Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant BL460c Gen10
(1.70 GHz, Intel Xeon Bronze 3104)

SPECint rate2006 = Not Run
SPECint rate_base2006 = 325

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

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

Hardware
CPU Name: Intel Xeon Bronze 3104
CPU Characteristics:
CPU MHZ: 1700
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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
L2 Cache: 8.25 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R, running at 2133)
Disk Subsystem: 1 x 480 GB SATA SSD, RAID 0
Other Hardware: None

Operating System:
SUSE Linux Enterprise Server 12 (x86_64) SP2
Kernel 3.10.0-693.e17.x86_64

Compiler:
C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux;
Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux

Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other Software: Microquill SmartHeap V10.2
SPEC CINT2006 Result

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Results Table

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<td>458</td>
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</table>

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
Filesytem 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 "systemctl stop irqbalance"
tuned profile set with "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
  Memory Patrol Scrubbing set to Disabled
  LLC Prefetch set to Enabled
  LLC Dead Line Allocation 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)
runtime on linux-h3xn Wed Dec 20 09:48:15 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 3104 CPU @ 1.70GHz
  2 "physical id"s (chips)
  12 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 6
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
 cache size : 8448 KB

From /proc/meminfo
MemTotal:       197751488 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
/usr/bin/lsb_release -d
 SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
SUSE-release:
 SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# This file is depreciated 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-h3xn 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 20 09:42

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Platform Notes (Continued)

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 405G 112G 293G 28% /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 I41 09/29/2017
Memory:
4x UNKNOWN NOT AVAILABLE
12x 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/lib/ia32:/home/cpu2006/lib/intel64:/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

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.htm.

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.
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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.gcce: -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-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -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.gcce: -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
### SPEC CINT2006 Result

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

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