SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

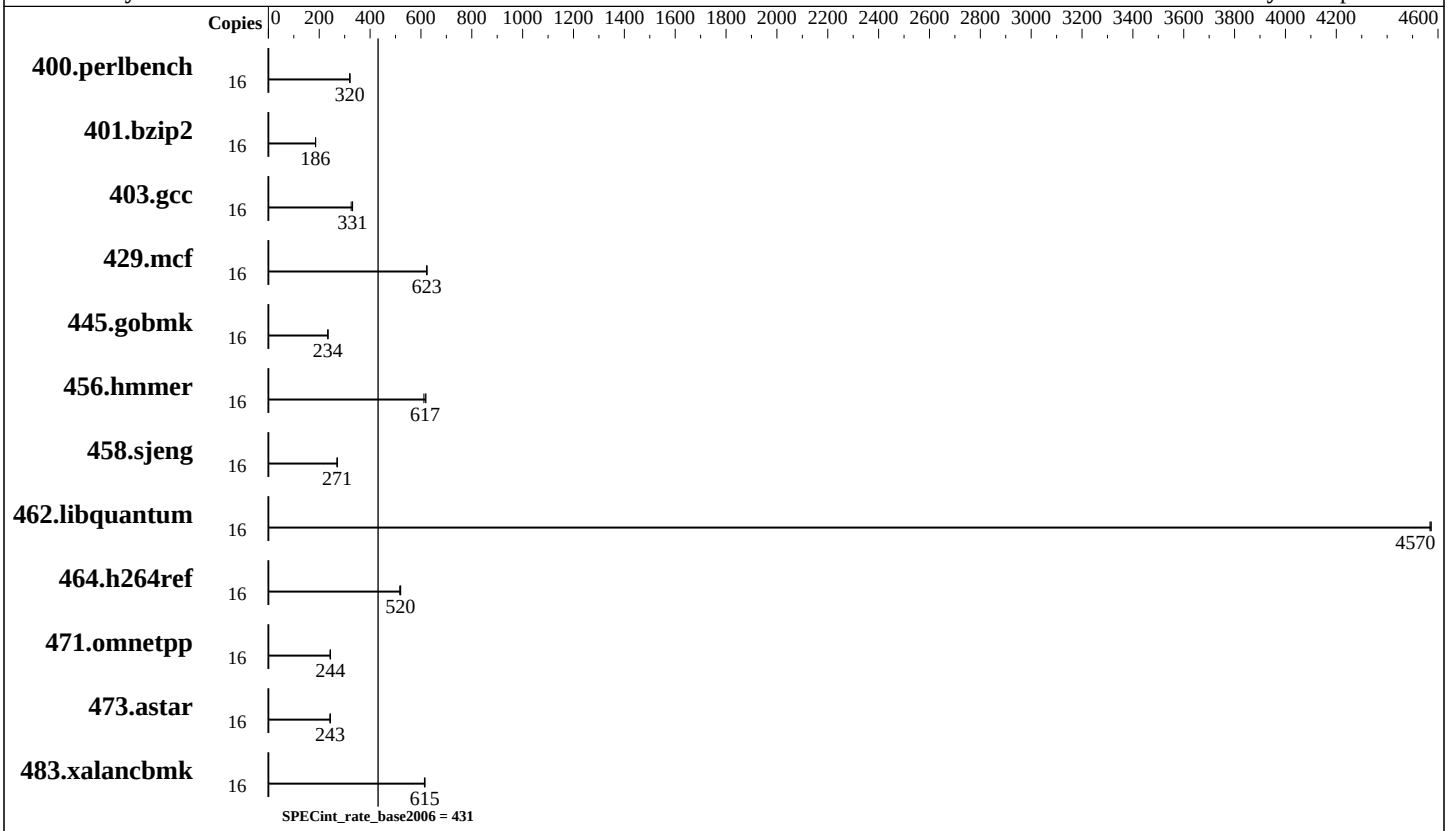
Synergy 480 Gen10
(1.70 GHz, Intel Xeon Bronze 3106)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 431

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

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



Hardware

CPU Name:	Intel Xeon Bronze 3106
CPU Characteristics:	
CPU MHz:	1700
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
CPU(s) orderable:	1, 2 chip(s)
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	11 MB I+D on chip per chip
Other Cache:	None
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2133)
Disk Subsystem:	1 x 480 GB SATA SSD, RAID 0
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 (x86_64) SP2 Kernel 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:	xfs
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	16	488	320	488	320	**488**	**320**							
401.bzip2	16	**832**	**186**	832	185	831	186							
403.gcc	16	389	331	395	326	**389**	**331**							
429.mcf	16	234	624	234	622	**234**	**623**							
445.gobmk	16	**717**	**234**	717	234	717	234							
456.hmmer	16	244	612	**242**	**617**	241	620							
458.sjeng	16	716	270	**716**	**271**	715	271							
462.libquantum	16	72.5	4570	72.6	4570	**72.5**	**4570**							
464.h264ref	16	686	516	**681**	**520**	681	520							
471.omnetpp	16	413	242	409	244	**409**	**244**							
473.astar	16	**462**	**243**	462	243	462	243							
483.xalancbmk	16	**180**	**615**	179	616	180	614							

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"
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>
irqbalance disabled with "service irqbalance stop"
tuned profile set wtih "tuned-adm profile throughput-performance"
VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"
```

Platform Notes

```
BIOS Configuration:
 Thermal Configuration set to Maximum Cooling
 LLC Prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Memory Patrol Scrubbing set to Disabled
 Workload Profile set to General Throughput Compute
  Minimum Processor Idle Power Core C-State set to C1E State
 Workload Profile set to Custom
```

Continued on next page

Platform Notes (Continued)

```
 Sub-NUMA Clustering set to Disabled
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on sy480_m3_sles Sat Dec  9 00:08:08 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) Bronze 3106 CPU @ 1.70GHz
      2 "physical id"s (chips)
      16 "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 : 8
      siblings  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 11264 KB

From /proc/meminfo
   MemTotal:       395932480 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 sy480_m3_sles 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 9 00:06

SPEC is set to: /home/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
```

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Platform Notes (Continued)

```
     /dev/sda4      xfs   405G   63G  343G  16% /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 HPE I42 11/14/2017
    Memory:
     24x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz, configured at 2133 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/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"

  Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
  memory using Redhat Enterprise Linux 7.2
```

Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/linux/lib/ia32
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/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
```

C++ benchmarks:
```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs
-L/home/cpu2006/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/HPE-Platform-Flags-Intel-V1.2-SKX-revH.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/HPE-Platform-Flags-Intel-V1.2-SKX-revH.xml

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

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