SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

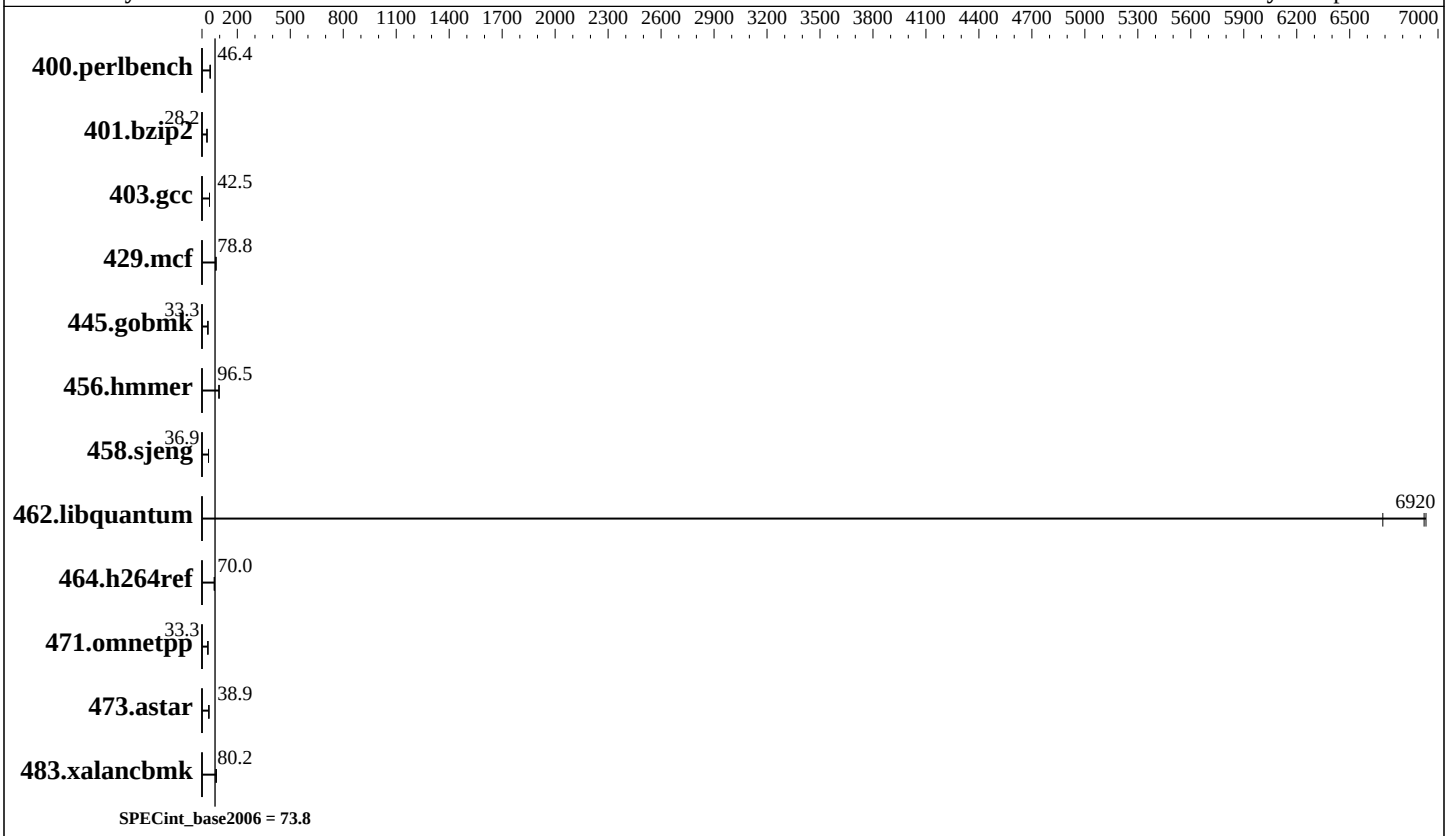
ProLiant DL360 Gen10
(2.60 GHz, Intel Xeon Gold 6126)

SPECint®2006 = Not Run

SPECint_base2006 = 73.8

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

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



Hardware

CPU Name:	Intel Xeon Gold 6126
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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:	19.25 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 480 GB SATA SSD, RAID 0
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) Kernel 3.10.0-514.el7.x86_64
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel:	Yes
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

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	210	46.6	211	46.3	**211**	**46.4**						
401.bzip2	341	28.3	342	28.2	**342**	**28.2**						
403.gcc	189	42.5	190	42.5	**189**	**42.5**						
429.mcf	**116**	**78.8**	115	79.6	117	78.0						
445.gobmk	**315**	**33.3**	315	33.3	315	33.3						
456.hmmer	**96.7**	**96.5**	97.0	96.2	96.7	96.5						
458.sjeng	328	36.9	328	36.9	**328**	**36.9**						
462.libquantum	3.10	6690	**2.99**	**6920**	2.99	6930						
464.h264ref	317	69.8	**316**	**70.0**	316	70.0						
471.omnetpp	187	33.4	188	33.2	**187**	**33.3**						
473.astar	181	38.8	180	38.9	**181**	**38.9**						
483.xalancbmk	86.4	79.9	85.8	80.4	**86.0**	**80.2**						

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set wtih "tuned-adm profile throughput-performance"
```

Platform Notes

```
BIOS Configuration:
 Intel Hyperthreading set to Disabled
 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 Peak Frequency Compute
  Energy/Performance Bias set to Maximum Performance
  Uncore Frequency Scaling set to Auto
 Workload Pofile set to Custom
  NUMA Group Size Optimization set to Flat

Sysinfo program /home/specuser/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on dl360gen10rhel73 Fri Oct 13 18:18:50 2017

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
      http://www.spec.org/cpu2006/Docs/config.html#sysinfo

    From /proc/cpuinfo
       model name : Intel(R) Xeon(R) Gold 6126 CPU @ 2.60GHz
          2 "physical id"s (chips)
          24 "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 : 12
          siblings  : 12
          physical 0: cores 0 1 2 3 4 5 6 8 9 11 12 13
          physical 1: cores 0 1 3 5 6 8 9 10 11 12 13 14
       cache size : 19712 KB

    From /proc/meminfo
       MemTotal:       197573776 kB
       HugePages_Total:       0
       Hugepagesize:       2048 kB

    From /etc/*release* /etc/*version*
       os-release:
          NAME="Red Hat Enterprise Linux Server"
          VERSION="7.3 (Maipo)"
          ID="rhel"
          ID_LIKE="fedora"
          VERSION_ID="7.3"
          PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
          ANSI_COLOR="0;31"
          CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
       redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
       system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
       system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

    uname -a:
       Linux dl360gen10rhel73 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT
       2016 x86_64 x86_64 x86_64 GNU/Linux

    run-level 3 Oct 13 13:25

    SPEC is set to: /home/specuser/cpu2006
       Filesystem            Type  Size  Used Avail Use% Mounted on
       /dev/mapper/rhel-home xfs   392G   37G  356G  10% /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 U32 09/29/2017
      Memory:
```

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Platform Notes (Continued)

```
      24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz

   (End of data from sysinfo program)
    Regarding the sysinfo display about the memory installed, the correct amount of
    memory is 192 GB and the dmidecode description should have one line reading as:
    24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/specuser/cpu2006/lib/ia32:/home/specuser/cpu2006/lib/intel64
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/specuser/cpu2006/sh10.2"
OMP_NUM_THREADS = "24"

 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 -m64
```

C++ benchmarks:
```
icpc -m64
```

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
-auto-p32
```

Continued on next page

Base Optimization Flags (Continued)

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64`

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

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