SPEC® CINT2006 Result

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Lenovo Group Limited

Lenovo ThinkServer TS460
(3.60 GHz, Intel Xeon E3-1270 v5)

$SPECint^{®}\_rate2006 =$ 257

$SPECint\_rate\_base2006 =$ 250

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Feb-2017

Hardware Availability: Feb-2017

Software Availability: May-2016

SPECint_rate_base2006 = 250

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Hardware

CPU Name: Intel Xeon E3-1270 v5
CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz: 3600
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 (2 x 8 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 800 GB SATA SSD
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.8 (Santiago)
Kernel 2.6.32-642.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel: No
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

Standard Performance Evaluation Corporation

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http://www.spec.org/

Page 1

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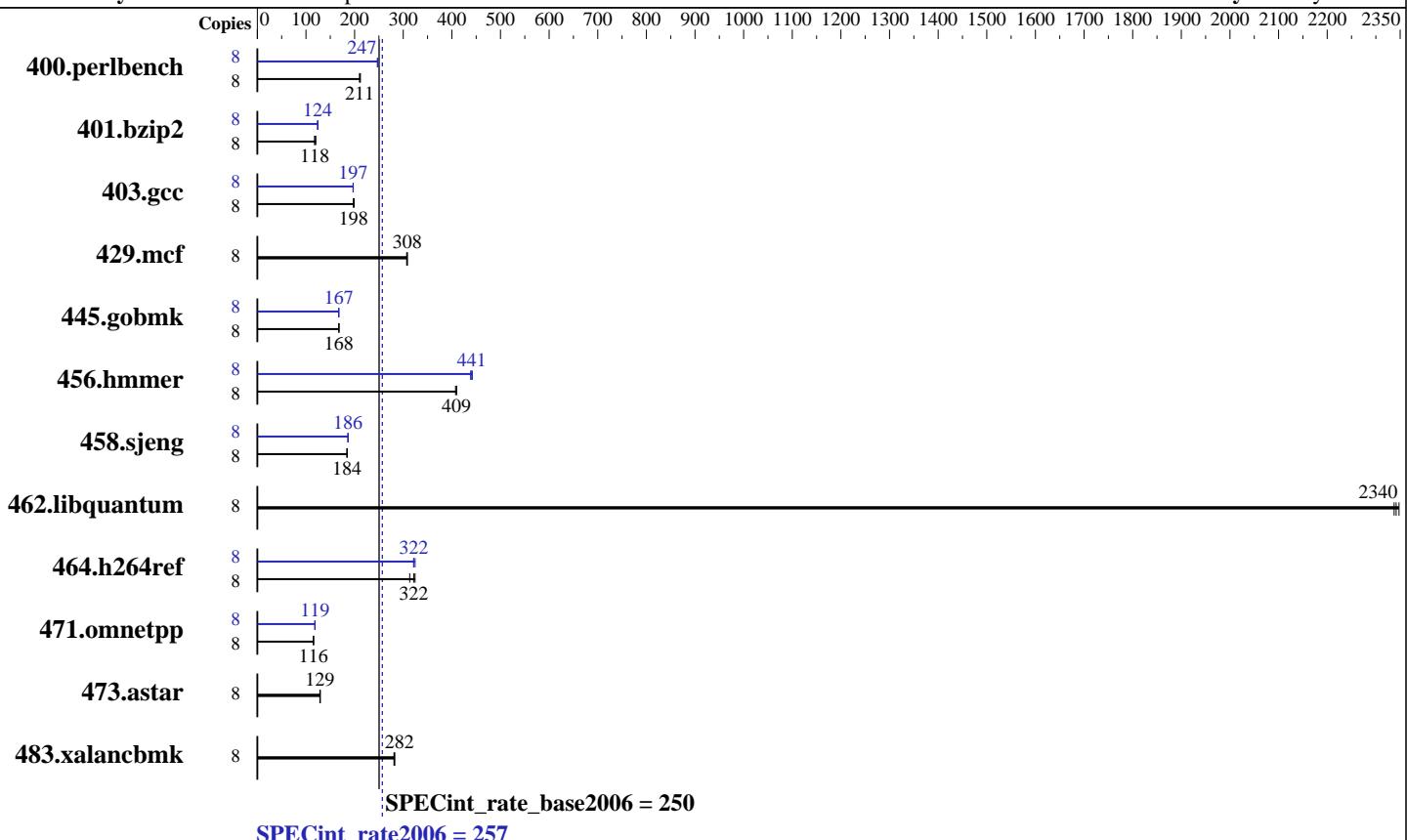
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	372	210	**371**	**211**	369	212	8	317	247	315	248	**316**	**247**
401.bzip2	8	642	120	**654**	**118**	655	118	8	624	124	**621**	**124**	620	125
403.gcc	8	324	199	**326**	**198**	326	198	8	**327**	**197**	326	197	327	197
429.mcf	8	**237**	**308**	238	307	236	309	8	**237**	**308**	238	307	236	309
445.gobmk	8	501	168	500	168	**500**	**168**	8	501	167	501	168	**501**	**167**
456.hmmer	8	183	408	182	410	**182**	**409**	8	169	442	170	438	**169**	**441**
458.sjeng	8	525	185	**525**	**184**	525	184	8	519	187	519	186	**519**	**186**
462.libquantum	8	**70.8**	**2340**	70.6	2350	70.9	2340	8	**70.8**	**2340**	70.6	2350	70.9	2340
464.h264ref	8	546	324	**551**	**322**	565	313	8	551	321	**550**	**322**	546	324
471.omnetpp	8	432	116	**433**	**116**	434	115	8	421	119	**421**	**119**	424	118
473.astar	8	437	129	433	130	**436**	**129**	8	437	129	433	130	**436**	**129**
483.xalancbmk	8	195	283	196	281	**196**	**282**	8	195	283	196	281	**196**	**282**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

