SPEC® CINT2006 Result
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Fujitsu

PRIMEQUEST 3800E, Intel Xeon Platinum 8180, 2.50GHz

$SPECint^{®}\_rate2006 =$ Not Run
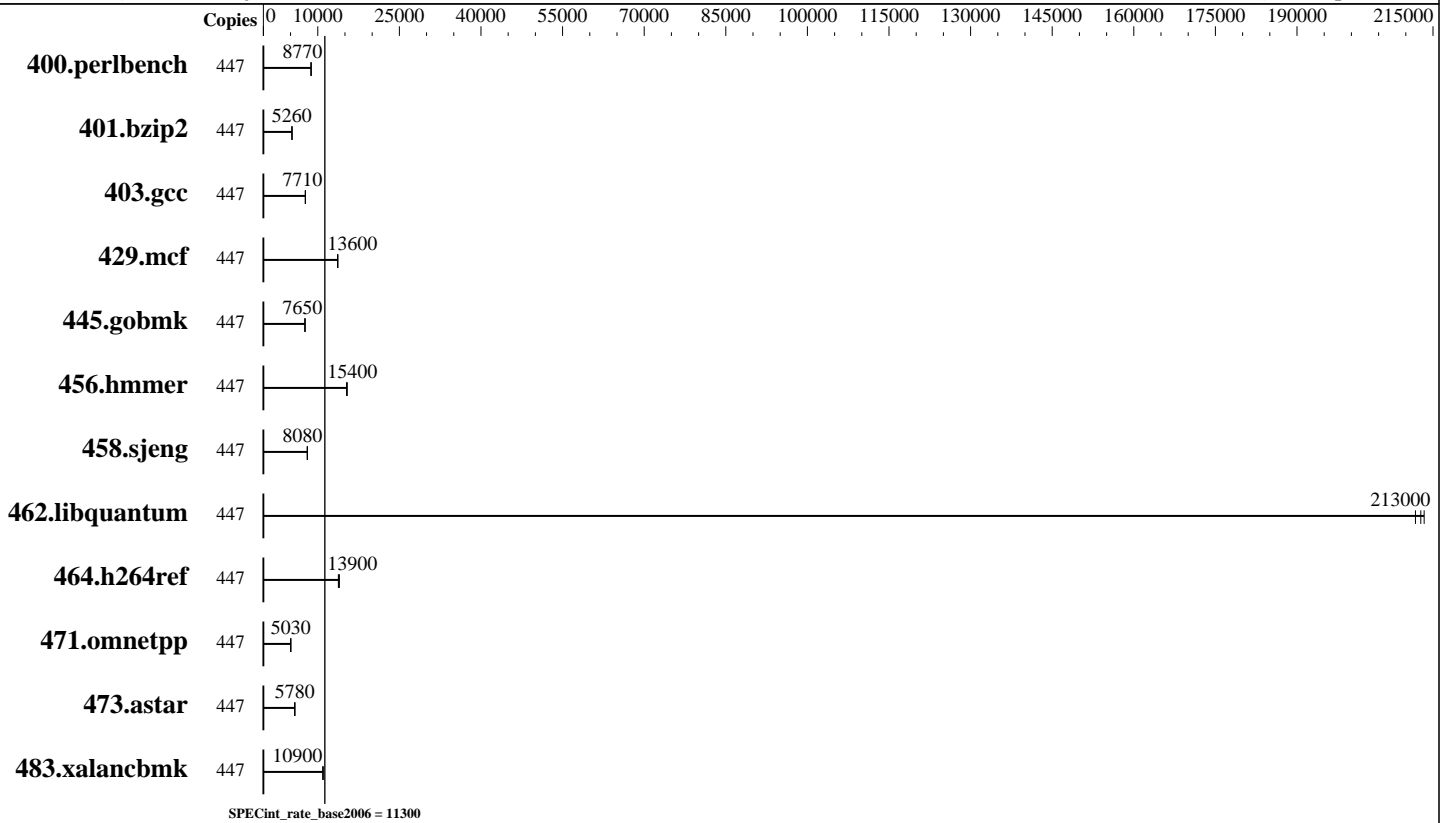
SPECint_rate_base2006 = 11300

CPU2006 license: 19

Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Oct-2017

Hardware Availability: Nov-2017

Software Availability: Sep-2017

Benchmark	Copies	Result
400.perlbench	447	8770
401.bzip2	447	5260
403.gcc	447	7710
429.mcf	447	13600
445.gobmk	447	7650
456.hmmer	447	15400
458.sjeng	447	8080
462.libquantum	447	213000
464.h264ref	447	13900
471.omnetpp	447	5030
473.astar	447	5780
483.xalancbmk	447	10900

SPECint_rate_base2006 = 11300

Hardware

CPU Name: Intel Xeon Platinum 8180

CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz

CPU MHz: 2500

FPU: Integrated

CPU(s) enabled: 224 cores, 8 chips, 28 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: 38.5 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, 900 GB, 10K 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	447	498	8770	**498**	**8770**	498	8770							
401.bzip2	447	**820**	**5260**	823	5240	819	5270							
403.gcc	447	466	7710	465	7740	**466**	**7710**							
429.mcf	447	297	13700	**299**	**13600**	299	13600							
445.gobmk	447	613	7650	613	7650	**613**	**7650**							
456.hmmer	447	272	15300	**272**	**15400**	271	15400							
458.sjeng	447	**669**	**8080**	669	8080	669	8080							
462.libquantum	447	43.4	213000	43.7	212000	**43.5**	**213000**							
464.h264ref	447	718	13800	**713**	**13900**	708	14000							
471.omnetpp	447	**555**	**5030**	555	5040	556	5030							
473.astar	447	545	5760	**543**	**5780**	543	5780							
483.xalancbmk	447	281	11000	282	10900	**282**	**10900**							

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=1-447 isolcpus=1-447
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 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
```

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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-wzbo Mon Oct 30 20:03:28 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 8180 CPU @ 2.50GHz
         8 "physical id"s (chips)
         448 "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 : 28
         siblings  : 56
         physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
      cache size : 39424 KB

   From /proc/meminfo
      MemTotal:       1583932372 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 12 SP2

   From /etc/*release* /etc/*version*
```

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Platform Notes (Continued)

```
    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-wzbo 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 30 19:55

  SPEC is set to: /home/memory/speccpu
     Filesystem      Type    Size  Used Avail Use% Mounted on
     tmpfs           tmpfs   768G  9.6G  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 R90.28.0 for D3858-A1x           10/25/2017
   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/lib/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
```

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General Notes (Continued)

```
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
```

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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

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

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