SPEC® CINT2006 Result

Lenovo Global Technology

SPECint®_rate2006 =   2330

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

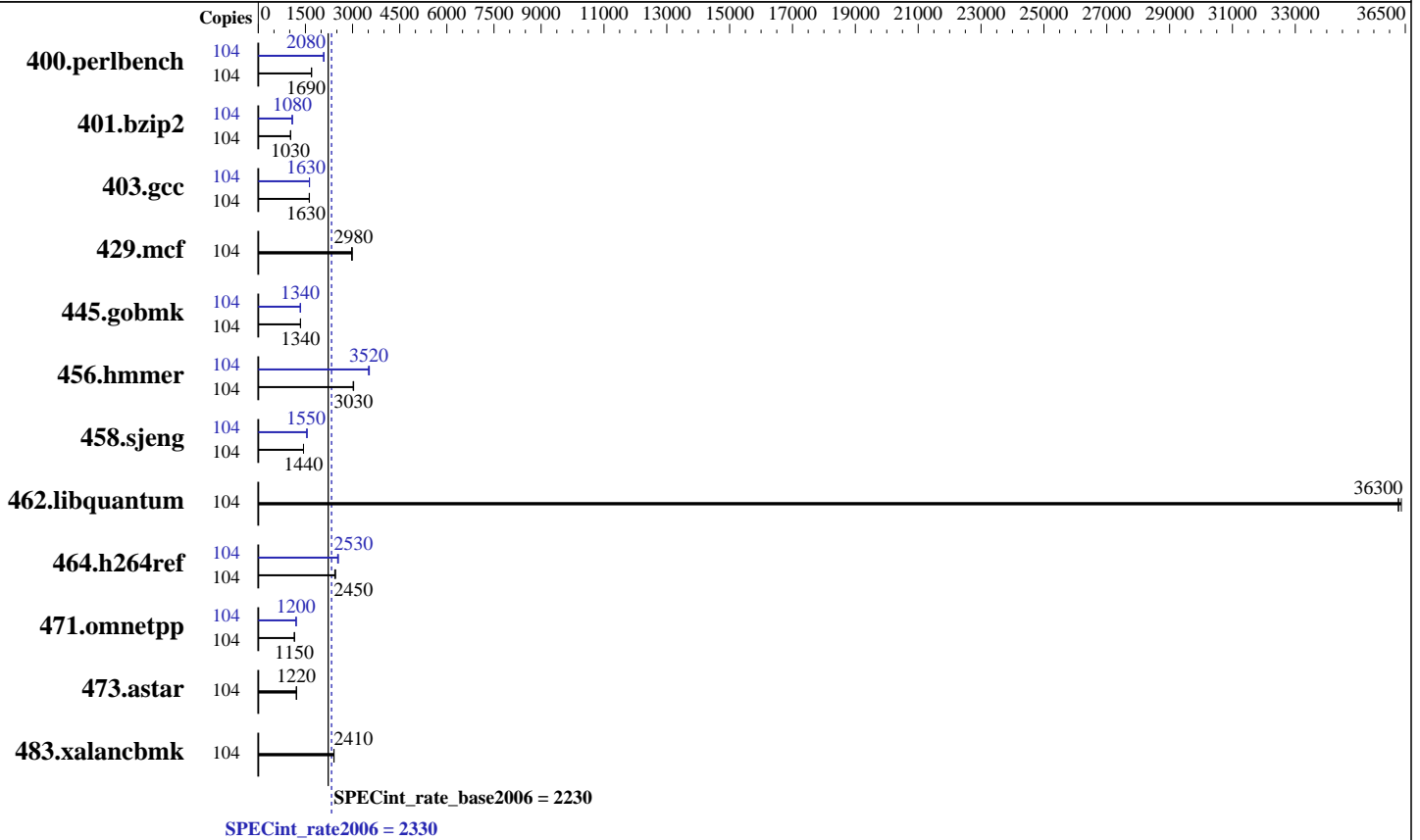SPECint_rate_base2006 = 2230

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jul-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Copies

Benchmark	Value 1	Value 2
400.perlbench	104 / 2080	104 / 1690
401.bzip2	104 / 1080	104 / 1030
403.gcc	104 / 1630	104 / 1630
429.mcf	104 / 2980	
445.gobmk	104 / 1340	104 / 1340
456.hmmer	104 / 3520	104 / 3030
458.sjeng	104 / 1550	104 / 1440
462.libquantum	104 / 36300	
464.h264ref	104 / 2530	104 / 2450
471.omnetpp	104 / 1200	104 / 1150
473.astar	104 / 1220	
483.xalancbmk	104 / 2410	

SPECint_rate_base2006 = 2230

SPECint_rate2006 = 2330

Hardware

CPU Name: Intel Xeon Platinum 8164

CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz

CPU MHz: 2000

FPU: Integrated

CPU(s) enabled: 52 cores, 2 chips, 26 cores/chip, 2 threads/core

CPU(s) orderable: 1,2 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: 35.75 MB I+D on chip per chip

Other Cache: None

Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)

Disk Subsystem: 1 x 800 GB SAS SSD

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: Yes

File System: btrfs

System State: Run level 3 (multi-user)

