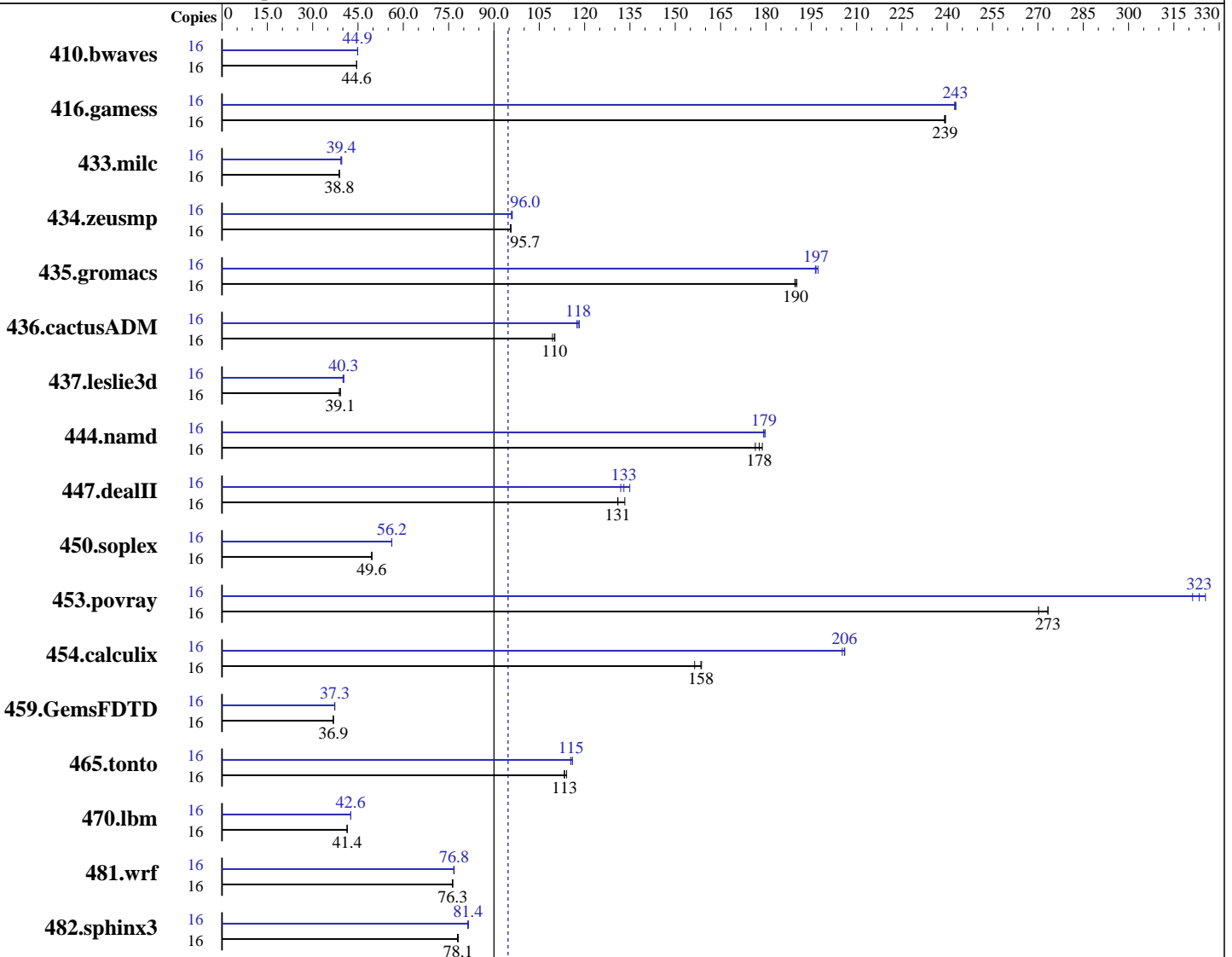
Test date: Aug-2007

Test sponsor: IBM Corporation

Hardware Availability: Nov-2007

Tested by: IBM Corporation

Software Availability: Nov-2007



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Hardware

CPU Name: Intel Xeon E7320
 CPU Characteristics: Quad Core, 2.13 GHz
 CPU MHz: 2133
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
 CPU(s) orderable: 1,2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per chip, 2 MB shared / 2 cores

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Software

Operating System: SLES 10 SP1 (x86_64), 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725
 Auto Parallel: No
 File System: ReiserFS
 System State: Multi-user run level 3
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 64 GB (16 * 4GB DDR2-5300 ECC)
Disk Subsystem: 73 GB SAS, 10k 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	4880	44.6	4878	44.6	4877	44.6	16	4846	44.9	4841	44.9	4846	44.9
416.gamess	16	1310	239	1309	239	1308	239	16	1292	242	1291	243	1290	243
433.milc	16	3779	38.9	3784	38.8	3781	38.8	16	3706	39.6	3732	39.4	3724	39.4
434.zeusmp	16	1522	95.7	1522	95.7	1526	95.4	16	1517	96.0	1520	95.8	1516	96.1
435.gromacs	16	602	190	603	190	600	190	16	581	197	579	197	582	196
436.cactusADM	16	1736	110	1748	109	1738	110	16	1617	118	1622	118	1628	117
437.leslie3d	16	3839	39.2	3844	39.1	3875	38.8	16	3756	40.0	3731	40.3	3736	40.3
444.namd	16	722	178	727	176	718	179	16	716	179	716	179	714	180
447.dealII	16	1373	133	1397	131	1397	131	16	1387	132	1376	133	1356	135
450.soplex	16	2690	49.6	2693	49.5	2693	49.6	16	2375	56.2	2375	56.2	2376	56.2
453.povray	16	311	273	315	270	311	273	16	263	323	265	321	262	325
454.calculix	16	844	156	832	159	833	158	16	640	206	641	206	643	205
459.GemsFDTD	16	4606	36.9	4606	36.9	4606	36.9	16	4553	37.3	4549	37.3	4549	37.3
465.tonto	16	1380	114	1388	113	1390	113	16	1363	115	1363	115	1357	116
470.lbm	16	5308	41.4	5307	41.4	5307	41.4	16	5158	42.6	5159	42.6	5160	42.6
481.wrf	16	2345	76.2	2341	76.3	2340	76.4	16	2331	76.7	2326	76.8	2327	76.8
482.sphinx3	16	3991	78.1	4002	77.9	3990	78.2	16	3833	81.4	3821	81.6	3830	81.4

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

General Notes

Bios settings:
Hardware Prefetcher: Disabled
Adjacent Sector Prefetch: Disabled
All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode
taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
icc

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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:
-fast

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast



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Peak Compiler Invocation

C benchmarks (except as noted below):

```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

Benchmarks using both Fortran and C:

icc ifort

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
444.namd: -DSPEC_CPU_LP64
447.deallI: -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
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32
```

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Peak Optimization Flags (Continued)

470.ibm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32



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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-ic10.1-FP-intel64-linux-flags.20090714.30.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.30.xml>

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