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

ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Silver 4110)

$SPECint®2006 =$ **Not Run**

$SPECint\_base2006 =$ **58.5**

CPU2006 license: 3	**Test date:** Oct-2017
Test sponsor: HPE	**Hardware Availability:** Oct-2017
Tested by: HPE	**Software Availability:** Apr-2017

Benchmark	Score
400.perlbench	37.7
401.bzip2	23.2
403.gcc	34.8
429.mcf	67.0
445.gobmk	26.9
456.hmmer	78.3
458.sjeng	30.1
462.libquantum	4740
464.h264ref	54.5
471.omnetpp	24.4
473.astar	30.9
483.xalancbmk	64.1

SPECint_base2006 = 58.5

Hardware

CPU Name:	Intel Xeon Silver 4110
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2100
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:	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:	Red Hat Enterprise Linux Server release 7.3 (Maipo), Kernel 3.10.0-514.6.1.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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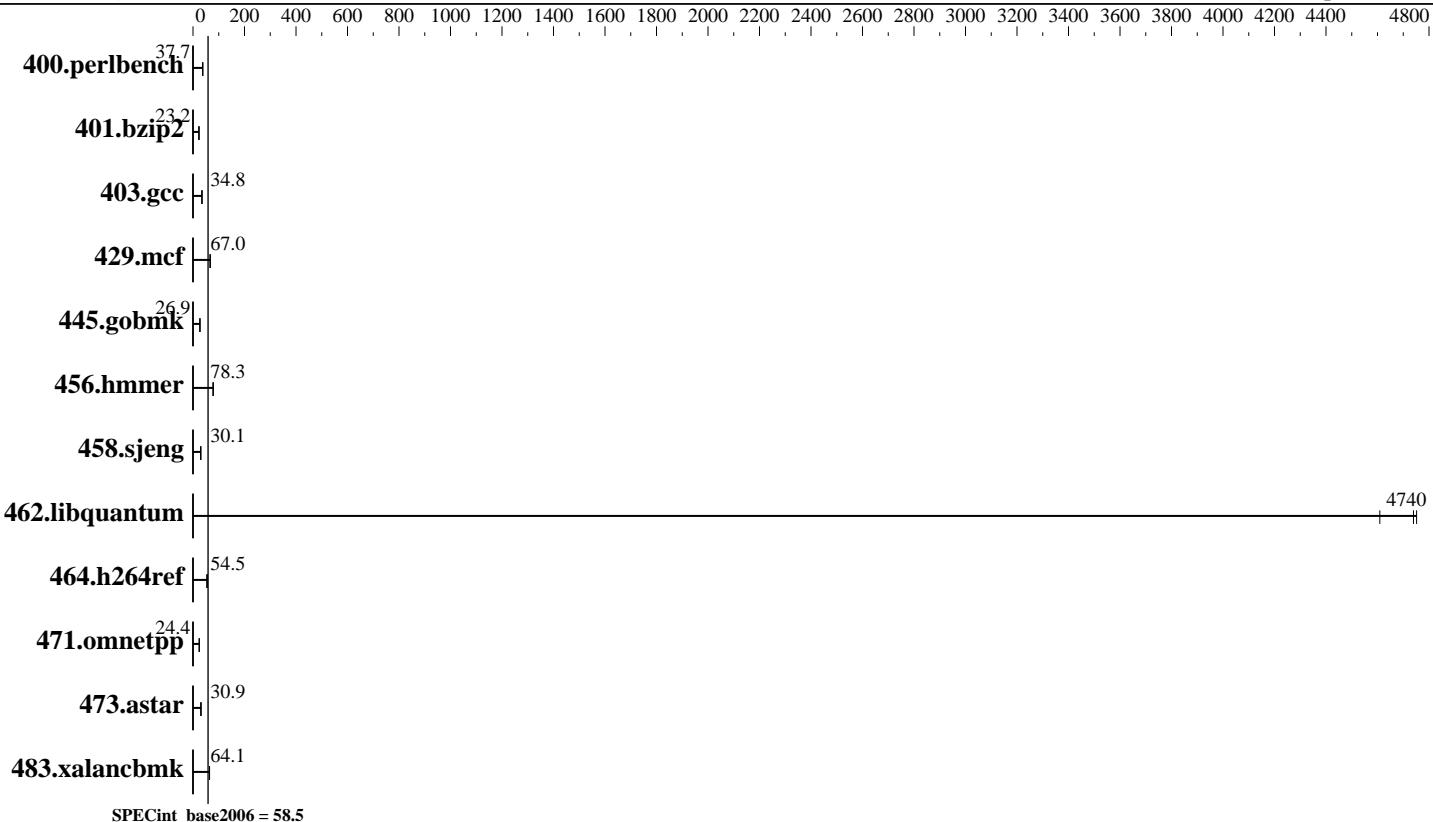
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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	**259**	**37.7**	259	37.7	258	37.8						
401.bzip2	417	23.2	**417**	**23.2**	417	23.2						
403.gcc	232	34.8	231	34.8	**231**	**34.8**						
429.mcf	136	67.0	**136**	**67.0**	138	66.1						
445.gobmk	**391**	**26.9**	391	26.9	390	26.9						
456.hmmer	119	78.2	119	78.5	**119**	**78.3**						
458.sjeng	402	30.1	402	30.1	**402**	**30.1**						
462.libquantum	**4.37**	**4740**	4.50	4610	4.36	4750						
464.h264ref	**406**	**54.5**	407	54.4	405	54.6						
471.omnetpp	257	24.3	256	24.4	**257**	**24.4**						
473.astar	228	30.8	227	30.9	**227**	**30.9**						
483.xalancbmk	108	64.1	107	64.3	**108**	**64.1**						

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
IRQ balance service was stop using "service irqbalance stop"
Tuned-adm profile was set to Throughtput-Performance
```

Platform Notes

```
BIOS Configuration:
 Intel Hyperthreading set to Disabled
 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 Peak Frequency Compute
  Energy/Performance Bias set to Maximum Performance
 Workload Profile set to Custom
  NUMA Group Size Optimization set to Flat
 Sysinfo program /cpu2006/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on sys1-dl380-RHEL Fri Oct 27 10:03:54 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
```

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz
      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:       197575352 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 sys1-dl380-RHEL 3.10.0-514.6.1.el7.x86_64 #1 SMP Sat Dec 10 11:15:38
   EST 2016 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 27 10:02

SPEC is set to: /cpu2006
   Filesystem           Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-root xfs    50G   21G   30G  41% /
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
```

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Platform Notes (Continued)

        (End of data from sysinfo program)

General Notes

    Environment variables set by runspec before the start of the run:
    KMP_AFFINITY = "granularity=fine,compact"
    LD_LIBRARY_PATH = "/cpu2006/lib/ia32:/cpu2006/lib/intel64:/cpu2006/sh10.2"
    OMP_NUM_THREADS = "16"

     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

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

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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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