IBM Corporation

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

Hardware

CPU Name: Intel Core i3-3220
CPU Characteristics:
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core
CPU(s) orderable: 1 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

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;
Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4

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SPEC CFP2006 Result

IBM Corporation
IBM System x3250 M4
(Intel Core i3-3220, 3.30 GHz)

SPECfp2006 = 54.3
SPECfp_base2006 = 53.2

CPU2006 license: 11
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Test date: Oct-2012
Hardware Availability: Sep-2012
Software Availability: Dec-2011

L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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</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 Settings:
Turbo Mode enabled in BIOS
C-State enabled in BIOS
Sysinfo program /root/SPECcpu1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Sat Oct 20 16:49:49 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
Continued on next page
IBM Corporation
IBM System x3250 M4
(Intel Core i3-3220, 3.30 GHz)

SPECf2006 = 54.3
SPECfp_base2006 = 53.2

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

Platform Notes (Continued)

From /proc/cpuinfo
model name : Intel(R) Core(TM) i3-3220 CPU @ 3.30GHz
  1 "physical id"s (chips)
  4 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
care.)
cpu cores : 2
siblings : 4
physical 0: cores 0 1
cache size : 3072 KB

From /proc/meminfo
MemTotal: 16322724 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 localhost.localdomain 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 Oct 19 15:51

SPEC is set to: /root/SPECcpu1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root
  ext4 50G 20G 28G 42% /

Additional information from dmidecode:
Memory:
  2x Micron 18JSF1G72AZ-1G6D1 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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/SPECcpu1.2/libs/32:/root/SPECcpu1.2/libs/64"
OMP_NUM_THREADS = "2"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
Continued on next page
IBM Corporation
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Software Availability: Dec-2011

General Notes (Continued)
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
Fortran benchmarks:
  ifort  -m64

Benchmarks using both Fortran and C:
  icc  -m64 ifort  -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
  433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64
  435.gromacs: -DSPEC_CPU_LP64  -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64  -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64
  444.namd: -DSPEC_CPU_LP64
  447.dealII: -DSPEC_CPU_LP64
  450.soplex: -DSPEC_CPU_LP64
  453.povray: -DSPEC_CPU_LP64
  454.calculix: -DSPEC_CPU_LP64  -nofor_main
  459.GemsFDTD: -DSPEC_CPU_LP64
  465.tonto: -DSPEC_CPU_LP64
  470.lbm: -DSPEC_CPU_LP64
  481.wrf: -DSPEC_CPU_LP64  -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
  482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
  -xAVX  -ipo  -03  -no-prec-div  -static  -parallel  -opt-prefetch
  -ansi-alias

C++ benchmarks:
  -xAVX  -ipo  -03  -no-prec-div  -static  -opt-prefetch  -ansi-alias

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Base Optimization Flags (Continued)

Fortran benchmarks:
- xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
- xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
  - ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
  -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
  -auto-ilp32

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IBM System x3250 M4
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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:
410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
          -static
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
          -inline-level=0 -scalar-rep -static
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
               -inline-level=0 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
          -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes

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-IVB-A.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-IVB-A.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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