SPEC® CINT2006 Result
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Lenovo Group Limited

Lenovo ThinkServer TD350 (Intel Xeon E5-2630L v3, 1.80 GHz)

SPECint®2006 = 52.6

SPECint_base2006 = 49.4

CPU2006 license: 9017	**Test date:** Nov-2014
Test sponsor: Lenovo Group Limited	**Hardware Availability:** Sep-2014
Tested by: Lenovo Group Limited	**Software Availability:** Jan-2014

Graph scale: 0 100 250 400 550 700 850 1000 1150 1300 1450 1600 1750 1900 2050 2200 2350 2500 2650 2800 2950 3100 3250 3550

- **400.perlbench** 39.1 / 32.7
- **401.bzip2** 21.5 / 21.3
- **403.gcc** 32.0 / 31.3
- **429.mcf** 58.6 / 58.9
- **445.gobmk** 24.1 / 18.9
- **456.hmmer** 54.1 / 57.9
- **458.sjeng** 28.6 / 28.2
- **462.libquantum** 3540
- **464.h264ref** 34.4
- **471.omnetpp** 38.6 / 27.3
- **473.astar** 28.7 / 28.5
- **483.xalancbmk** 56.8 / 56.6

SPECint_base2006 = 49.4

SPECint2006 = 52.6

Hardware

CPU Name:	Intel Xeon E5-2630L v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
CPU(s) orderable:	1,2 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem:	1 x 800 GB SATA SSD
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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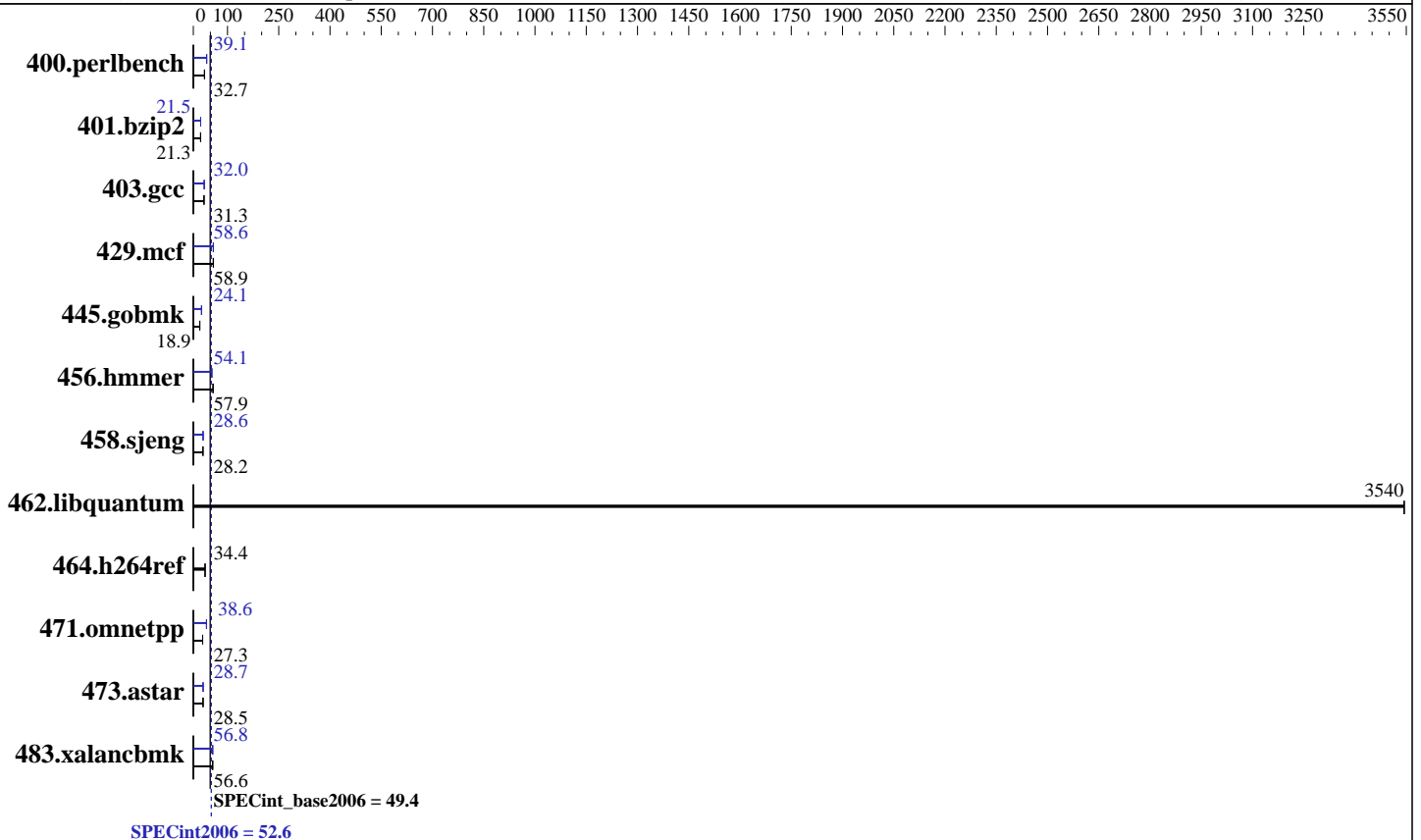|	
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	298	32.8	299	32.7	**299**	**32.7**	**250**	**39.1**	250	39.0	250	39.1
401.bzip2	**452**	**21.3**	452	21.3	453	21.3	**449**	**21.5**	449	21.5	449	21.5
403.gcc	258	31.2	**257**	**31.3**	257	31.3	**252**	32.0	**252**	**32.0**	252	32.0
429.mcf	157	58.1	**155**	**58.9**	155	58.9	156	58.6	**156**	**58.6**	155	58.7
445.gobmk	555	18.9	**555**	**18.9**	555	18.9	436	24.1	**436**	**24.1**	437	24.0
456.hmmer	**161**	**57.9**	162	57.5	160	58.1	172	54.1	172	54.2	**172**	**54.1**
458.sjeng	430	28.2	**430**	**28.2**	429	28.2	**422**	**28.6**	423	28.6	422	28.7
462.libquantum	5.85	3540	**5.85**	**3540**	5.85	3540	5.85	3540	**5.85**	**3540**	5.85	3540
464.h264ref	**644**	**34.4**	645	34.3	641	34.5	**644**	**34.4**	645	34.3	641	34.5
471.omnetpp	**229**	**27.3**	228	27.4	229	27.3	**162**	**38.6**	162	38.6	162	38.5
473.astar	**247**	**28.5**	245	28.6	248	28.3	247	28.4	**244**	**28.7**	244	28.7
483.xalancbmk	**122**	**56.6**	122	56.7	122	56.6	122	56.8	**122**	**56.8**	122	56.5

