SPEC® CINT2006 Result

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Fujitsu

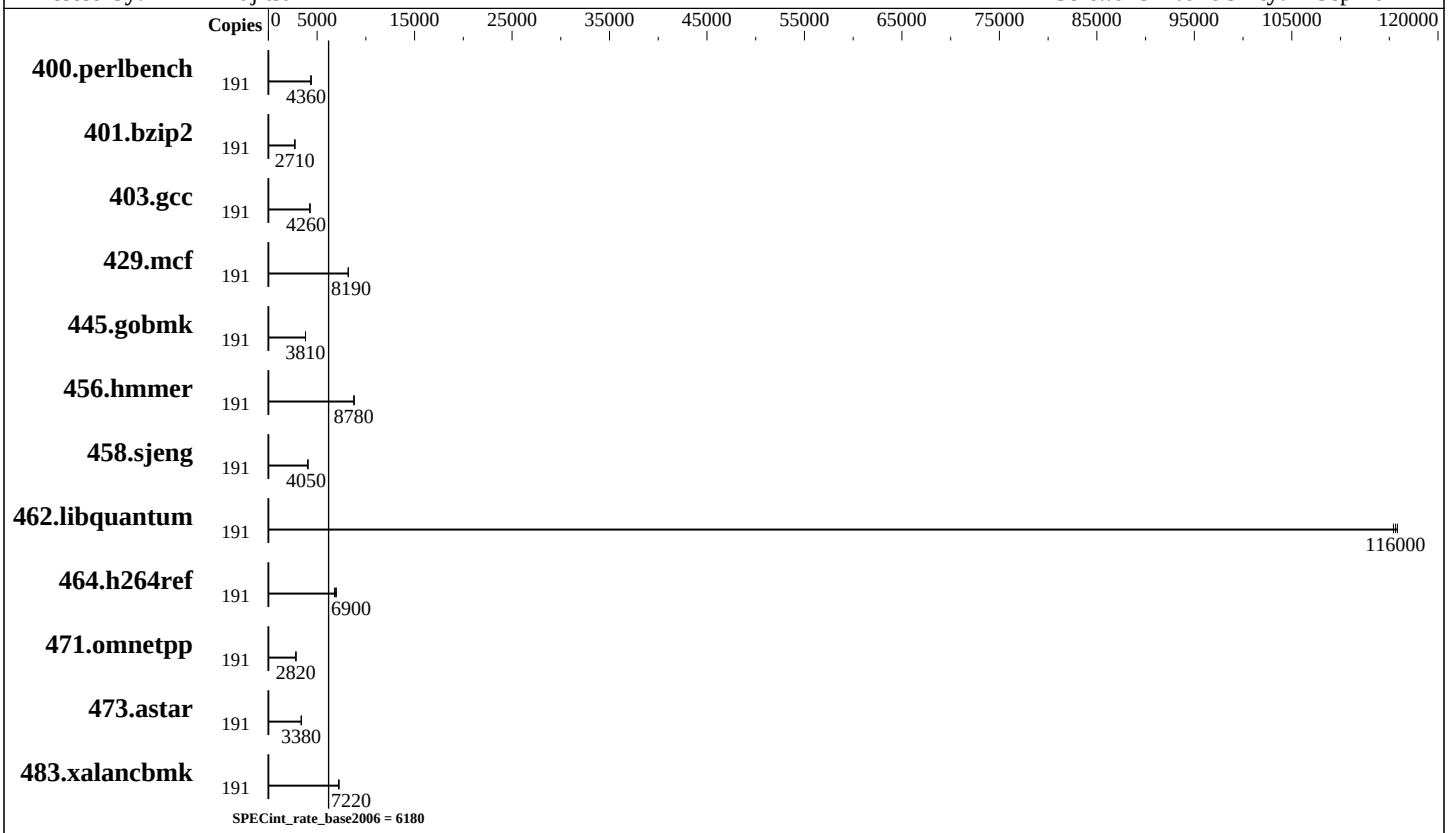
PRIMEQUEST 3800B, Intel Xeon Platinum 8158, 3.00GHz

