### SPEC® CFP2006 Result

**IBM Corporation**

IBM System x3400 M3 (Intel Xeon E5607)  

**SPECfp®2006 = 40.2**  
**SPECfp_base2006 = 38.3**

**Hardware**

- **CPU Name:** Intel Xeon E5607  
- **CPU Characteristics:** Integrated  
- **CPU MHz:** 2267  
- **FPU:** Integrated  
- **CPU(s) enabled:** 8 cores, 2 chips, 4 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 SP1 (x86_64), Kernels 2.6.32.12-0.7-default  
- **Compiler:** Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0 Update 3  
- **Auto Parallel:** Yes  
- **File System:** ext3  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit

**Test Details**

- **CPU2006 license:** 11  
- **Test sponsor:** IBM Corporation  
- **Test date:** Apr-2011  
- **Hardware Availability:** Feb-2011  
- **Tested by:** IBM Corporation  
- **Software Availability:** Apr-2011

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**SPECfp2006 = 40.2**  
**SPECfp_base2006 = 38.3**

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**List of Benchmarks**

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<tr>
<td>416.gamess</td>
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<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<td>436.cactusADM</td>
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<td>444.namd</td>
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<td>481.wrf</td>
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<tr>
<td>482.sphinx3</td>
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IBM Corporation

IBM System x3400 M3 (Intel Xeon E5607)

SPEC CFP2006 Result

SPECfp2006 = 40.2

SPECfp_base20006 = 38.3

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz)
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
Other Hardware: None
Peak Pointers: 32/64-bit
Other Software: None

Results Table

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<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
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<tbody>
<tr>
<td>410.bwaves</td>
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<td>122</td>
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<td>127</td>
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<tr>
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<td>434.zesmp</td>
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<td>435.gromacs</td>
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<tr>
<td>437.leslie3d</td>
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<td>82.7</td>
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<td>444.namd</td>
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<tr>
<td>450.soplex</td>
<td>389</td>
<td>21.5</td>
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<td>21.4</td>
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<td>453.povray</td>
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<td>20.2</td>
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<td>58.4</td>
<td>182</td>
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<tr>
<td>465.tonto</td>
<td>489</td>
<td>20.1</td>
<td>558</td>
<td>17.6</td>
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<tr>
<td>470.lbm</td>
<td>73.2</td>
<td>188</td>
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<td>481.wrf</td>
<td>313</td>
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<td>35.5</td>
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<tr>
<td>482.sphinx3</td>
<td>554</td>
<td>35.2</td>
<td>553</td>
<td>35.3</td>
</tr>
</tbody>
</table>

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
'echo 900 > /proc/sys/vm/nr_hugepages'
'export HUGETLB_MORECORE=yes'
'export LD_PRELOAD=/usr/lib64/libhugetlbfs.so'

Platform Notes

Power C-State enabled in BIOS
Data Re Use disabled in BIOS
Demand Scrub disabled in BIOS
SPEC CFP2006 Result

IBM Corporation

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

SPECfp2006 = 40.2
SPECfp_base2006 = 38.3

General Notes

OMP_NUM_THREADS set to number of cores
Binaries compiled on RHEL5.5

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.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.GemsFDID: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
### SPEC CFP2006 Result

**IBM Corporation**

**IBM System x3400 M3 (Intel Xeon E5607)**

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**CPU2006 license:** 11  
**Test sponsor:** IBM Corporation  
**Tested by:** IBM Corporation  
**Test date:** Apr-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Apr-2011

#### Base Optimization Flags (Continued)

**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`  
- `-ansi-alias`

#### Peak 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
```

#### 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)  
  - `-prof-use` (pass 2)  
  - `-static`  
  - `-auto-ilp32`  
  - `-ansi-alias`
- `470.lbm`: `basepeak = yes`
- `482.sphinx3`: `-xSSE4.2`  
  - `-ipo`  
  - `-o3`  
  - `-no-prec-div`  
  - `-unroll2`  
  - `-ansi-alias`  
  - `-parallel`

**C++ benchmarks:**
- `444.namd`: `-xSSE4.2` (pass 2)  
  - `-prof-gen` (pass 1)  
  - `-ipo` (pass 2)  
  - `-o3` (pass 2)  
  - `-no-prec-div` (pass 2)  
  - `-prof-use` (pass 2)  
  - `-fno-alias`  
  - `-auto-ilp32`

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

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

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep -static

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) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4  
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

436.cactusADM: basepeak = yes

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

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html  

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml  
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110420.xml
IBM Corporation

IBM System x3400 M3 (Intel Xeon E5607) | SPECfp2006 = 40.2 |
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For other inquiries, please contact webmaster@spec.org.

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