Lenovo Group Limited
Lenovo ThinkServer TS140 (Intel Xeon E3-1225 v3, 3.20 GHz)

SPECint\_rate2006 = 179
SPECint\_rate_base2006 = 173

cpu2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

CPU Name: Intel Xeon E3-1225 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 8 MB I+D on chip per chip
Memory: 16 GB (2 x 8 GB 2Rx8 PC3L-12800E-11, ECC)
Disk Subsystem: 1 x 800 GB SATA SSD
Other Cache: None
Other Hardware: None

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
Lenovo Group Limited
Lenovo ThinkServer TS140 (Intel Xeon E3-1225 v3, 3.20 GHz)  CPU2006 license: 9017
Lenovo Group Limited  Test sponsor: Lenovo Group Limited
Lenovo Group Limited  Tested by: Lenovo Group Limited

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>275</td>
<td>142</td>
<td>4</td>
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<td>171</td>
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<tr>
<td>401.bzip2</td>
<td>4</td>
<td>459</td>
<td>84.0</td>
<td>450</td>
<td>84.1</td>
<td>4</td>
<td>432</td>
<td>89.3</td>
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<td>403.gcc</td>
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<td>133</td>
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<td>429.mcf</td>
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<td>175</td>
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<td>206</td>
<td>4</td>
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<td>209</td>
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<td>456.hmmer</td>
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<td>149</td>
<td>251</td>
<td>4</td>
<td>145</td>
<td>257</td>
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<td>458.sjeng</td>
<td>4</td>
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<td>128</td>
<td>381</td>
<td>127</td>
<td>4</td>
<td>366</td>
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<td>462.libquantum</td>
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<td>48.8</td>
<td>1700</td>
<td>51.7</td>
<td>1600</td>
<td>4</td>
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<td>464.h264ref</td>
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<td>471.omnetpp</td>
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<td>292</td>
<td>85.6</td>
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<td>93.5</td>
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<td>483.xalancbmk</td>
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<td>208</td>
<td>133</td>
<td>208</td>
<td>4</td>
<td>133</td>
<td>208</td>
<td>133</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes
The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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

BIOS configuration
ICE Performance Modes set to Full Speed
C1E Support set to Disabled
C State Support set to C1C3C6
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on TS140 Fri Jan 23 00:36:44 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 E3-1225 v3 @ 3.20GHz
  1 "physical id"s (chips)
  4 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
Lenovo ThinkServer TS140 (Intel Xeon E3-1225 v3, 3.20 GHz)

Lenovo Group Limited

SPECint_rate2006 = 179
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CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
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Platform Notes (Continued)

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

cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3

cache size : 8192 KB

From /proc/meminfo
MemTotal: 16155268 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 TS140 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 3 Jan 23 00:35

SPEC is set to: /usr/cpu2006

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 741G 24G 718G 4% /

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 LENOVO FBKT99AUS 09/19/2014
Memory:
2x Samsung M391B1G73QH0-YK0 8 GB 2 rank 1600 MHz
2x [Empty] [Empty]

(End of data from sysinfo program)
TS140 support 2 channels and 2 DIMMs per channel, total 4 DIMMs.
2 DIMM slots installed with 8 GB DIMM for this run.
Lenovo Group Limited
Lenovo ThinkServer TS140 (Intel Xeon E3-1225 v3, 3.20 GHz)

**SPECint_rate2006 = 179**
**SPECint_rate_base2006 = 173**

**CPU2006 license:** 9017  
**Test date:** Jan-2015  
**Test sponsor:** Lenovo Group Limited  
**Tested by:** Lenovo Group Limited  
**Hardware Availability:** Sep-2013  
**Software Availability:** Sep-2014

---

**General Notes**
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

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:
```bash
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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

---

**Base Portability Flags**

- 400.perlbitch: -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
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs -L/sh -lsmartheap
```

---

**Base Other Flags**

C benchmarks:
```
403.gcc: -Dalloca=_alloca
```

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):
```bash
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Continued on next page
Lenovo Group Limited

Lenovo ThinkServer TS140 (Intel Xeon E3-1225 v3, 3.20 GHz)

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

**SPECint_rate2006 = 179**
**SPECint_rate_base2006 = 173**

Test date: Jan-2015
Hardware Availability: Sep-2013
Software Availability: Sep-2014

---

**Peak Compiler Invocation (Continued)**

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icc -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
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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CPU2006 license: 9017
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Test date: Jan-2015
Hardware Availability: Sep-2013
Software Availability: Sep-2014

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)
-unroll2 -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/Lenovo-Platform-Settings-V1.2-TS140-revA.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/Lenovo-Platform-Settings-V1.2-TS140-revA.xml

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For other inquiries, please contact webmaster@spec.org.

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