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:
    Hyper-Threading set to Disabled
    Performance Profile set to Custom
    C1E Support set to Disabled
    Core C3 set to Disabled
    Core C6 set to Disabled
    Thermal Profile set to High Fan Speed
    Memory Power Savings set to Disabled
     Sysinfo program /usr/cpu2006/config/sysinfo.rev6818
     $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
     running on TD350 Tue Nov 25 17:38:31 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 E5-2630L v3 @ 1.80GHz
           2 "physical id"s (chips)
```

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Platform Notes (Continued)

```
     16 "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 : 8
     siblings  : 8
     physical 0: cores 0 1 2 3 4 5 6 7
     physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

 From /proc/meminfo
    MemTotal:       264415664 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 TD350 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 Nov 25 17:38

 SPEC is set to: /usr/cpu2006
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  730G   54G  640G   8% /

 Additional information from dmidecode:
   BIOS LENOVO TB5TS110 10/06/2014
   Memory:
    16x   16 GB
    2x Hynix Semiconductor HMA42GR7MFR4N-TF 16 GB 1866 MHz 2 rank
    14x Hynix Semiconductor HMA42GR7MFR4N-TFTD 16 GB 1866 MHz 2 rank

 (End of data from sysinfo program)
TD350 support 4 channels and 8 DIMMs per processor, total 8 channels and
16 DIMMs. All 16 DIMM slots installed with 16 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 = "16"
```

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General Notes (Continued)

```
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>
```

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:

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

    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

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Peak Optimization Flags (Continued)

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-HSW-revA.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/Lenovo-Platform-Settings-V1.2-HSW-revA.xml

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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 Feb 10 18:34:25 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 February 2015.