IBM Corporation

IBM NeXtScale nx360 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECint\textsuperscript{\_rate2006} = 840
SPECint\textsuperscript{\_rate\_base2006} = 813

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

Test date: Jan-2014
Hardware Availability: Oct-2013
Software Availability: Sep-2013

Hardware

- CPU Name: Intel Xeon E5-2680 v2
- CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
- CPU MHz: 2800
- FPU: Integrated
- CPU(s) enabled: 20 cores, 2 chips, 10 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: None
- Other Cache: None
- Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
- Disk Subsystem: 2 x 250 GB SATA, 7200 RPM, RAID 0

Software

- Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
- Compiler: C++: Version 14.0.0.080 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 V10.0
## SPEC CINT2006 Result

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
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<tr>
<td>400.perlbench</td>
<td>40</td>
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<tr>
<td>401.bzip2</td>
<td>40</td>
<td>878</td>
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<tr>
<td>403.gcc</td>
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<td>506</td>
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<td>429.mcf</td>
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<td>314</td>
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<td>445.gobmk</td>
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<td>686</td>
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<tr>
<td>456.hmmer</td>
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<td>335</td>
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<td>458.sjeng</td>
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<td>789</td>
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<tr>
<td>462.libquantum</td>
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<td>152</td>
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<td>464.h264ref</td>
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<tr>
<td>471.omnetpp</td>
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<td>596</td>
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<tr>
<td>473.astar</td>
<td>40</td>
<td>617</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>40</td>
<td>321</td>
</tr>
</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"

Zone reclaim mode enabled with:

```
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

### Platform Notes

BIOS setting:

Operating Mode set to Maximum Performance

Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818

$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191

running on nx360M4 Wed Jan 22 11:11:49 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 E5-2680 v2 @ 2.80GHz
 2 "physical id" (chips)
 40 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
```
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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.

  cpu cores : 10
  siblings : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 25600 KB

From /proc/meminfo
  MemTotal: 132227664 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 nx360M4 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 Jan 22 10:55

SPEC is set to: /home/SPECcpu-new
  Filesystem  Type  Size  Used Avail Use% Mounted on
  /dev/mapper/vg_nx360m4-lv_home  ext4  313G  5.2G  292G  2% /home

Additional information from dmidecode:
  BIOS IBM -[FPE105F1N-1.00]- 08/19/2013
  Memory:
    8x 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:
LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"

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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
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IBMCorporation

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General Notes (Continued)

numactl --interleave=all runspec <etc>

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/sh -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
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Peak Optimization Flags (Continued)

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)
-ansi-alias -opt-ra-region-strategy=block -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-A.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-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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