IBM Corporation

IBM System x3100 M4 (Intel Xeon E3-1220L)

**SPECint®2006** = 42.4

**SPECint_base2006** = 39.3

**CPU2006 license**: 11

**Test sponsor**: IBM Corporation

**Tested by**: IBM Corporation

**Test date**: Sep-2011

**Hardware Availability**: Oct-2011

**Software Availability**: Aug-2011

<table>
<thead>
<tr>
<th>Application</th>
<th>SPECint2006</th>
<th>SPECint_base2006</th>
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<tbody>
<tr>
<td>400.perlbench</td>
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<td></td>
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<tr>
<td>483.xalancbmk</td>
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</tbody>
</table>

**Software**

**Operating System**: Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64

**Compiler**: C/C++: Version 12.1.0.225 of Intel Compiler XE

**Auto Parallel**: Yes

**File System**: ext4

**System State**: Run level 3 (multi-user)

**Base Pointers**: 32/64-bit

**Peak Pointers**: 32/64-bit

**Other Software**: Microquill SmartHeap V9.01
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Results Table

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</tr>
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</table>

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

Platform Notes

BIOS Settings:
Turbo Mode enabled in BIOS
C-State enabled in BIOS

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32:/root/SPECcpu12.1/ic12.1-libs/intel64"
OMP_NUM_THREADS = "2"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory
using RHEL5.5 with binutils-2.17.50.0.6-14.el5
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches

Base Compiler Invocation

C benchmarks:
  icc  -m64

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SPEC CINT2006 Result

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Base Compiler Invocation (Continued)

C++ benchmarks:
  icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
  -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
C++ benchmarks:
  -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
  -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m64
  400.perlbench: icc -m32
  445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
icpc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch
-ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

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**IBM Corporation**

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### Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.libquantum: 
- xAVX(pass 2)  
- prof-gen(pass 1)  
- ipo(pass 2)  
- O3(pass 2)  
- no-prec-div(pass 2)  
- prof-use(pass 2)  
- unroll2  
- ansi-alias

C++ benchmarks:

471.omnetpp: 
- xAVX(pass 2)  
- prof-gen(pass 1)  
- ipo(pass 2)  
- O3(pass 2)  
- no-prec-div(pass 2)  
- prof-use(pass 2)  
- opt-ra-region-strategy=block  
- ansi-alias  
- Wl,-z,muldefs  
- L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: 
- xAVX  
- ipo  
- O3  
- no-prec-div  
- opt-prefetch  
- ansi-alias  
- Wl,-z,muldefs  
- L/smartheap -lsmartheap

### Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

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

http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.html

http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.html

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

http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml

http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111206.xml

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