SPEC® CINT2006 Result
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Lenovo Global Technology

ThinkSystem SR950
(2.00 GHz, Intel Xeon Platinum 8153)

$SPECint®\_rate2006 =$ Not Run

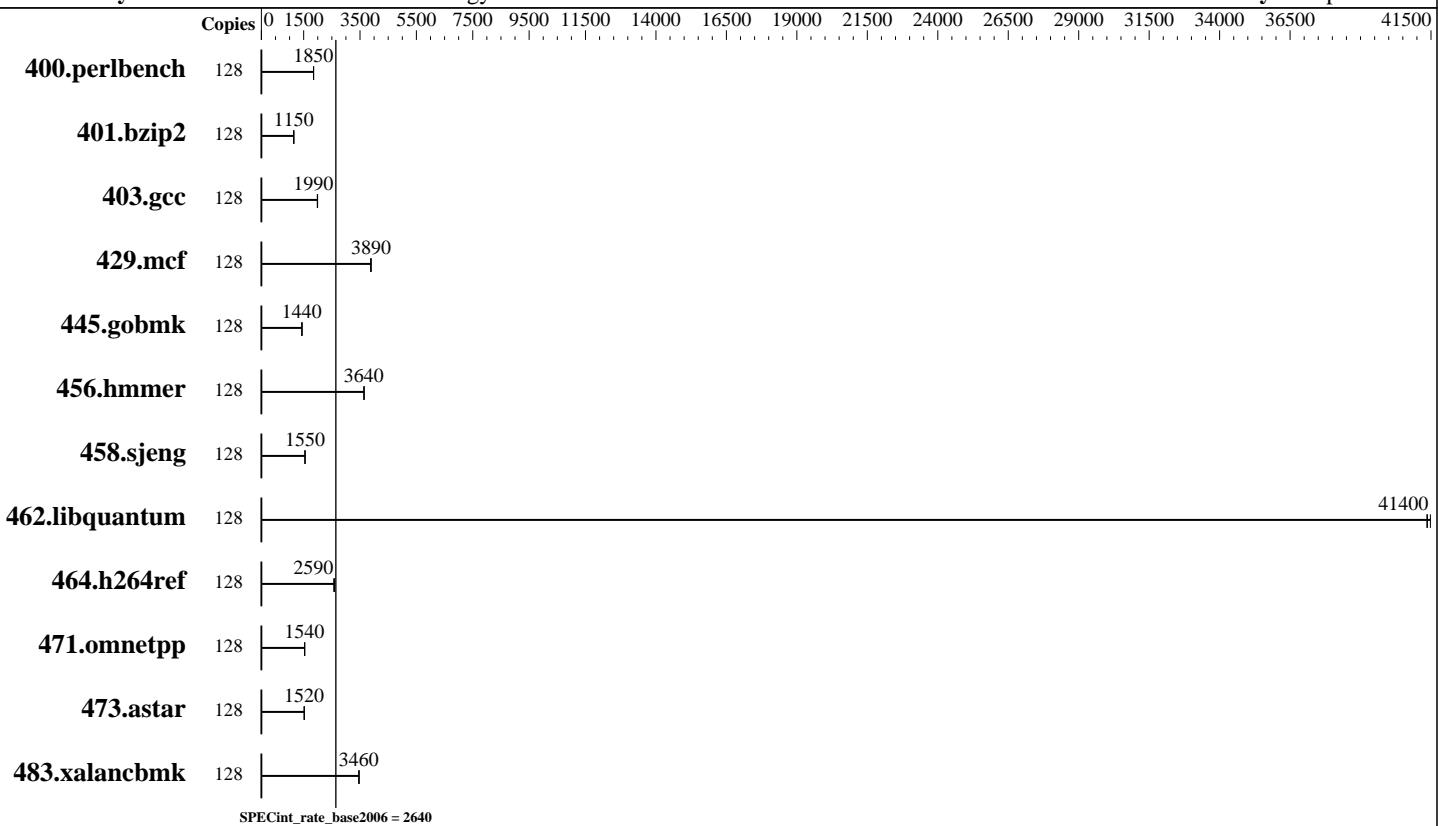$SPECint\_rate\_base2006 =$ 2640

CPU2006 license: 9017
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Dec-2017
Hardware Availability: Sep-2017
Software Availability: Apr-2017

Copies

Benchmark	Copies	Result
400.perlbench	128	1850
401.bzip2	128	1150
403.gcc	128	1990
429.mcf	128	3890
445.gobmk	128	1440
456.hmmer	128	3640
458.sjeng	128	1550
462.libquantum	128	41400
464.h264ref	128	2590
471.omnetpp	128	1540
473.astar	128	1520
483.xalancbmk	128	3460

