IBM Corporation

IBM System x iDataPlex dx360 M4
(Intel Xeon E5-2650 v2, 2.60 GHz)

SPECint®2006 = 57.0
SPECint_base2006 = 53.0

CPU2006 license: 11
Test date: Jun-2014
Test sponsor: IBM Corporation
Hardware Availability: Dec-2013
Tested by: IBM Corporation
Software Availability: Sep-2013

CPU Name: Intel Xeon E5-2650 v2
Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
Compiler: CIC++ Version 14.0.0.080 of Intel C++ Studio XE for Linux
CPU MHz: 2600
Auto Parallel: Yes
FPU: Integrated
File System: ext4
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
System State: Run level 3 (multi-user)
CPU(s) orderable: 1,2 chips
Base Pointers: 32/64-bit
Primary Cache: 32 KB I + 32 KB D on chip per core
Peak Pointers: 32/64-bit
Secondary Cache: 256 KB I+D on chip per core
Other Cache: None
L3 Cache: 20 MB I+D on chip per chip
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Other Software: Microquill SmartHeap V10.0
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>122</td>
<td>56.4</td>
</tr>
</tbody>
</table>

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Zone reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode
Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf:
intel_idle.max_cstate=0

Platform Notes

BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on dx360M4 Sun Jun 1 16:15:16 2014

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 E5-2650 v2 @ 2.60GHz
  2 "physical id"s (chips)
  32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
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Platform Notes (Continued)

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
MemTotal: 264641468 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
Linux dx360M4 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 30 11:48

SPEC is set to: /home/SPECcpu-20140116-ic14.0
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_td2-lv_home ext4 380G 173G 188G 49% /home

Additional information from dmidecode:
BIOS IBM -[TDE139OUS-1.50]- 02/21/2014
Memory:
16x Samsung M393B2G70QH0-CMA 16 GB 1867 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,scatter"
LD_LIBRARY_PATH = "/home/SPECcpu-20140116-ic14.0/1ibs/32:/home/SPECcpu-20140116-ic14.0/1ibs/64:/home/SPECcpu-20140116-ic14.0/sh*"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
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General Notes (Continued)
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
icc -m64

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/sh -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca
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Peak Compiler Invocation

C benchmarks (except as noted below):
  icc  -m64
  400.perlb: icc -m32
  445.gobmk: icc -m32
  464.h264ref: icc -m32

C++ benchmarks (except as noted below):
  icpc -m64
  471.omnetpp: icpc -m32

Peak Portability Flags

400.perlb: -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_LP64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
  400.perlb: -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

Software Availability: Sep-2013
IBM Corporation
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CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jun-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Peak Optimization Flags (Continued)

456.hmmer: basepeak = yes
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) -unroll12
        -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/sh -lsmartheap
473.astar: basepeak = yes
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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-B.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-B.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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