IBM Corporation

IBM System x3630 M4 (Intel Xeon E5-1410)

SPECint®2006 = 45.6
SPECint_base2006 = 43.4

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

Hardware
CPU Name: Intel Xeon E5-1410
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2800
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 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: 10 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
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

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Results Table

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<th>Ratio</th>
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<td></td>
<td>140</td>
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<td>138</td>
<td>49.9</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

BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-v1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on x3630m4-rhel62 Tue Jul 31 16:21:17 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 E5-1410 0 @ 2.80GHz
1 "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 caution.)
cpu cores : 4
siblings : 8
physical 0: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo

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IBM Corporation

IBM System x3630 M4 (Intel Xeon E5-1410)

SPEC CINT2006 Result

SPECint2006 = 45.6
SPECint_base2006 = 43.4

CPU2006 license: 1

Test date: Jul-2012

Test sponsor: IBM Corporation

Hardware Availability: May-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

Platform Notes (Continued)

MemTotal: 49404820 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 x3630m4-rhel62 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 Jul 30 11:52

SPEC is set to: /home/SPECcpu-v1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_x3630m4rhel62-lv_home
 ext4 383G 20G 344G 6% /home

Additional information from dmidecode:
Memory:
6x Samsung M393B1K70DH0-CK0 8 GB 1333 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 = "/home/SPECcpu-v1.2/libs/32:/home/SPECcpu-v1.2/libs/64"
OMP_NUM_THREADS = "4"

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

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_X64
- DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
- xAVX
- ipo
- 03
- no-prec-div
- parallel
- opt-prefetch
- auto-p32

C++ benchmarks:
- xAVX
- ipo
- 03
- no-prec-div
- opt-prefetch
- auto-p32
- Wl,-z,muldefs
- L/smartheap
- lsmartheap64

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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
**IBM Corporation**

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**CPU2006 license:** 11  
**Test date:** Jul-2012  
**Test sponsor:** IBM Corporation  
**Hardware Availability:** May-2012  
**Tested by:** IBM Corporation  
**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`

### 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) -unroll14`

- `462.libquantum`: `basepeak = yes`

- `464.h264ref`: `-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`

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Peak Optimization Flags (Continued)

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-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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