Inspur Corporation

Inspur NF5280M4 (Intel Xeon E5-2660 v3)

SPEClnt\_rate2006 = 926
SPEClnt\_rate\_base2006 = 892

CPU2006 license: 3358
Test date: Dec-2014
Test sponsor: Inspur Corporation
Hardware Availability: Sep-2014
Tested by: Inspur Corporation
Software Availability: Nov-2014

<table>
<thead>
<tr>
<th>Software</th>
<th>Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>CPU Name: Intel Xeon E5-2660 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>20 cores, 2 chips, 10 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>25 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 450 GB SATA SSD</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Copies</th>
<th>300 600 900 1300 1700 2100 2500 2900 3300 3700 4100 4500 4900 5300 5700 6100 6500 6900 7300 7700 8100 8500 8800</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>811</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>651</td>
</tr>
<tr>
<td>403.gcc</td>
<td>455</td>
</tr>
<tr>
<td>429.mcf</td>
<td>695</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>693</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>1200</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>607</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>1410</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>603</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>1280</td>
</tr>
<tr>
<td>473.astar</td>
<td>665</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>636</td>
</tr>
</tbody>
</table>

SPEClnt\_rate\_base2006 = 892
SPEClnt\_rate2006 = 926
**SPEC CINT2006 Result**

**Inspur Corporation**

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>403.gcc</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>429.mcf</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>458.sjeng</td>
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<td>40</td>
</tr>
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<td>40</td>
</tr>
<tr>
<td>464.h264ref</td>
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<td>40</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>40</td>
<td>40</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"

**Platform Notes**

Sysinfo program /home/CPU2006/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 $  
running on localhost.localdomain Mon Dec 1 15:46:16 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 E5-2660 v3 @ 2.60GHz
- 2 "physical id"s (chips)
- 40 "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 : 5
  - siblings : 10

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Platform Notes (Continued)

   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 : 12800 KB

From /proc/meminfo
MemTotal: 263858652 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
   EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
run-level 5 Dec 1 15:34

SPEC is set to: /home/CPU2006
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs 393G 14G 380G 4% /home

Additional information from dmidecode:
   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.
   
   BIOS American Megatrends Inc. 4.0.1 10/30/2014
   Memory:
      8x NO DIMM NO DIMM
      16x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
   LD_LIBRARY_PATH = "/home/CPU2006/libs/32:/home/CPU2006/libs/64:/home/CPU2006/sh"

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General Notes (Continued)

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks:
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -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
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**Peak Compiler Invocation**

C benchmarks (except as noted below):
- icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
- 400.perlbench: icc -m64
- 401.bzip2: icc -m64
- 456.hmmer: icc -m64
- 458.sjeng: icc -m64

C++ benchmarks:
- icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

**Peak Portability Flags**

- 400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64
- 401.bzip2: -DSPEC\_CPU\_LP64
- 456.hmmer: -DSPEC\_CPU\_LP64
- 458.sjeng: -DSPEC\_CPU\_LP64
- 462.libquantum: -DSPEC\_CPU\_LINUX
- 483.xalancbmk: -DSPEC\_CPU\_LINUX

**Peak Optimization Flags**

C benchmarks:
- 400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- -auto-ilp32
- 401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- -opt-prefetch -auto-ilp32 -ansi-alias
- 403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div
- 429.mcf: basepeak = yes
- 445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
- -ansi-alias -opt-mem-layout-trans=3
- 456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
- 458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
- -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
- -unroll4 -auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref:
-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unnroll -ansi-alias

C++ benchmarks:

471.omnetpp:
-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.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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