SPECint_rate_base2006 = 2640

Hardware
CPU Name: Intel Xeon Platinum 8153
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip, 2 threads/core
CPU(s) orderable: 2,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core
L3 Cache: 22 MB I+D on chip per chip
Other Cache: None
Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 800 GB tmpfs
Other Hardware: None

Software
Operating System: SUSE Linux Enterprise Server 12 SP2 (x86_64)
Kernel 4.4.21-69-default
Compiler: C/C++: Version 17.0.3.191 of Intel C/C++
Compiler for Linux
Auto Parallel: No
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.2

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Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	128	676	1850	**675**	**1850**	675	1850							
401.bzip2	128	**1074**	**1150**	1073	1150	1079	1140							
403.gcc	128	516	2000	519	1990	**518**	**1990**							
429.mcf	128	300	3890	301	3880	**300**	**3890**							
445.gobmk	128	**932**	**1440**	935	1440	932	1440							
456.hmmer	128	**328**	**3640**	328	3640	328	3650							
458.sjeng	128	1001	1550	**1000**	**1550**	999	1550							
462.libquantum	128	**64.1**	**41400**	64.1	41400	63.9	41500							
464.h264ref	128	**1095**	**2590**	1102	2570	1092	2600							
471.omnetpp	128	521	1540	**521**	**1540**	521	1540							
473.astar	128	592	1520	**590**	**1520**	590	1520							
483.xalancbmk	128	**255**	**3460**	255	3470	255	3460							

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

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl 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"
    Tmpfs filesystem can be set with:
     mount -t tmpfs -o size=800g tmpfs /home
    Process tuning setting:
      echo 50000   > /proc/sys/kernel/sched_cfs_bandwidth_slice_us
      echo 240000000 > /proc/sys/kernel/sched_latency_ns
      echo 5000000   > /proc/sys/kernel/sched_migration_cost_ns
      echo 100000000 > /proc/sys/kernel/sched_min_granularity_ns
      echo 150000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

Platform Notes

    BIOS configuration:
    Choose Operating Mode set to Maximum Performance
    SNC set to Enable
    DCU Streamer Prefetcher set to Disable
    Stale AtoS set to Enable
    LLC dead line alloc set to Disable
     Sysinfo program /home/cpu2006-1.2-ic17.0u3/config/sysinfo.rev6993
     Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
     running on linux-uyxw Mon Dec 11 20:14:23 2017

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Platform Notes (Continued)

```
     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) Platinum 8153 CPU @ 2.00GHz
           4 "physical id"s (chips)
           128 "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 : 16
           siblings  : 32
           physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
           physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
           physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
           physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
        cache size : 22528 KB

     From /proc/meminfo
        MemTotal:       1584766288 kB
        HugePages_Total:        0
        Hugepagesize:        2048 kB

     From /etc/*release* /etc/*version*
        SuSE-release:
           SUSE Linux Enterprise Server 12 (x86_64)
           VERSION = 12
           PATCHLEVEL = 2
           # 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-SP2"
           VERSION_ID="12.2"
           PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
           ID="sles"
           ANSI_COLOR="0;32"
           CPE_NAME="cpe:/o:suse:sles:12:sp2"

     uname -a:
        Linux linux-uyxw 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
        (9464f67) x86_64 x86_64 x86_64 GNU/Linux

     run-level 3 Dec 11 20:07

     SPEC is set to: /home/cpu2006-1.2-ic17.0u3
        Filesystem     Type   Size  Used Avail Use% Mounted on
        tmpfs          tmpfs  800G  5.0G  796G   1% /home
     Additional information from dmidecode:
```
Continued on next page

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Platform Notes (Continued)

```
   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 -[PSE103K-1.00]- 06/19/2017
   Memory:
   48x NO DIMM NO DIMM
   48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666 MHz

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006-1.2-ic17.0u3/lib/ia32:/home/cpu2006-1.2-ic17.0u3/lib/intel64:/home/cpu2006-1.2-ic17.0u3/sh10.2"


 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default
 Filesystem page cache cleared with:
 shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
```
     icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:
```
     icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

Base Portability Flags

```
   400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
       401.bzip2: -D_FILE_OFFSET_BITS=64
         403.gcc: -D_FILE_OFFSET_BITS=64
         429.mcf: -D_FILE_OFFSET_BITS=64
       445.gobmk: -D_FILE_OFFSET_BITS=64
      456.hmmer: -D_FILE_OFFSET_BITS=64
       458.sjeng: -D_FILE_OFFSET_BITS=64
   462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
      464.h264ref: -D_FILE_OFFSET_BITS=64
      471.omnetpp: -D_FILE_OFFSET_BITS=64
```

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Base Portability Flags (Continued)

```
      473.astar: -D_FILE_OFFSET_BITS=64
  483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
    -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
    -qopt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
    -qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap
```

Base 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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.xml

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For other inquiries, please contact webmaster@spec.org.

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