Lenovo Group Limited

Lenovo System x3100 M5
(Intel Xeon E3-1285 v3, 4.00 GHz)

SPECint®2006 = 63.6
SPECint_base2006 = 61.9

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Aug-2015
Hardware Availability: May-2014

Software Availability: Jun-2014

Hardware

Operating System: Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64
Compiler: C/C++ Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint®2006</th>
<th>SPECint_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>51.7</td>
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<tr>
<td>bzip2</td>
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<td>gcc</td>
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<td>30.2</td>
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<td>mcf</td>
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<td>gobmk</td>
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<td>sjeng</td>
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<td>libquantum</td>
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<tr>
<td>h264ref</td>
<td>60.3</td>
<td></td>
</tr>
<tr>
<td>omnetpp</td>
<td>33.8</td>
<td>31.9</td>
</tr>
<tr>
<td>astar</td>
<td>28.1</td>
<td></td>
</tr>
<tr>
<td>xalancbmk</td>
<td>275.7</td>
<td></td>
</tr>
</tbody>
</table>

Other Hardware

Memory: 16 GB (4 x 4 GB 2Rx8 PC3L-12800E11, ECC)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Lenovo Group Limited

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Results Table

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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
<td>400.perlbench</td>
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<td>46.4</td>
<td>217</td>
<td>45.1</td>
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<td>46.1</td>
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<td>30.2</td>
<td>319</td>
<td>30.3</td>
<td>319</td>
<td>30.2</td>
<td>317</td>
<td>30.4</td>
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<td>403.mcf</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<td>79.3</td>
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<td>79.6</td>
<td>122</td>
<td>76.7</td>
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<tr>
<td>458.sjeng</td>
<td>315</td>
<td>38.4</td>
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<td>38.4</td>
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<td>462.libquantum</td>
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<td>13.9</td>
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<td>1490</td>
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<tr>
<td>464.h264ref</td>
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<td>60.2</td>
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<td>60.3</td>
<td>366</td>
<td>60.5</td>
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<td>60.2</td>
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<tr>
<td>471.omnetpp</td>
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<td>28.2</td>
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<td>28.1</td>
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<td>33.9</td>
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<tr>
<td>473.astar</td>
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<td>38.2</td>
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<td>38.1</td>
<td>185</td>
<td>38.0</td>
<td>185</td>
<td>37.9</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>91.2</td>
<td>75.7</td>
<td>91.5</td>
<td>75.4</td>
<td>92.2</td>
<td>74.9</td>
<td>90.9</td>
<td>75.9</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"

Platform Notes

BIOS setting:
Hyper-Threading set to Disable
Operating Mode set to "Efficiency-Favor Performance"

Sysinfo program /root/cpu2006_ic15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ e3fbb8667b5a285932ceab81e28219e1
running on x3100m5.labs.lenovo.com Mon Aug 24 11:36:55 2015

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 E3-1285 v3 @ 3.60GHz
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 caution.)
cpu cores : 4

Continued on next page
Lenovo Group Limited

Lenovo System x3100 M5
(Intel Xeon E3-1285 v3, 4.00 GHz)

SPECint2006 = 63.6
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CPU2006 license: 9017
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Platform Notes (Continued)

siblings : 4
physical 0: cores 0 1 2 3
cache size : 8192 KB

From /proc/meminfo
MemTotal: 16100788 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)

uname -a:
Linux x3100m5.labs.lenovo.com 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29
18:37:38 EST 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 24 11:18

SPEC is set to: /root/cpu2006_ic15
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 50G 25G 26G 49% /

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 IBM -[J9E113LUS-1.05]- 07/06/2014
Memory:
4x Hynix/Hyundai HMT351U7EFR8A-PB 4 GB 2 rank 1600 MHz

(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/cpu2006_ic15/libs/32:/root/cpu2006_ic15/libs/64:/root/cpu2006_ic15/sh"
OMP_NUM_THREADS = "4"

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**Lenovo Group Limited**

**Lenovo System x3100 M5**  
(Intel Xeon E3-1285 v3, 4.00 GHz)

| SPECint2006 | 63.6 |
| SPECint_base2006 | 61.9 |

**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`

---

**Base Compiler Invocation**

**C benchmarks**:
- icc -m64

**C++ benchmarks**:
- icpc -m64

---

**Base Portability Flags**

<table>
<thead>
<tr>
<th>Benchmark</th>
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<td>400.perlbench</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
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<tr>
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<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

---

**Base Optimization Flags**

**C benchmarks**:
- -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

**C++ benchmarks**:
- -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
  -Wl,-z,muldefs -L/sh -lsmartheap64

---

**Base Other Flags**

**C benchmarks**:
- 403.gcc: -Dalloca=_alloca
Lenovo Group Limited
Lenovo System x3100 M5
(Intel Xeon E3-1285 v3, 4.00 GHz)

SPECint2006 = 63.6
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CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Test date: Aug-2015
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Tested by: Lenovo Group Limited
Software Availability: Jun-2014

Peak Compiler Invocation
C benchmarks (except as noted below):
  icc  -m64
  400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
  445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):
  icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
  473.astar: icpc -m64

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
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
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)
  -opt-prefetch -ansi-alias

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Lenovo Group Limited
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Tested by: Lenovo Group Limited

Aug-2015
May-2014
Jun-2014

Peak Optimization Flags (Continued)

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

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

462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -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-ic15.0-official-linux64.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/IBM-Platform-Flags-V1.2-HSW-A.20150909.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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