



# SPEC® CINT2006 Result

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## Lenovo Group Limited

**SPECint®2006 = 62.4**

Lenovo System x3250 M6  
(2.10 GHz, Intel Xeon E3-1240L v5)

**SPECint\_base2006 = 60.7**

**CPU2006 license:** 9017

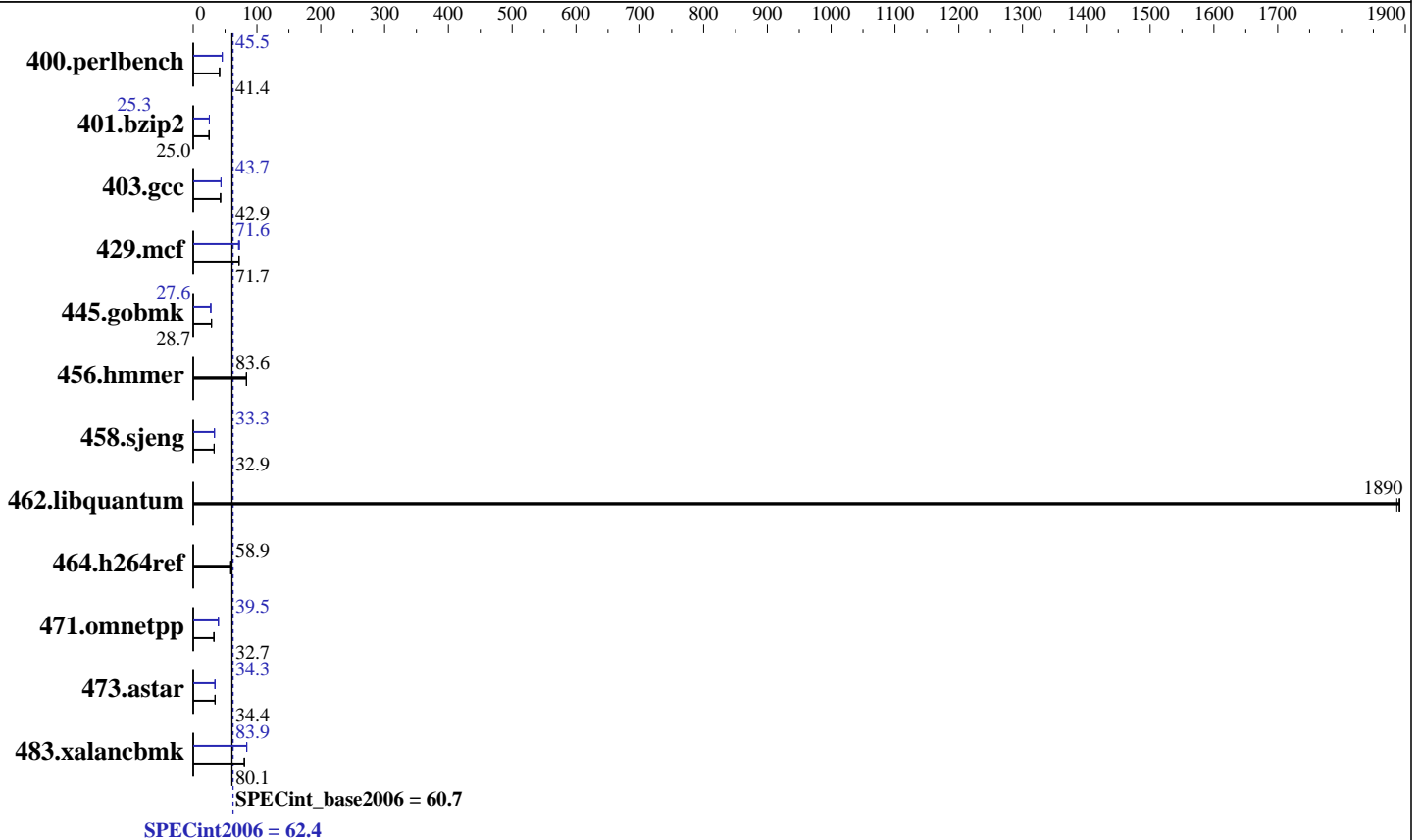
**Test date:** Nov-2016

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Apr-2016

**Tested by:** Lenovo Group Limited

**Software Availability:** Mar-2016



### Hardware

**CPU Name:** Intel Xeon E3-1240L v5  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz  
**CPU MHz:** 2100  
**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 PC4-2133P-E)  
**Disk Subsystem:** 1 x 240 GB SATA SSD  
**Other Hardware:** None