Base Pointers: 32-bit

Peak Pointers: 32/64-bit

Other Software: Microquill SmartHeap V10.2

SPEC CINT2006 Result

Lenovo Global Technology

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate2006 =   2330

SPECint_rate_base2006 = 2230

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	104	**600**	**1690**	599	1700	601	1690	104	**488**	**2080**	487	2090	488	2080
401.bzip2	104	974	1030	**976**	**1030**	977	1030	104	930	1080	925	1080	**929**	**1080**
403.gcc	104	516	1620	514	1630	**515**	**1630**	104	515	1630	514	1630	**514**	**1630**
429.mcf	104	**318**	**2980**	317	2990	319	2970	104	**318**	**2980**	317	2990	319	2970
445.gobmk	104	811	1340	813	1340	**812**	**1340**	104	**814**	**1340**	815	1340	814	1340
456.hmmer	104	321	3020	320	3030	**320**	**3030**	104	277	3510	**275**	**3520**	275	3530
458.sjeng	104	874	1440	875	1440	**874**	**1440**	104	**813**	**1550**	813	1550	813	1550
462.libquantum	104	**59.4**	**36300**	59.2	36400	59.4	36300	104	**59.4**	**36300**	59.2	36400	59.4	36300
464.h264ref	104	936	2460	**941**	**2450**	946	2430	104	**910**	**2530**	911	2530	902	2550
471.omnetpp	104	566	1150	**565**	**1150**	564	1150	104	540	1200	**540**	**1200**	540	1200
473.astar	104	602	1210	**601**	**1220**	600	1220	104	602	1210	**601**	**1220**	600	1220
483.xalancbmk	104	298	2410	**298**	**2410**	298	2410	104	298	2410	**298**	**2410**	298	2410

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"

Platform Notes

    BIOS configuration:
    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 Cyborg-SPECcpu2006-SUSE12SP2 Mon Jul 10 22:15:10 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) Platinum 8164 CPU @ 2.00GHz
          2 "physical id"s (chips)

Lenovo Global Technology

SPECint_rate2006 =   2330

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate_base2006 = 2230

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jul-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Platform Notes (Continued)

```
     104 "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 : 26
     siblings  : 52
     physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25
     26 27 28 29
     physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25
     26 27 28 29
   cache size : 36608 KB

From /proc/meminfo
   MemTotal:       395892112 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 Cyborg-SPECcpu2006-SUSE12SP2 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 Jul 10 22:14

SPEC is set to: /home/cpu2006-1.2-ic17.0u3
   Filesystem      Type   Size  Used Avail Use% Mounted on
   /dev/sdb2       btrfs  744G   30G  715G   4% /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 -[IVE109Q-1.00]- 06/28/2017
   Memory:
```

SPEC CINT2006 Result

Lenovo Global Technology

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate2006 =   2330

SPECint_rate_base2006 = 2230

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jul-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

Platform Notes (Continued)

```
    24x Samsung M393A2K43BB1-CTD 16 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
        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
```

SPEC CINT2006 Result

Lenovo Global Technology

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate2006 =   2330

SPECint_rate_base2006 = 2230

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Base Optimization Flags (Continued)

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`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

    400.perlbench: `icc -m64`

      401.bzip2: `icc -m64`

    456.hmmer: `icc -m64`

     458.sjeng: `icc -m64`

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

Peak Portability Flags

    400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
      401.bzip2: `-DSPEC_CPU_LP64`
       403.gcc: `-D_FILE_OFFSET_BITS=64`
      429.mcf: `-D_FILE_OFFSET_BITS=64`
    445.gobmk: `-D_FILE_OFFSET_BITS=64`
    456.hmmer: `-DSPEC_CPU_LP64`
     458.sjeng: `-DSPEC_CPU_LP64`
    462.libquantum: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`
    464.h264ref: `-D_FILE_OFFSET_BITS=64`
    471.omnetpp: `-D_FILE_OFFSET_BITS=64`
     473.astar: `-D_FILE_OFFSET_BITS=64`
    483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

SPEC CINT2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate2006 =   2330

SPECint_rate_base2006 = 2230

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

Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

Peak Optimization Flags

C benchmarks:

  400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

  401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -qopt-prefetch -auto-ilp32
   -qopt-mem-layout-trans=3

  403.gcc: -xCORE-AVX512 -ipo -O3 -no-prec-div
   -qopt-mem-layout-trans=3

  429.mcf: basepeak = yes

  445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -qopt-mem-layout-trans=3

  456.hmmer: -xCORE-AVX512 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
   -qopt-mem-layout-trans=3

  458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll4 -auto-ilp32
   -qopt-mem-layout-trans=3

  462.libquantum: basepeak = yes

  464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2) -unroll2 -qopt-mem-layout-trans=3

C++ benchmarks:

  471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
   -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
   -no-prec-div(pass 2)
   -qopt-ra-region-strategy=block
   -qopt-mem-layout-trans=3 -Wl,-z,muldefs
   -L/sh10.2 -lsmartheap

  473.astar: basepeak = yes

  483.xalancbmk: basepeak = yes

SPEC CINT2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR650
(2.00 GHz, Intel Xeon Platinum 8164)

SPECint_rate2006 =   2330

SPECint_rate_base2006 = 2230

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

Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.20171004.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-C.20171004.xml

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 Wed Oct 4 12:38:11 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 October 2017.