Dell Inc.  

PowerEdge R640 (Intel Xeon Gold 6146, 3.20 GHz)  

**SPECint\_rate2006 = Not Run**  
**SPECint\_rate\_base2006 = 1540**

| Test date: | Aug-2017  |
| Hardware Availability: | Jul-2017  |
| Software Availability: | Apr-2017  |

| CPU2006 license: | 55  |
| Test sponsor: | Dell Inc.  |
| Tested by: | Dell Inc.  |

| CPU Name: | Intel Xeon Gold 6146  |
| CPU Characteristics: | Intel Turbo Boost Technology up to 4.20 GHz  |
| CPU MHz: | 3200  |
| FPU: | Integrated  |
| CPU(s) enabled: | 24 cores, 2 chips, 12 cores/chip, 2 threads/core  |
| CPU(s) orderable: | 1,2 chip  |
| 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: | 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  |
| Disk Subsystem: | 1 x 960 GB SATA SSD  |
| Other Hardware: | None  |

| Software | Operating System: SUSE Linux Enterprise Server 12 SP2  |
| | 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: | xfs  |
| System State: | Run level 3 (multi-user)  |
| Base Pointers: | 32-bit  |
| Peak Pointers: | 32/64-bit  |
| Other Software: | Microquill SmartHeap V10.2  |
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Results Table

<table>
<thead>
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</tbody>
</table>

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"

Platform Notes

- BIOS settings:
  - Virtualization Technology disabled
  - System Profile set to Custom
  - CPU Performance set to Maximum Performance
  - C States set to autonomous
  - C1E disabled
  - Uncore Frequency set to Dynamic
  - Energy Efficiency Policy set to Performance
  - Memory Patrol Scrub disabled
  - Logical Processor enabled
  - CPU Interconnect Bus Link Power Management disabled
  - PCI ASPM Li Link Power Management disabled
  - Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
  - Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
  - running on linux-bo7a Mon Aug 14 12:39:35 2017

This section contains SUT (System Under Test) info as seen by Continued on next page
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Platform Notes (Continued)

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 6146 CPU @ 3.20GHz
  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 caution.)
cpu cores : 12
siblings : 24
physical 0: cores 0 3 4 5 6 7 16 18 19 20 21 22
physical 1: cores 0 1 2 3 9 10 16 18 19 24 26 27
cache size : 25344 KB

From /proc/meminfo
MemTotal:       394736736 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:
  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 linux-bo7a 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 Aug 14 12:38

SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2  xfs  892G 37G  856G  5% /
Additional information from dmidecode:

Continued on next page
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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
- 443.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

General Notes
- Environment variables set by runspec before the start of the run:
  LO_LIBRARY_PATH = "*/root/cpu2006-1.2_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"
- Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
- 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>

Platform Notes (Continued)
- 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 Dell Inc. 1.0.8 07/11/2017
Memory:
24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)
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### 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:

You can also download the XML flags sources by saving the following links:

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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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