SPEC® CINT2006 Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL380 Gen10
(2.20 GHz, Intel Xeon Silver 4114)

$SPECint®\_rate2006 =$ Not Run

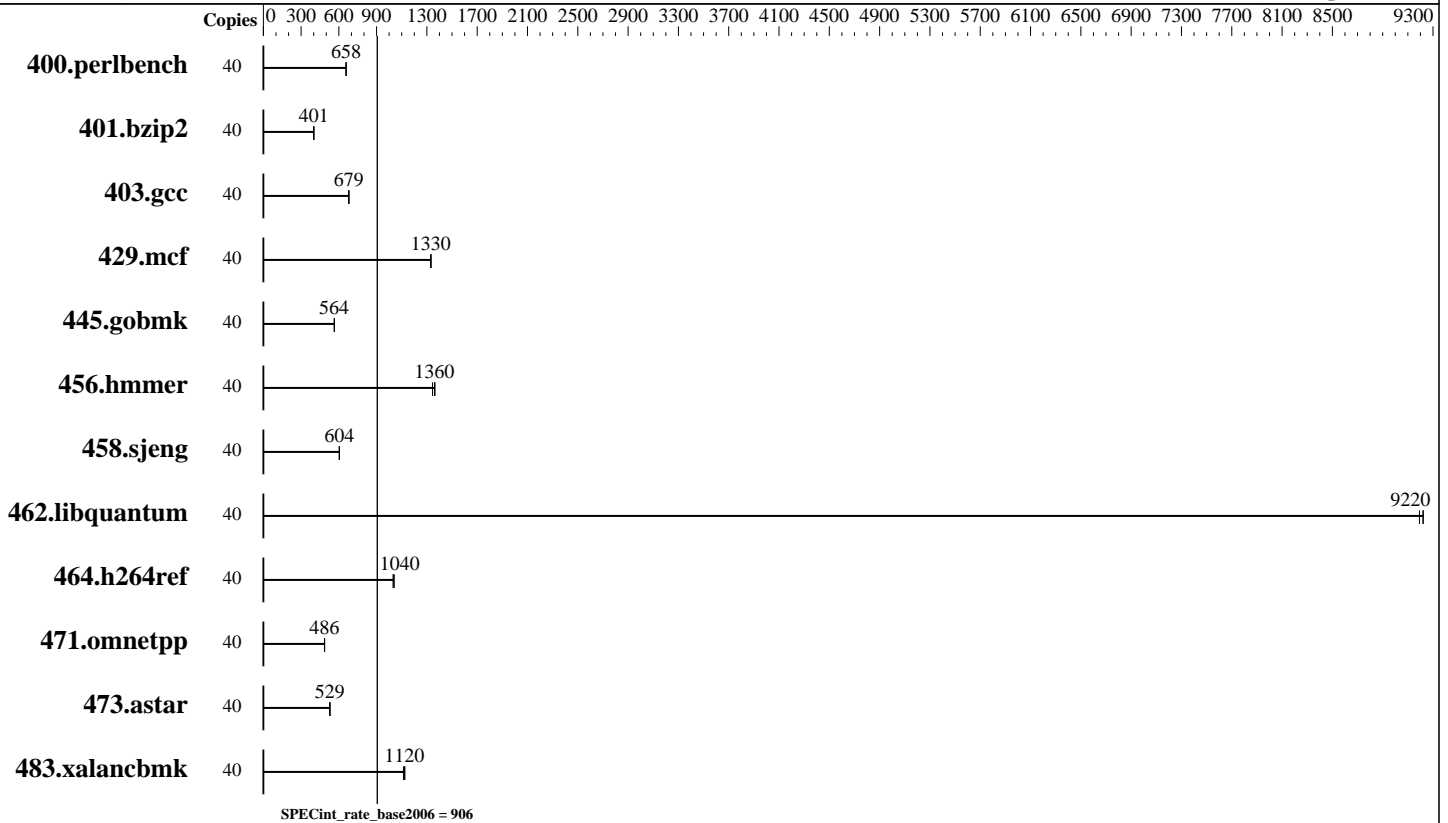$SPECint\_rate\_base2006 =$ 906

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

Test date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

Benchmark	Copies	Result
400.perlbench	40	658
401.bzip2	40	401
403.gcc	40	679
429.mcf	40	1330
445.gobmk	40	564
456.hmmer	40	1360
458.sjeng	40	604
462.libquantum	40	9220
464.h264ref	40	1040
471.omnetpp	40	486
473.astar	40	529
483.xalancbmk	40	1120

SPECint_rate_base2006 = 906

Hardware

CPU Name: Intel Xeon Silver 4114
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core
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: 13.75 MB I+D on chip per chip
Other Cache: None
Memory: 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R, running at 2400)
Disk Subsystem: 1 x 960 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 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel: No
File System: btrfs
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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	594	658	**594**	**658**	594	657							
401.bzip2	40	960	402	**962**	**401**	967	399							
403.gcc	40	475	678	**474**	**679**	473	681							
429.mcf	40	274	1330	**274**	**1330**	273	1330							
445.gobmk	40	743	565	**744**	**564**	744	564							
456.hmmer	40	**274**	**1360**	277	1340	273	1360							
458.sjeng	40	802	603	**801**	**604**	801	605							
462.libquantum	40	90.2	9190	89.9	9220	**89.9**	**9220**							
464.h264ref	40	851	1040	859	1030	**854**	**1040**							
471.omnetpp	40	513	487	**514**	**486**	515	486							
473.astar	40	531	528	531	529	**531**	**529**							
483.xalancbmk	40	245	1130	**246**	**1120**	248	1110							

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
    Memory Patrol Scrubbing set to Disabled
    LLC Prefetcher set to Enabled
    LLC Dead Line Allocation set to Disabled
    Workload Pofile set to General Throughput Compute
     Minimum Processor Idle Power Core C-State set to C1E
    Workload Pofile set to Custom

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Platform Notes (Continued)

```
    Sub-NUMA Clustering set to Disabled

  Sysinfo program /cpu2006/config/sysinfo.rev6993
  Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
  running on sys1-dl380-lic-srvr Wed Oct 25 18:29:25 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) Silver 4114 CPU @ 2.20GHz
        2 "physical id"s (chips)
        40 "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 : 10
        siblings  : 20
        physical 0: cores 0 1 2 3 4 8 9 10 11 12
        physical 1: cores 0 1 2 3 4 8 9 10 11 12
     cache size : 14080 KB

  From /proc/meminfo
     MemTotal:       197554156 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 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 sys1-dl380-lic-srvr 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC
     2016 (9464f67) x86_64 x86_64 x86_64 GNU/Linux
```

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Platform Notes (Continued)

```
run-level 3 Oct 25 10:01

SPEC is set to: /cpu2006
   Filesystem      Type    Size   Used Avail Use% Mounted on
   /dev/sdb3       btrfs  489G    39G  450G   8% /
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 U30 09/29/2017
   Memory:
   24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz, configured at 2400 MHz

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/lib/ia32:/cpu2006/lib/intel64:/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_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.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

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Base Portability Flags (Continued)

```
    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.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-revD.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-revD.xml

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

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