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 6180

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Sep-2017



Hardware

CPU Name:	Intel Xeon Platinum 8158
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	96 cores, 8 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	2,4,6,8 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:	24.75 MB I+D on chip per chip
Other Cache:	None
Memory:	1536 GB (96 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	768 GB tmpfs
Other Hardware:	1 x SAS HDD, 600 GB, 10.5K RPM, used for swap

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 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:	Not Applicable
Other Software:	Microquill SmartHeap V10.2

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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	191	425	4400	428	4360	**428**	**4360**							
401.bzip2	191	**679**	**2710**	679	2710	679	2720							
403.gcc	191	361	4250	360	4270	**361**	**4260**							
429.mcf	191	**213**	**8190**	213	8190	212	8220							
445.gobmk	191	**526**	**3810**	526	3810	526	3810							
456.hmmer	191	203	8780	202	8800	**203**	**8780**							
458.sjeng	191	**570**	**4050**	570	4050	570	4050							
462.libquantum	191	34.2	116000	**34.2**	**116000**	34.3	115000							
464.h264ref	191	**612**	**6900**	606	6980	623	6780							
471.omnetpp	191	**423**	**2820**	422	2830	423	2820							
473.astar	191	397	3380	**397**	**3380**	397	3380							
483.xalancbmk	191	**183**	**7220**	183	7190	182	7250							

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"
Set Kernel Boot Parameter : nohz_full=1-191 isolcpus=1-191
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
Set tmpfs filesystem with:
mkdir /home/memory
mount -t tmpfs -o size=768g,rw tmpfs /home/memory
Process tuning settings:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
echo 1 > /proc/sys/kernel/numa_balancing
echo always > /sys/kernel/mm/transparent_hugepage/enabled
cpu idle state set with:
cpupower idle-set -d 2
cpupower idle-set -d 3
set affinity of rcu threads to the cpu0:
for i in 'pgrep rcu' ; do taskset -pc 0 $i ; done
```

Platform Notes

```
BIOS configuration:
Intel Virtualization Technology = Disabled
HWPM Support = Disabled
DCU Streamer Prefetcher = Disabled
Stale AtoS = Enabled
LLC dead line alloc = Disabled
Sub NUMA Clustering = Enabled
Fan Control = Full
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost Thu Oct 19 02:23:05 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 8158 CPU @ 3.00GHz
      8 "physical id"s (chips)
      192 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 1: cores 0 1 2 3 9 10 11 17 19 25 26 27
      physical 2: cores 1 2 3 4 8 9 10 11 19 24 25 27
      physical 3: cores 0 1 2 3 4 8 9 11 17 18 19 20
      physical 4: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 5: cores 0 1 2 3 4 9 10 16 18 19 25 26
      physical 6: cores 0 1 2 3 4 8 10 11 18 24 25 27
      physical 7: cores 0 3 4 5 6 7 16 18 19 20 21 22
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       1583801256 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"
```

Continued on next page

Platform Notes (Continued)

```
        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 localhost 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 Oct 19 01:57

  SPEC is set to: /home/memory/speccpu
     Filesystem     Type   Size  Used Avail Use% Mounted on
     tmpfs          tmpfs  768G  9.7G  759G   2% /home/memory
  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 FUJITSU V1.0.0.0 R1.21.0 for D3858-A1x            09/15/2017
    Memory:
     48x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
     48x Samsung M393A2G40EB2-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/memory/speccpu/icc2018lib/ia32:/home/memory/speccpu/icc2018lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/memory/speccpu/sh10.2"

  Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
  memory using SUSE Linux Enterprise Server 12 SP2
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
  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_2018.0.128/linux/compiler/lib/ia32
```

Continued on next page

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2018.0.128/linux/compiler/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

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/Fujitsu-Platform-Settings-V1.2-SKL-RevC.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/Fujitsu-Platform-Settings-V1.2-SKL-RevC.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 Wed Dec 27 12:06:11 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 December 2017.