    The taskset mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate taskset commands to bind each copy to a specific processor.
    For details, please see the config file.

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
    Filesystem page cache cleared with:
    echo 1>   /proc/sys/vm/drop_caches

Platform Notes

    BIOS Configuration:
    Boot performance mode set to Turbo Performance
    Sysinfo program /home/cpu2006-ic14/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on TS460-01 Sun Feb 19 02:46:56 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 E3-1270 v5 @ 3.60GHz
         1 "physical id"s (chips)

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Platform Notes (Continued)

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

From /proc/meminfo
  MemTotal:       16273840 kB
  HugePages_Total:        0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 6.8 (Santiago)

From /etc/*release* /etc/*version*
  redhat-release: Red Hat Enterprise Linux Server release 6.8 (Santiago)
  system-release: Red Hat Enterprise Linux Server release 6.8 (Santiago)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
  Linux TS460-01 2.6.32-642.el6.x86_64 #1 SMP Wed Apr 13 00:51:26 EDT 2016
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 19 02:29

SPEC is set to: /home/cpu2006-ic14
  Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda1       ext4   50G   17G   31G  36% /

Additional information from dmidecode:
  BIOS LENOVO TB1TS100 11/26/2016
  Memory:
  2x    8 GB
  2x Not Specified Not Specified
  2x Samsung M391A1G43EB1-CPB 8 GB 2133 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/home/cpu2006-ic14/libs/32:/home/cpu2006-ic14/libs/64:/home/cpu2006-ic14/sh"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RedHat EL 6.4
```

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Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

Continued on next page

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Peak Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m32

Peak Portability Flags

    400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
    401.bzip2: -DSPEC_CPU_LP64
    456.hmmer: -DSPEC_CPU_LP64
    458.sjeng: -DSPEC_CPU_LP64
    462.libquantum: -DSPEC_CPU_LINUX
    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)
                   -auto-ilp32

    401.bzip2: -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 -auto-ilp32 -ansi-alias

    403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

    429.mcf: basepeak = yes

    445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
               -ansi-alias -opt-mem-layout-trans=3

    456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

    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 -auto-ilp32

    462.libquantum: basepeak = yes

    464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                 -unroll2 -ansi-alias

C++ benchmarks:

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Peak Optimization Flags (Continued)

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)`
`-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs`
`-L/sh -lsmartheap`

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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-BDW-revE.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-BDW-revE.xml

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

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