Lenovo Global Technology
Lenovo ThinkServer TS460
(3.30 GHz, Intel Xeon E3-1225 v6)

**SPECint®2006 = 72.3**
SPECint_base2006 = 70.0

**CPU2006 license:** 9017  
**Test date:** Jul-2017  
**Test sponsor:** Lenovo Global Technology  
**Hardware Availability:** Jun-2017  
**Tested by:** Lenovo Global Technology  
**Software Availability:** Apr-2017

### Hardware

**CPU Name:** Intel Xeon E3-1225 v6  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 3300  
**FPU:** Integrated  
**CPU(s) enabled:** 4 cores, 1 chip, 4 cores/chip  
**CPU(s) orderable:** 1 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 (2 x 16 GB 2Rx8 PC4-2400T-E)  
**Disk Subsystem:** 1 x 960 GB SATA SSD  
**Other Hardware:** None

### Software

**Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo)  
**Compiler:** C/C++: Version 17.0.3.191 of Intel C/C++ Compiler 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
Results Table

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<tr>
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<th>Ratio</th>
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</tr>
</tbody>
</table>

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:
Boot performance mode set to Turbo Performance
CPU C3 State Support set to Enabled
Sysinfo program: /home/cpu2006-1.2-ic17.0u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on ts460 Sat Jul 22 04:04:49 2017

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 v6 @ 3.30GHz
  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
## Lenovo Global Technology

**Lenovo ThinkServer TS460**

(3.30 GHz, Intel Xeon E3-1225 v6)

<table>
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- **CPU2006 license:** 9017
- **Test sponsor:** Lenovo Global Technology
- **Tested by:** Lenovo Global Technology
- **Test date:** Jul-2017
- **Hardware Availability:** Jun-2017
- **Software Availability:** Apr-2017

### Platform Notes (Continued)

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

From /proc/meminfo
  MemTotal:       32890216 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.3 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="7.3"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
    ANSI_COLOR="0;31"
    CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
  redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
```

```
uname -a:
  Linux ts460 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016 x86_64
  x86_64 x86_64 GNU/Linux
run-level 3 Jul 21 19:41

SPEC is set to: /home/cpu2006-1.2-ic17.0u3
```

### 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. TB1TS223 03/16/2017
Memory:
  2x Micron 18ASF2G72AZ-2G3B1 16 GB 2 rank 2400 MHz
  2x Not Specified Not Specified
```

### General Notes

Environment variables set by runspec before the start of the run:

- **KMP_AFFINITY = "granularity=fine,compact,0,3"**
- **LD_LIBRARY_PATH = "/home/cpu2006-1.2-ic17.0u3/lib/ia32:/home/cpu2006-1.2-ic17.0u3/lib/intel64:/home/cpu2006-1.2-ic17.0u3/sh10.2"**

(End of data from sysinfo program)
Lenovo Global Technology
Lenovo ThinkServer TS460
(3.30 GHz, Intel Xeon E3-1225 v6)

SPECint2006 = 72.3
SPECint_base2006 = 70.0

General Notes (Continued)

OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled by default.
Filesystem page cache cleared with:
shell invocation of 'sync; echo 0 > /proc/sys/vm/drop_caches' prior to run

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 -qopt-prefetch
   -auto-p32

C++ benchmarks:
   -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
   -Wl,-z,muldefs -L/sh10.2 -lsmartheap64
SPEC CINT2006 Result

Lenovo Global Technology

Lenovo ThinkServer TS460
(3.30 GHz, Intel Xeon E3-1225 v6)

SPECint2006 = 72.3
SPECint_base2006 = 70.0

CPU2006 license: 9017
Test date: Jul-2017
Test sponsor: Lenovo Global Technology
Hardware Availability: Jun-2017
Tested by: Lenovo Global Technology
Software Availability: Apr-2017

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_2017/linux/lib/ia32
  445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
C++ benchmarks (except as noted below):
  icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
  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: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -qopt-prefetch
  401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
  -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div -auto-ilp32 -qopt-prefetch

Continued on next page
Lenovo Global Technology
Lenovo ThinkServer TS460 (3.30 GHz, Intel Xeon E3-1225 v6)

**SPEC CINT2006 Result**

| Test date: | Jul-2017 |
| Test sponsor: | Lenovo Global Technology |
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| CPU2006 license: | 9017 |
| Tested by: | Lenovo Global Technology |

**SPECint2006 = 72.3**

**SPECint_base2006 = 70.0**

### Peak Optimization Flags (Continued)

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

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

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
           -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2)

456.hmmer: basepeak = yes

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
            -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -qopt-ra-region-strategy=block
            -Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
          -auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
               -Wl,-z,muldefs -L/sh10.2 -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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-KBL-revC.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-KBL-revC.xml
# SPEC CINT2006 Result

## Lenovo Global Technology

| Lenovo ThinkServer TS460 (3.30 GHz, Intel Xeon E3-1225 v6) | SPECint2006 = | 72.3 |
| | SPECint_base2006 = | 70.0 |

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<tr>
<th>Specification</th>
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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.