# SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

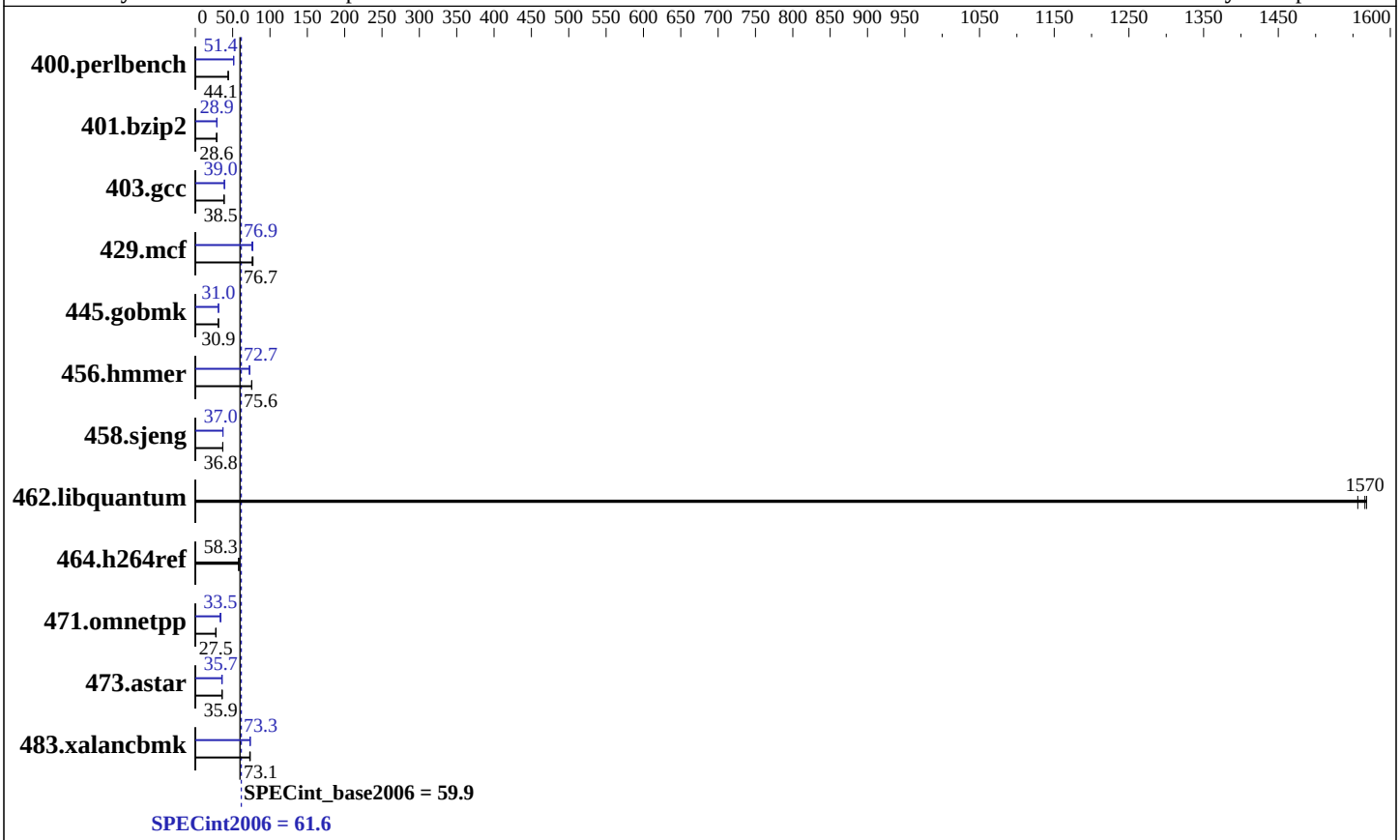
Lenovo ThinkServer TS140 (Intel Xeon E3-1245 v3, 3.40 GHz)

