## IBM Corporation

IBM Flex System x240  
(Intel Xeon E5-2637, 3.00 GHz)

### SPECfp®2006 = 68.7
### SPECfp_base2006 = 66.8

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>68.7</td>
<td>66.8</td>
</tr>
</tbody>
</table>

- **CPU2006 license:** 11  
- **Test date:** May-2012
- **Test sponsor:** IBM Corporation  
- **Hardware Availability:** May-2012
- **Tested by:** IBM Corporation  
- **Software Availability:** Dec-2011

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 6.2 (Santiago)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auto Parallel:</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>File System:</td>
<td>ext4</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2637</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3000</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>4 cores, 2 chips, 2 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### SPECfp2006 Results

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>36.9</td>
</tr>
<tr>
<td>416.gameSS</td>
<td>33.5</td>
</tr>
<tr>
<td>433.milc</td>
<td>64.1</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>63.0</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>37.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>113</td>
</tr>
<tr>
<td>444.namd</td>
<td>24.3</td>
</tr>
<tr>
<td>447.dealII</td>
<td>52.5</td>
</tr>
<tr>
<td>450.soplex</td>
<td>34.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>52.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>44.4</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>95.6</td>
</tr>
<tr>
<td>465.tonto</td>
<td>43.5</td>
</tr>
<tr>
<td>470.lbm</td>
<td>41.1</td>
</tr>
<tr>
<td>481.wrf</td>
<td>73.3</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>61.9</td>
</tr>
</tbody>
</table>

**SPECfp_base2006 = 66.8**

**SPECf2006 = 68.7**
### IBM Corporation

IBM Flex System x240  
(Intel Xeon E5-2637, 3.00 GHz)

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>11</th>
<th>Test date:</th>
<th>May-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>IBM Corporation</td>
<td>Hardware Availability:</td>
<td>May-2012</td>
</tr>
<tr>
<td>Tested by:</td>
<td>IBM Corporation</td>
<td>Software Availability:</td>
<td>Dec-2011</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>5 MB I+D on chip per chip</td>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Memory:</td>
<td>128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 300 GB SAS, 10000 RPM</td>
<td>Other Software:</td>
<td>None</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
<td></td>
<td></td>
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</table>

#### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>410.bwaves</td>
<td>62.6</td>
<td>217</td>
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<tr>
<td>416.gamess</td>
<td>584</td>
<td>33.5</td>
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<td>433.milc</td>
<td>146</td>
<td>63.0</td>
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<td>434.zeusmp</td>
<td>99.6</td>
<td>91.3</td>
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<tr>
<td>435.gromacs</td>
<td>190</td>
<td>37.6</td>
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<tr>
<td>436.cactusADM</td>
<td>54.5</td>
<td>219</td>
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<tr>
<td>437.leslie3d</td>
<td>84.0</td>
<td>112</td>
</tr>
<tr>
<td>444.namd</td>
<td>335</td>
<td>23.9</td>
</tr>
<tr>
<td>447.dealII</td>
<td>218</td>
<td>52.5</td>
</tr>
<tr>
<td>450.soplex</td>
<td>239</td>
<td>34.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>119</td>
<td>44.8</td>
</tr>
<tr>
<td>454.calculix</td>
<td>205</td>
<td>40.2</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>117</td>
<td>90.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td>241</td>
<td>40.8</td>
</tr>
<tr>
<td>470.lbm</td>
<td>68.2</td>
<td>201</td>
</tr>
<tr>
<td>481.wrf</td>
<td>152</td>
<td>73.3</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>315</td>
<td>61.9</td>
</tr>
</tbody>
</table>

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

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

### Platform Notes

Operating Mode set to Maximum Performance in BIOS  
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800  
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3  
running on blacktip-pete Wed May 9 16:29:43 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

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

Platform Notes (Continued)

model name : Intel(R) Xeon(R) CPU E5-2637 0 @ 3.00GHz
  2 "physical id"s (chips)
  8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
  cpu cores : 2
  siblings : 4
  physical 0: cores 0 1
  physical 1: cores 0 1
  cache size : 5120 KB

From /proc/meminfo
  MemTotal: 132139084 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
  redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
  system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:
  Linux blacktip-pete 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 8 10:37

SPEC is set to: /cpu2006.1.2
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/mapper/vg_blacktippete-lv_root
    ext4 265G 96G 156G 38% /

Additional information from dmidecode:
  Memory:
    4x Hynix HMT31GR7CFR4C-PB 8 GB 1600 MHz 2 rank
    12x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
  KMP_AFFINITY = "granularity=fine,compact,1,0"
  LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
  OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
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IBM Corporation
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Software Availability: Dec-2011

General Notes (Continued)

memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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
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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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Base Optimization Flags (Continued)
Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
Benigns using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation
C benchmarks:
icc  -m64
C++ benchmarks:
icpc  -m64
Fortran benchmarks:
ifort  -m64
Benigns using both Fortran and C:
icc  -m64 ifort  -m64

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags
C benchmarks:
433.milc: -xAVX(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: basepeak = yes

C++ benchmarks:
444.namd: -xAVX(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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## SPEC CFP2006 Result

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| SPECfp2006 = | 68.7 |
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**CPU2006 license:** 11  
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### Peak Optimization Flags (Continued)

<table>
<thead>
<tr>
<th>Fortran benchmarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves: basepeak = yes</td>
</tr>
<tr>
<td>416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran benchmarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>434.zeusmp: basepeak = yes</td>
</tr>
<tr>
<td>437.leslie3d: basepeak = yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benchmarks using both Fortran and C:</th>
</tr>
</thead>
<tbody>
<tr>
<td>435.gromacs: basepeak = yes</td>
</tr>
<tr>
<td>436.cactusADM: basepeak = yes</td>
</tr>
</tbody>
</table>

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

- [http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html](http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html)

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

- [http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml](http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml)
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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