SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

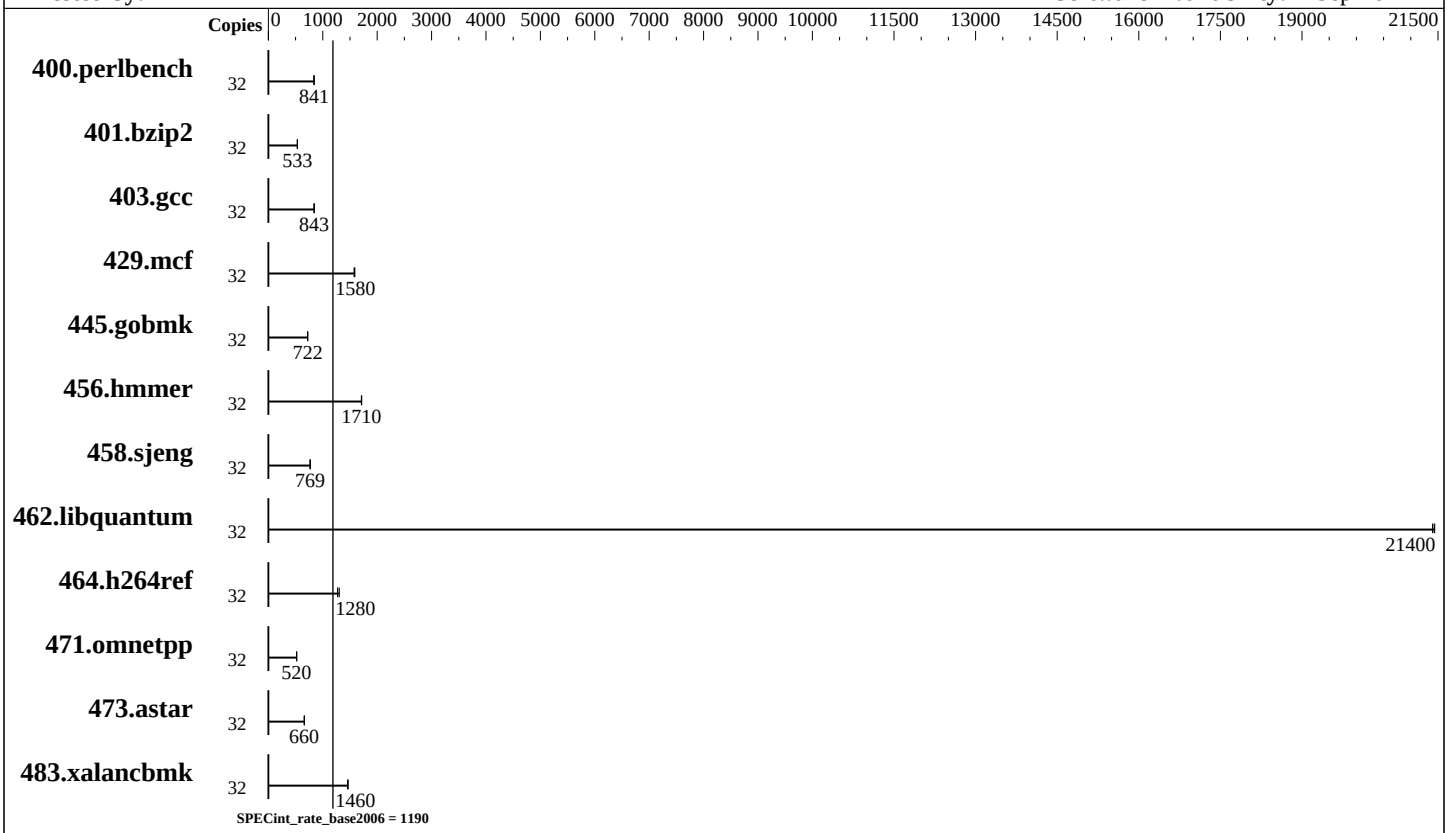
ProLiant DL380 Gen10
(3.50 GHz, Intel Xeon Gold 6144)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 1190

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

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



Hardware

CPU Name:	Intel Xeon Gold 6144
CPU Characteristics:	Intel Turbo Boost Technology up to 4.20 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	24.75 MB I+D on chip per chip
Other Cache:	None
Memory:	192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)
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 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	32	374	835	372	841	**372**	**841**							
401.bzip2	32	578	534	580	532	**579**	**533**							
403.gcc	32	308	837	**306**	**843**	305	845							
429.mcf	32	**185**	**1580**	185	1580	184	1590							
445.gobmk	32	**465**	**722**	465	722	464	723							
456.hmmer	32	175	1710	174	1710	**174**	**1710**							
458.sjeng	32	504	769	504	768	**504**	**769**							
462.libquantum	32	**30.9**	**21400**	30.9	21400	31.0	21400							
464.h264ref	32	543	1300	**555**	**1280**	557	1270							
471.omnetpp	32	**385**	**520**	385	519	385	520							
473.astar	32	**340**	**660**	340	660	339	662							
483.xalancbmk	32	152	1460	151	1460	**151**	**1460**							

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
 Sysinfo program /home/cpu2006/config/sysinfo.rev6993
```

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Platform Notes (Continued)

```
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on dl380gen10 Thu Nov  9 04:49:24 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) Gold 6144 CPU @ 3.50GHz
      2 "physical id"s (chips)
      32 "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  : 16
      physical 0: cores 0 2 3 9 16 19 26 27
      physical 1: cores 0 2 3 9 16 19 26 27
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       197554680 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 dl380gen10 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 9 04:45

SPEC is set to: /home/cpu2006
```

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Platform Notes (Continued)

```
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sdb4      xfs   852G   62G  790G   8% /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 U30 09/29/2017
    Memory:
     24x UNKNOWN NOT AVAILABLE 8 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/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-revF.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-revF.xml

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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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