# IBM Corporation

**IBM System x3650 M3 (Intel Xeon E5503)**

<table>
<thead>
<tr>
<th>SPECfp®_rate2006</th>
<th>74.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>72.3</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 11  
**Test sponsor:** IBM Corporation  
**Test date:** Jun-2010  
**Hardware Availability:** Jun-2010  
**Software Availability:** Jan-2010

**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

**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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<table>
<thead>
<tr>
<th>Application</th>
<th>SPECfp_rate2006</th>
<th>SPECfp_rate_base2006</th>
</tr>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>64.3</td>
<td>64.7</td>
</tr>
<tr>
<td>416.gamess</td>
<td>67.3</td>
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<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<tr>
<td>437.leslie3d</td>
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</table>
IBM Corporation

IBM System x3650 M3 (Intel Xeon E5503)

**SPEC CFP2006 Result**

**IBM System x3650 M3 (Intel Xeon E5503)**

**SPECfp_rate2006** = 74.6

**SPECfp_rate_base2006** = 72.3

**CPU2006 license**: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

<table>
<thead>
<tr>
<th>L3 Cache:</th>
<th>4 MB I+D on chip per chip</th>
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</thead>
<tbody>
<tr>
<td>Other Cache:</td>
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<td>Memory:</td>
<td>48 GB (12 x 4 GB PC3-10600R CL9, 2 Rank)</td>
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<td>Disk Subsystem:</td>
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<tr>
<td>Other Hardware:</td>
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| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | None |

**Test date**: Jun-2010
Hardware Availability: Jun-2010
Software Availability: Jan-2010

**Benchmark**

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<td><strong>1068</strong></td>
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</tbody>
</table>

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.
umactl was used to bind copies to the cores

**Platform Notes**

Turbo Mode Enable
Turbo Boost set to Traditional
CPU C State Enable
## SPEC CFP2006 Result

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### 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

### Base Compiler Invocation

**C benchmarks:**

```bash
icc  -m64
```

**C++ benchmarks:**

```bash
icpc  -m64
```

**Fortran benchmarks:**

```bash
ifort  -m64
```

**Benchmarks using both Fortran and C:**

```bash
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 -nofor_main
- 447.dealII: -DSPEC_CPU_LP64
- 450.soplex: -DSPEC_CPU_LP64
- 453.povray: -DSPEC_CPU_LP64 -nofor_main
- 454.calculix: -DSPEC_CPU_LP64 -nofor_main
- 459.GemsFDTD: -DSPEC_CPU_LP64
- 465.tonto: -DSPEC_CPU_LP64
- 470.lbm: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
- 482.sphinx3: -DSPEC_CPU_LP64

### Base Optimization Flags

**C benchmarks:**

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

**C++ benchmarks:**

```bash
-xSSE4.2 -ipo -O3 -no-prec-div -static
```
IBM Corporation
IBM System x3650 M3 (Intel Xeon E5503)

SPECfp_rate2006 = 74.6
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CPU2006 license: 11
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Base Optimization Flags (Continued)

Fortran benchmarks:
- xsSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
- xsSE4.2 -ipo -O3 -no-prec-div -static

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.gameess: -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
IBM Corporation
IBM System x3650 M3 (Intel Xeon E5503)

SPECfp_rate2006 = 74.6
SPECfp_rate_base2006 = 72.3

CPU2006 license: 11
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CPU2006 license: 11
Test date: Jun-2010
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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

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.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-

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: -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: -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

Continued on next page
IBM Corporation
IBM System x3650 M3 (Intel Xeon E5503)  SPECfp\_rate2006 = 74.6
SPECfp\_rate\_base2006 = 72.3

CPU2006 license: 11  Test date:  Jun-2010
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**Peak Optimization Flags (Continued)**

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

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

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

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For other inquiries, please contact webmaster@spec.org.

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