IBM Corporation
IBM Flex System x240
(Intel Xeon E5-2660, 2.20 GHz)

SPEClnt®2006 = 48.0
SPEClnt_base2006 = 44.8

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

Test date: May-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

Hardware

CPU Name: Intel Xeon E5-2660
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 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

Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
2.6.32-220.el6.x86_64
Compiler: C/C++ Version 12.1.0.225 of Intel C++ Studio XE for Linux
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
IBM Corporation
IBM Flex System x240
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SPECint2006 = 48.0
SPECint_base2006 = 44.8

Results Table

<table>
<thead>
<tr>
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<th>Ratio</th>
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<td>147</td>
<td>47.0</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 Sat May  5 02:52:20 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 : Intel(R) Xeon(R) CPU E5-2660 0 @ 2.20GHz
  2 "physical id"s (chips)
  32 "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 : 8
  siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo

Continued on next page
**SPEC CINT2006 Result**

**IBM Corporation**

IBM Flex System x240  
(Intel Xeon E5-2660, 2.20 GHz)

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**Platform Notes (Continued)**

MemTotal: 132136204 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 3 16:09
```

**General Notes**

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"
OMP_NUM_THREADS = "16"

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/enable

**Base Compiler Invocation**

C benchmarks:
```  
icc  -m64
```

C++ benchmarks:
```  
icpc  -m64
```
IBM Corporation
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Base Portability Flags

-DSPEC_CPU_LP64
-DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
- xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
- xSSE4.2 -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
- 464.h264ref: icc -m32

C++ benchmarks (except as noted below):
- icpc -m32
- 473.astar: icpc -m64
IBM Corporation
IBM Flex System x240
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IBM Corporation

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CPU2006 license: 11
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Software Availability: Dec-2011

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: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
-opt-prefetch -ansi-alias

401.bzip2: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div -prof-use (pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -03 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2 (pass 2) -prof-gen (pass 1) -prof-use (pass 2)
-ansi-alias

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
-unroll4

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2 (pass 2) -prof-gen (pass 1) -ipo (pass 2)
-03 (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)
-03 (pass 2) -no-prec-div (pass 2) -prof-use (pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

Continued on next page
SPEC CINT2006 Result

IBM Corporation
IBM Flex System x240
(Intel Xeon E5-2660, 2.20 GHz)

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

Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -1smartheap

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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