**IBM Corporation**

**IBM Flex System x240**
*(Intel Xeon E5-2667, 2.90 GHz)*

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>526</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>503</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

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### Software

- **Operating System:** Red Hat Enterprise Linux Server release 6.2
  *(Santiago)*
- **Compiler:** Clang Version 12.1.0.225 of Intel C++ Studio XE for Linux
- **Auto Parallel:** No
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01

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### Hardware

- **CPU Name:** Intel Xeon E5-2667
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHZ:** 2900
- **FPU:** Integrated
- **CPU(s) enabled:** 12 cores, 2 chips, 6 cores/chip, 2 threads/core
- **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
- **L3 Cache:** 15 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
- **Disk Subsystem:** 1 x 300 GB SAS, 10000 RPM
- **Other Hardware:** None
SPEC CINT2006 Result

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Test sponsor: IBM Corporation
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Results Table

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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 numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on blacktip-pete Mon May 14 17:00:25 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
model name : Genuine Intel(R) CPU @ 2.90GHz
  2 "physical id"s (chips)
  24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 6
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| SPECint_rate_base2006 | 503 |

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**Platform Notes (Continued)**

```
siblings : 12  
physical 0: cores 0 1 2 3 4 5  
physical 1: cores 0 1 2 3 4 5  
cache size : 15360 KB  

From /proc/meminfo  
MemTotal: 132137164 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 14 16:47  
```

SPEC is set to: /cpu2006.1.2  

<table>
<thead>
<tr>
<th>Filesystem Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
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<tbody>
<tr>
<td>/dev/mapper/vg_blacktippete-lv_root</td>
<td>ext4</td>
<td>265G</td>
<td>6.0G</td>
<td>246G</td>
<td>3%</td>
</tr>
</tbody>
</table>

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:  
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"  

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RHEL5.5  
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  
runcspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>
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Base Compiler Invocation

C benchmarks:
icc  -m32
C++ benchmarks:
icpc  -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc  -m32
400.perlbench: icc  -m64
401.bzip2: icc  -m64
456.hmmer: icc  -m64
458.sjeng: icc  -m64
C++ benchmarks:
icpc  -m32
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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                        -o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                        -auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                        -o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                        -opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                        -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -o3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                        -o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                        -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                        -o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                        -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
                        -L/smartheap -lsmartheap

473.astar: basepeak = yes

Continued on next page
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Peak Optimization Flags (Continued)

483.xalancbmk: basepeak = yes

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-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml

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

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