SPECint®2006 = 61.6

SPECint_base2006 = 59.9

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

**Test date:** Apr-2015
**Hardware Availability:** Sep-2013
**Software Availability:** Sep-2014




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1245 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.80 GHz |
| CPU MHz: | 3400 |
| 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: | 16 GB (2 x 8 GB 2Rx8 PC3L-12800E-11,ECC) |
| Disk Subsystem: | 1 x 800 GB SATA SSD |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 7.0 (Maipo)<br>3.10.0-123.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 |

# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

Lenovo ThinkServer TS140 (Intel Xeon E3-1245 v3, 3.40 GHz)

SPECint2006 = 61.6

SPECint_base2006 = 59.9

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

**Test date:** Apr-2015
**Hardware Availability:** Sep-2013
**Software Availability:** Sep-2014

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | **222** | **44.1** | 222 | 44.0 | 221 | 44.1 | 190 | 51.4 | **190** | **51.4** | 190 | 51.3 |
| 401.bzip2 | 336 | 28.7 | 338 | 28.6 | **338** | **28.6** | 334 | 28.9 | **334** | **28.9** | 334 | 28.9 |
| 403.gcc | 208 | 38.6 | **209** | **38.5** | 210 | 38.4 | 206 | 39.0 | **206** | **39.0** | 206 | 39.1 |
| 429.mcf | 118 | 77.3 | **119** | **76.7** | 120 | 76.2 | 118 | 77.0 | **119** | **76.9** | 120 | 75.8 |
| 445.gobmk | 338 | 31.0 | 340 | 30.9 | **339** | **30.9** | 338 | 31.0 | **338** | **31.0** | 338 | 31.0 |
| 456.hmmer | **123** | **75.6** | 123 | 75.5 | 123 | 75.6 | 128 | 72.9 | **128** | **72.7** | 129 | 72.3 |
| 458.sjeng | 329 | 36.8 | 329 | 36.8 | **329** | **36.8** | **327** | **37.0** | 327 | 37.0 | 328 | 36.9 |
| 462.libquantum | 13.2 | 1570 | **13.2** | **1570** | 13.3 | 1560 | 13.2 | 1570 | **13.2** | **1570** | 13.3 | 1560 |
| 464.h264ref | **380** | **58.3** | 380 | 58.2 | 380 | 58.3 | **380** | **58.3** | 380 | 58.2 | 380 | 58.3 |
| 471.omnetpp | 226 | 27.7 | 228 | 27.5 | **227** | **27.5** | 183 | 34.2 | 187 | 33.4 | **186** | **33.5** |
| 473.astar | 195 | 36.0 | 197 | 35.7 | **195** | **35.9** | **196** | **35.7** | 195 | 36.0 | 198 | 35.4 |
| 483.xalancbmk | **94.4** | **73.1** | 93.7 | 73.6 | 94.6 | 72.9 | **94.1** | **73.3** | 93.5 | 73.8 | 94.3 | 73.2 |

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:
ICE Performance Modes set to Full Speed
Intel(R) Hyper-Threading Technology set to Disabled
 Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
 $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
 running on TS140 Mon Apr 13 23:25:06 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 E3-1245 v3 @ 3.40GHz
       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

## Platform Notes (Continued)

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

   From /proc/meminfo
      MemTotal:       16157228 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 Apr 13 23:24

   SPEC is set to: /usr/cpu2006
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      xfs   741G   29G  713G   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 M391B1G73BH0-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.
  2DIMM slots installed with 8 GB DIMM for this run.
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "4"

 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

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
```

## 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/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`

401.bzip2: `-xCORE-AVX2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div -prof-use`(pass 2) `-auto-ilp32 -opt-prefetch -ansi-alias`

Continued on next page

## Peak Optimization Flags (Continued)

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(pass 1) -prof-use(pass 2) -ansi-alias

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
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-TS140-revC.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-revC.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue May 5 15:15:07 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 May 2015.