### Software

**Operating System:** SUSE Linux Enterprise Server 12 SP1 (x86\_64)  
 Kernel 3.12.49-11-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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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	236	41.4	<b><u>236</u></b>	<b><u>41.4</u></b>	236	41.3	214	45.6	215	45.5	<b><u>215</u></b>	<b><u>45.5</u></b>
401.bzip2	385	25.1	387	25.0	<b><u>387</u></b>	<b><u>25.0</u></b>	381	25.3	381	25.3	<b><u>381</u></b>	<b><u>25.3</u></b>
403.gcc	<b><u>187</u></b>	<b><u>42.9</u></b>	187	42.9	189	42.7	185	43.5	184	43.8	<b><u>184</u></b>	<b><u>43.7</u></b>
429.mcf	126	72.2	<b><u>127</u></b>	<b><u>71.7</u></b>	127	71.6	<b><u>127</u></b>	<b><u>71.6</u></b>	128	71.0	125	72.7
445.gobmk	366	28.7	366	28.7	<b><u>366</u></b>	<b><u>28.7</u></b>	380	27.6	<b><u>380</u></b>	<b><u>27.6</u></b>	381	27.6
456.hammer	<b><u>112</u></b>	<b><u>83.6</u></b>	112	83.6	112	83.3	<b><u>112</u></b>	<b><u>83.6</u></b>	112	83.6	112	83.3
458.sjeng	368	32.9	368	32.9	<b><u>368</u></b>	<b><u>32.9</u></b>	363	33.3	363	33.3	<b><u>363</u></b>	<b><u>33.3</u></b>
462.libquantum	11.0	1890	<b><u>11.0</u></b>	<b><u>1890</u></b>	11.0	1890	11.0	1890	<b><u>11.0</u></b>	<b><u>1890</u></b>	11.0	1890
464.h264ref	<b><u>375</u></b>	<b><u>58.9</u></b>	375	59.1	376	58.8	<b><u>375</u></b>	<b><u>58.9</u></b>	375	59.1	376	58.8
471.omnetpp	191	32.8	194	32.3	<b><u>191</u></b>	<b><u>32.7</u></b>	158	39.5	<b><u>158</u></b>	<b><u>39.5</u></b>	158	39.5
473.astar	206	34.1	<b><u>204</u></b>	<b><u>34.4</u></b>	203	34.6	204	34.4	206	34.0	<b><u>205</u></b>	<b><u>34.3</u></b>
483.xalancbmk	<b><u>86.1</u></b>	<b><u>80.1</u></b>	85.8	80.5	86.2	80.0	<b><u>82.2</u></b>	<b><u>83.9</u></b>	82.2	84.0	82.2	83.9

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"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent\_hugepage/enabled

## Platform Notes

BIOS Configuration:  
Operating Modes set to Maximum Performance  
Hyper-Threading set to Disabled  
Sysinfo program /home/cpu2006-1.2-ic16.0/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on TS150 Fri Nov 25 17:41:08 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 E3-1240L v5 @ 2.10GHz  
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  
Continued on next page



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### Platform Notes (Continued)

```

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

```

```

From /proc/meminfo
MemTotal:      16421272 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

From /etc/\*release\* /etc/\*version\*

```

SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 1
  # 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-SP1"
  VERSION_ID="12.1"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp1"

```

```

uname -a:
Linux TS150 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015 (8d714a0)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Nov 25 17:40

```

SPEC is set to: /home/cpu2006-1.2-ic16.0
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   170G   15G  155G   9% /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 -[M3E107GUS-1.20]- 10/28/2016

```

Memory:
  2x NO DIMM Unknown
  2x Samsung M391A1G43EB1-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

## 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 -lsmarthear64

## Base Other Flags

C benchmarks:

Continued on next page



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## Base Other Flags (Continued)

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

-opt-prefetch -ansi-alias

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## 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:threadsafe(pass 1)  
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmr: 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 -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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revC.html>

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>

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



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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