Lenovo Group Limited
Lenovo System x3100 M5
(Intel Xeon E3-1286L v3, 4.00 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint2006</th>
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<td>400.perlbench</td>
<td>53.8</td>
<td></td>
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<tr>
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<td>403.gcc</td>
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<td></td>
</tr>
<tr>
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<td>32.5</td>
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<tr>
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</tr>
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<td>473.astar</td>
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<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>37.5</td>
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**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E3-1286L v3</th>
</tr>
</thead>
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<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 4.00 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3200</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>4 cores, 1 chip, 4 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
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<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
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<tr>
<td>L3 Cache:</td>
<td>8 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
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<tr>
<td>Memory:</td>
<td>16 GB (4 x 4 GB 2Rx8 PC3L-12800E-11, ECC)</td>
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<tr>
<td>Disk Subsystem:</td>
<td>1 x 500 GB SATA, 7200 RPM</td>
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<tr>
<td>Other Hardware:</td>
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**Software**

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64</th>
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<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++ Version 15.0.0.0.090 of Intel C++ Studio XE for Linux</td>
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<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
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<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>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
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<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.0</td>
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</table>
Lenovo Group Limited
Lenovo System x3100 M5
(Intel Xeon E3-1286L v3, 4.00 GHz)

SPECint2006 = 63.4
SPECint_base2006 = 61.6

Results Table

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<thead>
<tr>
<th>Benchmark</th>
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<tr>
<td>483.xalancbmk</td>
<td>91.6</td>
<td>75.3</td>
<td>92.3</td>
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<td>74.8</td>
<td>92.0</td>
<td>75.0</td>
<td>91.2</td>
<td>75.7</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:
Operating Mode set to Maximum Performance
Sysinfo program /root/cpu2006_ic15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on x3100m5.labs.lenovo.com Mon Jul 27 10:55:03 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 E3-1286L v3 @ 3.20GHz
 1 "physical id"s (chips)
 8 "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
  siblings : 8

Continued on next page
Lenovo Group Limited
Lenovo System x3100 M5
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SPECint2006 = 63.4
SPECint_base2006 = 61.6

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

Test date: Jul-2015
Hardware Availability: May-2014
Software Availability: Jun-2014

Platform Notes (Continued)

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

From /proc/meminfo
 MemTotal: 16102132 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 Jul 27 10:22

SPEC is set to: /root/cpu2006_ic15
 Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 50G 6.0G 45G 12% /

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"

Continued on next page
SPEC CINT2006 Result

Lenovo Group Limited
Lenovo System x3100 M5
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SPECint2006 = 63.4
SPECint_base2006 = 61.6

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Test date: Jul-2015
Hardware Availability: May-2014
Tested by: Lenovo Group Limited
Software Availability: Jun-2014

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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -03 -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
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Software Availability: Jun-2014

Peak Compiler Invocation

C benchmarks (except as noted below):

```plaintext
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):

```plaintext
icpc  -m32 -L/opt/intel/composer_xe_2015/lib/ia32
473.astar: icpc -m64
```

Peak Portability Flags

```plaintext
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:

```plaintext
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

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-o3(pass 2) -no-prec-div -prof-use(pass 2) -auto-1lp32
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -o3 -no-prec-div -inline-cALLOC
-opt-malloc-options=3 -auto-1lp32

429.mcf: -xCORE-AVX2 -ipo -o3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias
```

Continued on next page
**Lenovo Group Limited**  
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**Test date:** Jul-2015  
**Test sponsor:** Lenovo Group Limited  
**Hardware Availability:** May-2014  
**Tested by:** Lenovo Group Limited  
**Software Availability:** 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
### Lenovo Group Limited

**Lenovo System x3100 M5**  
(Intel Xeon E3-1286L v3, 4.00 GHz)

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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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