Lenovo Group Limited

Lenovo ThinkServer TS150
(2.90 GHz, Intel Xeon E3-1260L v5)

SPECint<sup>®</sup>2006 = 74.0
SPECint<sub>base</sub>2006 = 71.4

Hardware

- CPU Name: Intel Xeon E3-1260L v5
- CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz
- CPU MHz: 2900
- 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
- Other Cache: None
- Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-U)
- Disk Subsystem: 1 x 800 GB SATA SSD
- Other Hardware: None

Software

- Operating System: SUSE Linux Enterprise Server 12 (x86_64)
  Kernel 3.12.28-4-default
- Compiler: C/C++: Version 16.0.0.101 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 V10.2
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Test sponsor: Lenovo Group Limited
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Test date: Jan-2016
Hardware Availability: Oct-2015
Software Availability: Aug-2015

Results Table

Benchmark | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio
---|---|---|---|---|---|---|---|---|---|---
400.perlbench | 194 | 50.3 | 195 | 50.2 | 194 | 50.3 | 176 | 55.5 | 176 | 55.5
401.bzip2 | 316 | 30.5 | 318 | 30.3 | 318 | 30.3 | 314 | 30.8 | 313 | 30.8
403.mcf | 162 | 49.7 | 162 | 49.6 | 162 | 49.6 | 158 | 50.9 | 159 | 50.6
429.gcc | 302 | 34.7 | 302 | 34.8 | 302 | 34.8 | 313 | 33.5 | 313 | 33.5
456.hmmer | 92.2 | 101 | 91.6 | 102 | 91.6 | 102 | 92.2 | 101 | 91.6 | 102
458.sjeng | 308 | 39.3 | 308 | 39.3 | 307 | 39.4 | 303 | 39.9 | 303 | 39.9
462.libquantum | 9.48 | 2190 | 9.48 | 2190 | 9.48 | 2190 | 9.48 | 2190 | 9.48 | 2190
464.h264ref | 307 | 72.1 | 306 | 72.3 | 307 | 72.0 | 307 | 72.1 | 306 | 72.3
471.omnetpp | 191 | 32.7 | 191 | 33.0 | 191 | 33.0 | 149 | 42.1 | 150 | 41.7
473.astar | 170 | 41.3 | 170 | 41.4 | 171 | 41.1 | 170 | 41.3 | 170 | 41.3
483.xalancbmk | 72.9 | 94.7 | 72.9 | 94.7 | 73.2 | 94.2 | 68.8 | 100 | 68.6 | 101

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 Configuration:
EIST Support set to Enabled
Intel (R) Hyper-Threading set to Disabled
C1E Support set to Enabled
C State Support set to Enabled
Turbo Mode set to Enable

Sysinfo program /home/cpu2006-1.2-ic16.0/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on TS150 Mon Jan 18 08:02:10 2016

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 E3-1260L v5 @ 2.90GHz
  1 "physical id"s (chips)
  4 "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
cautions.

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

From /proc/meminfo
MemTotal: 32933324 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 0
  # This file is deprecated and will be removed in a future service pack or
  # release.
  # Please check /etc/os-release for details about this release.
os-release:
  NAME="SLES"
  VERSION="12"
  VERSION_ID="12"
  PRETTY_NAME="SUSE Linux Enterprise Server 12"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12"

uname -a:
  Linux TS150 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014 (9879bd4)
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 18 08:01

SPEC is set to: /home/cpu2006-1.2-ic16.0

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 693G 27G 667G 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 LENOVO FWKT32A 12/25/2015
Memory:
  4x Samsung M378A1G43DB0-CPB 8 GB 2 rank 2133 MHz

(End of data from sysinfo program)
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General Notes
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = */home/cpu2006-1.2-ic16.0/libs/32:/home/cpu2006-1.2-ic16.0/libs/64:/home/cpu2006-1.2-ic16.0/sh*
OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
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
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -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
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

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
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Base Other Flags

C benchmarks:
403.gcc -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64
400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

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Peak Optimization Flags (Continued)

401.bzip2 (continued):
- opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
- opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
- opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
- prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
- ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
- par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
- ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
- par-num-threads=1(pass 1) -prof-use(pass 2)
- opt-ra-region-strategy=block -ansi-alias
- Wl,-z,muldefs -L/sh -lsmarthep

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
- auto-p32 -Wl,-z,muldefs -L/sh -lsmarthep64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
- ansi-alias -Wl,-z,muldefs -L/sh -lsmarthep

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-ic16.0-official-linux64.html
<table>
<thead>
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You can also download the XML flags sources by saving the following links:

- http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml

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