Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4109T, 2.00 GHz)

**SPECint\_rate2006 = Not Run**

**SPECint\_rate\_base2006 = 641**

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**Hardware**

- **CPU Name:** Intel Xeon Silver 4109T
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz
- **CPU MHZ:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 2 chips, 8 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:** 11 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2400 MT/s)
- **Disk Subsystem:** 1 x 960 GB SATA SSD
- **Other Hardware:** None

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

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>645</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>1079</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>535</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>344</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>812</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>304</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>32</td>
<td>884</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>32</td>
<td>99.4</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>32</td>
<td>938</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>593</td>
</tr>
<tr>
<td>473.astar</td>
<td>32</td>
<td>630</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>283</td>
</tr>
</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 L1 Link Power Management disabled
Sysinfo program /home/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-bgfp Sun Jun 25 15:14:07 2017

This section contains SUT (System Under Test) info as seen by
Dell Inc. PowerEdge R740 (Intel Xeon Silver 4109T, 2.00 GHz)  

SPEC CINT2006 Result  

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Dell Inc. PowerEdge R740 (Intel Xeon Silver 4109T, 2.00 GHz)  

**CPU2006 license:** 55  
**Test date:** Jun-2017  
**Test sponsor:** Dell Inc.  
**Hardware Availability:** Jul-2017  
**Tested by:** Dell Inc.  
**Software Availability:** Nov-2016  

**Platform Notes (Continued)**  

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) Silver 4109T CPU @ 2.00GHz  
- 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 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: 395699200 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:  
(9464f67) x86_64 x86_64 x86_64 GNU/Linux  

run-level 3 Jun 25 15:05  

SPEC is set to: /home/cpu2006-1.2_ic17u3  
Files filesystem type size used avail use% mounted on  
/dev/sda4 xfs 405G 8.9G 396G 3% /home  
Additional information from dmidecode:

Continued on next page
**Dell Inc.**

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**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. 1.0.5 06/19/2017  
Memory: 24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2400 MHz  
(End of data from sysinfo program)

**General Notes**

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006-1.2_ic17u3/lib/ia32:/home/cpu2006-1.2_ic17u3/lib/intel64:/home/cpu2006-1.2_ic17u3/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
Memory using Redhat Enterprise Linux 7.2  
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
runcspe command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>

**Base Compiler Invocation**

C benchmarks:
```bash
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:
```bash
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

**Base Portability Flags**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Portability Flags</th>
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</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32</td>
</tr>
<tr>
<td>bzip2</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>gcc</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>mcf</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>gbmk</td>
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<td>hmrn</td>
<td>-D_FILE_OFFSET_BITS=64</td>
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<tr>
<td>sjeng</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>libquantum</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>h264ref</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>omnetpp</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
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SPEC CINT2006 Result

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Base Portability Flags (Continued)

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

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
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-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/Dell-Platform-Flags-PowerEdge14G-revB.xml

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

Tested with SPEC CPU2006 v1.2.