SPEC® CINT2006 Result
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Lenovo Group Limited

SPECint®2006 = 61.8

Lenovo System x3250 M5
(Intel Xeon E3-1285L v3, 3.10 GHz)
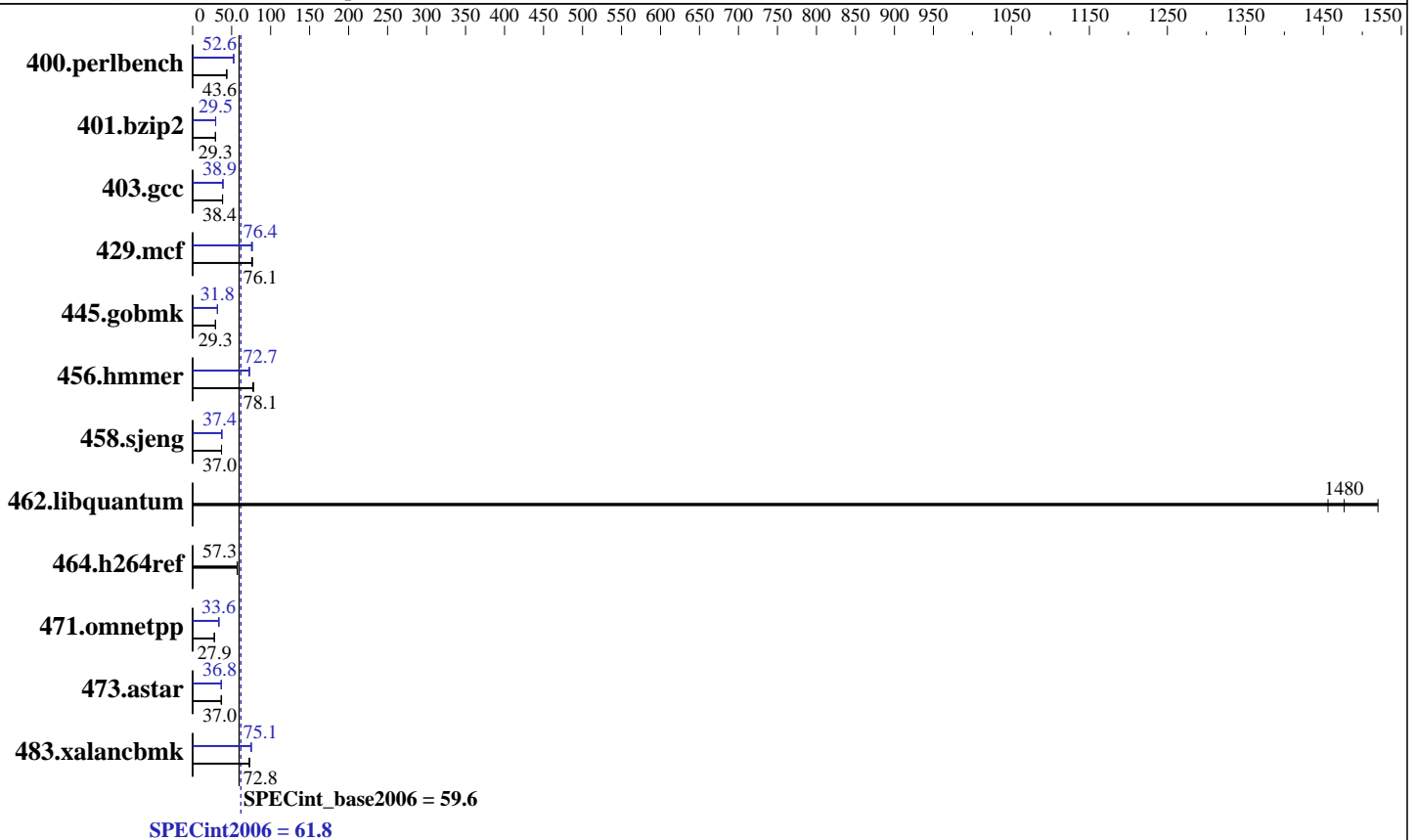
SPECint_base2006 = 59.6

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

Test date: Dec-2014
Hardware Availability: Jul-2014
Software Availability: Nov-2013

Benchmark	Peak	Base
400.perlbench	52.6	43.6
401.bzip2	29.5	29.3
403.gcc	38.9	38.4
429.mcf	76.4	76.1
445.gobmk	31.8	29.3
456.hmmer	72.7	78.1
458.sjeng	37.4	37.0
462.libquantum		1480
464.h264ref	57.3	
471.omnetpp	33.6	27.9
473.astar	36.8	37.0
483.xalancbmk	75.1	72.8

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Hardware

CPU Name:	Intel Xeon E3-1285L v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3100
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
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 (4 x 4 GB 2Rx8 PC3-12800U-13)
Disk Subsystem:	1 x 1000 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	223	43.8	**224**	**43.6**	224	43.6	**186**	**52.6**	185	52.7	186	52.4
401.bzip2	329	29.3	**329**	**29.3**	330	29.3	327	29.5	327	29.5	**327**	**29.5**
403.gcc	210	38.4	**210**	**38.4**	211	38.2	207	38.9	**207**	**38.9**	208	38.7
429.mcf	119	76.8	120	75.7	**120**	**76.1**	119	76.4	**119**	**76.4**	121	75.4
445.gobmk	358	29.3	358	29.3	**358**	**29.3**	**330**	**31.8**	330	31.8	330	31.8
456.hmmer	**119**	**78.1**	121	77.1	119	78.1	129	72.6	**128**	**72.7**	128	72.8
458.sjeng	327	37.1	327	37.0	**327**	**37.0**	**324**	**37.4**	323	37.4	324	37.4
462.libquantum	**14.0**	**1480**	14.2	1460	13.6	1520	**14.0**	**1480**	14.2	1460	13.6	1520
464.h264ref	387	57.2	386	57.3	**387**	**57.3**	387	57.2	386	57.3	**387**	**57.3**
471.omnetpp	224	27.9	**224**	**27.9**	224	27.9	186	33.6	186	33.6	**186**	**33.6**
473.astar	193	36.4	189	37.1	**190**	**37.0**	**191**	**36.8**	191	36.8	192	36.5
483.xalancbmk	94.5	73.0	95.1	72.6	**94.8**	**72.8**	91.9	75.1	92.0	75.0	**91.9**	**75.1**

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 setting:
    Operating Mode set to Maximum Performance
    Sysinfo program /home/SPEC/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on localhost.localdomain Wed Dec 10 19:41:00 2014

    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 E3-1285L v3 @ 3.10GHz
         1 "physical id"s (chips)
         8 "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
         siblings  : 8
```

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Platform Notes (Continued)

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

From /proc/meminfo
   MemTotal:        16165980 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
   EST 2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 8 20:07

SPEC is set to: /home/SPEC
   Filesystem                    Type  Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_home ext4  860G   20G  797G   3% /home

Additional information from dmidecode:
  BIOS IBM -[JUE115CUS-1.06]- 11/11/2014
  Memory:
   4x Hynix/Hyundai HMT351U7EFR8A-PB 4 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

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

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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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

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Peak Compiler Invocation (Continued)

    400.perlbench: `icc -m32`

    445.gobmk: `icc -m32`

    C++ benchmarks (except as noted below):
        `icpc -m32`

        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`

    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`

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Peak Optimization Flags (Continued)

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.xml

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

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