SPEC® CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Fujitsu

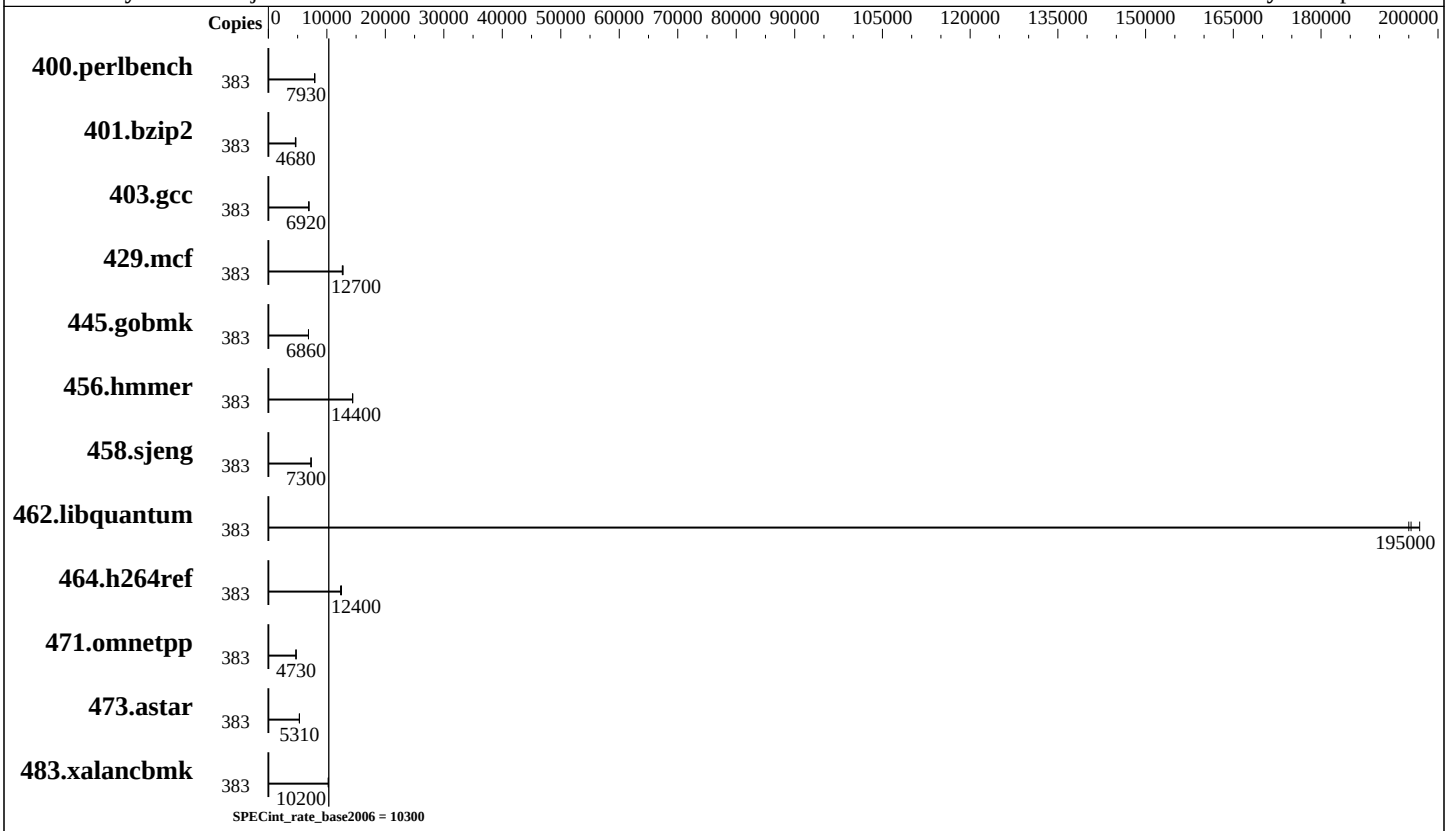
PRIMEQUEST 3800B, Intel Xeon Platinum 8168, 2.70GHz

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 10300

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

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



Hardware

CPU Name:	Intel Xeon Platinum 8168
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	192 cores, 8 chips, 24 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:	33 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

SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Fujitsu

PRIMEQUEST 3800B, Intel Xeon Platinum 8168, 2.70GHz

SPECint_rate2006 = Not Run

SPECint_rate_base2006 = 10300

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

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	383	472	7930	474	7890	**472**	**7930**							
401.bzip2	383	800	4620	790	4680	**790**	**4680**							
403.gcc	383	**446**	**6920**	447	6900	444	6940							
429.mcf	383	276	12600	**275**	**12700**	274	12800							
445.gobmk	383	586	6860	**586**	**6860**	586	6860							
456.hmmer	383	248	14400	248	14400	**248**	**14400**							
458.sjeng	383	634	7300	**635**	**7300**	635	7300							
462.libquantum	383	**40.6**	**195000**	40.7	195000	40.3	197000							
464.h264ref	383	687	12300	678	12500	**681**	**12400**							
471.omnetpp	383	507	4720	**506**	**4730**	505	4740							
473.astar	383	507	5300	**506**	**5310**	506	5310							
483.xalancbmk	383	258	10200	**258**	**10200**	257	10300							

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=1-383 isolcpus=1-383
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 linux-k55j Sat Nov 11 03:00:42 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 8168 CPU @ 2.70GHz
      8 "physical id"s (chips)
      384 "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 : 24
      siblings  : 48
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 4: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 5: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 6: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 7: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
   cache size : 33792 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
```

Continued on next page

Platform Notes (Continued)

```
        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-k55j 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 Nov 11 02:33

  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:
     46x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
     50x 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
```

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/Fujitsu-Platform-Settings-V1.2-SKL-RevC.html
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html

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

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 12:06:16 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 December 2017.