



# SPEC<sup>®</sup> CFP2006 Result

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## IBM Corporation

### SPECfp<sup>®</sup>\_rate2006 = 79.3

### IBM System x3850 M2 (Intel Xeon E7210)

### SPECfp\_rate\_base2006 = 72.0

CPU2006 license: 11

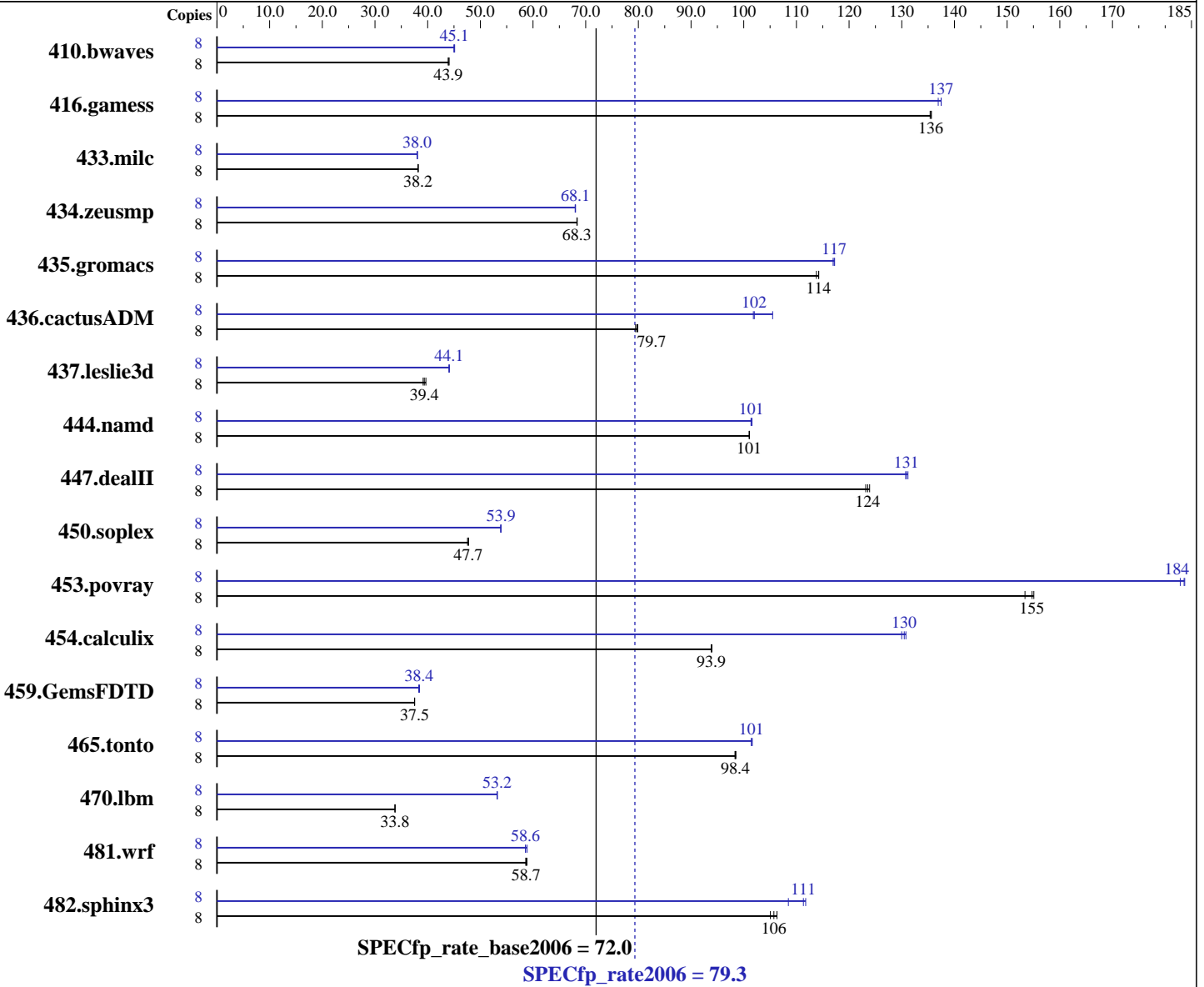
Test date: Aug-2007

Test sponsor: IBM Corporation

Hardware Availability: Nov-2007

Tested by: IBM Corporation

Software Availability: Nov-2007



#### Hardware

CPU Name: Intel Xeon E7210  
 CPU Characteristics: Quad Core, 2.4 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 4 chips, 2 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 core

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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	8	2475	43.9	<b>2475</b>	<b>43.9</b>	2466	44.1	8	<b>2413</b>	<b>45.1</b>	2417	45.0	2409	45.1
416.gamess	8	1157	135	<b>1156</b>	<b>136</b>	1155	136	8	1144	137	1139	137	<b>1139</b>	<b>137</b>
433.milc	8	1922	38.2	1924	38.2	<b>1923</b>	<b>38.2</b>	8	1933	38.0	1929	38.1	<b>1931</b>	<b>38.0</b>
434.zeusmp	8	1064	68.4	<b>1065</b>	<b>68.3</b>	1065	68.3	8	1071	68.0	1070	68.1	<b>1070</b>	<b>68.1</b>
435.gromacs	8	500	114	502	114	<b>500</b>	<b>114</b>	8	<b>488</b>	<b>117</b>	487	117	488	117
436.cactusADM	8	1197	79.9	1203	79.5	<b>1199</b>	<b>79.7</b>	8	906	105	939	102	<b>937</b>	<b>102</b>
437.leslie3d	8	1896	39.7	1921	39.1	<b>1911</b>	<b>39.4</b>	8	<b>1706</b>	<b>44.1</b>	1705	44.1	1707	44.1
444.namd	8	635	101	<b>635</b>	<b>101</b>	635	101	8	632	102	633	101	<b>632</b>	<b>101</b>
447.dealII	8	<b>741</b>	<b>124</b>	739	124	743	123	8	<b>699</b>	<b>131</b>	700	131	698	131
450.soplex	8	<b>1398</b>	<b>47.7</b>	1397	47.8	1403	47.6	8	<b>1238</b>	<b>53.9</b>	1237	53.9	1239	53.8
453.povray	8	274	155	<b>275</b>	<b>155</b>	277	153	8	233	183	232	184	<b>232</b>	<b>184</b>
454.calculix	8	702	94.0	<b>703</b>	<b>93.9</b>	703	93.8	8	508	130	505	131	<b>506</b>	<b>130</b>
459.GemsFDTD	8	2261	37.5	<b>2263</b>	<b>37.5</b>	2264	37.5	8	2207	38.5	<b>2213</b>	<b>38.4</b>	2215	38.3
465.tonto	8	799	98.5	801	98.3	<b>800</b>	<b>98.4</b>	8	775	102	<b>776</b>	<b>101</b>	776	101
470.lbm	8	3252	33.8	<b>3252</b>	<b>33.8</b>	3252	33.8	8	<b>2066</b>	<b>53.2</b>	2067	53.2	2066	53.2
481.wrf	8	1524	58.6	1518	58.9	<b>1523</b>	<b>58.7</b>	8	1518	58.9	<b>1525</b>	<b>58.6</b>	1526	58.6
482.sphinx3	8	<b>1475</b>	<b>106</b>	1467	106	1484	105	8	1395	112	<b>1401</b>	<b>111</b>	1437	108

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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