Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.10 GHz, Intel Xeon Platinum 8160)

| SPECint®2006 = | Not Run |
| SPECint_base2006 = | 77.0 |

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

<table>
<thead>
<tr>
<th>SPECint Code</th>
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### Hardware

**CPU Name:** Intel Xeon Platinum 8160  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 2100  
**FPU:** Integrated  
**CPU(s) enabled:** 48 cores, 2 chips, 24 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:** 33 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 400 GB SATA SSD, RAID 0  
**Other Hardware:** None

### Software

**Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo)  
**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
SPEC CINT2006 Result

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

Results Table

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<tr>
<th>Benchmark</th>
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</table>

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 /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on DL360G10 Sun Nov 5 07:05:54 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) Platinum 8160 CPU @ 2.10GHz
  2 "physical id"s (chips)
  48 "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 : 24
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
  27 28 29
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
  27 28 29
basic size : 33792 KB

From /proc/meminfo
MemTotal: 197746172 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*, /etc/*version*
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)

uname -a:
Linux DL360G10 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 Nov 5 07:02

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel_dl360g10-home xfs 318G 40G 279G 13% /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:

Continued on next page
## SPEC CINT2006 Result

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### Platform Notes (Continued)

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:  
KMP_AFFINITY = "granularity=fine,compact"  
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"  
OMP_NUM_THREADS = "48"

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:**  
```bash  
icc -m64  
```

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

**C++ benchmarks:**  
```bash  
x-CORE-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-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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