**SPEC® CINT2006 Result**

**Dell Inc.**

PowerEdge R740 (Intel Xeon Gold 5118, 2.30 GHz)

**SPECint®_rate2006 = Not Run**

**SPECint_rate_base2006 = 1140**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECint_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>bzip2</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>gcc</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>mcf</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>gobmk</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>hammer</td>
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<td>48</td>
</tr>
<tr>
<td>sjeng</td>
<td>48</td>
<td>48</td>
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<tr>
<td>libquantum</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>h264ref</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>omnetpp</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>astar</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>48</td>
<td>48</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Gold 5118
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.20 GHz
- **CPU MHz:** 2300
- **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:** 16.5 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

**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.

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Nov-2016

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Peak</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>48</td>
<td>557</td>
<td>843</td>
<td>552</td>
<td>849</td>
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<tr>
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<td>48</td>
<td>919</td>
<td>504</td>
<td>921</td>
<td>503</td>
</tr>
<tr>
<td>gcc</td>
<td>48</td>
<td>465</td>
<td>831</td>
<td>464</td>
<td>832</td>
</tr>
<tr>
<td>mcf</td>
<td>48</td>
<td>269</td>
<td>1630</td>
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<td>1630</td>
</tr>
<tr>
<td>gobmk</td>
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<tr>
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<tr>
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<td>48</td>
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<tr>
<td>libquantum</td>
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<td>11800</td>
<td>84.7</td>
<td>11700</td>
</tr>
<tr>
<td>h264ref</td>
<td>48</td>
<td>793</td>
<td>1340</td>
<td>799</td>
<td>1330</td>
</tr>
<tr>
<td>omnetpp</td>
<td>48</td>
<td>510</td>
<td>588</td>
<td>510</td>
<td>588</td>
</tr>
<tr>
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<td>48</td>
<td>511</td>
<td>659</td>
<td>511</td>
<td>659</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>48</td>
<td>237</td>
<td>1400</td>
<td>235</td>
<td>1410</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:
- Sub NUMA Cluster enabled
- 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 Thu Jun 29 10:54:46 2017

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**Platform Notes (Continued)**

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

From /proc/cpuinfo
- model name: Intel(R) Xeon(R) Gold 5118 CPU @ 2.30GHz
- 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 1 2 3 4 5 8 9 10 11 12 13
  - physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
- cache size: 16896 KB

From /proc/meminfo
- MemTotal: 394732008 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 29 10:51

SPEC is set to: /home/cpu2006-1.2_ic17u3
Files/system Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 405G 8.9G 396G 3% /home
Additional information from dmidecode:

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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
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

### 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_OFFSETBITS=64 -DSPEC_CPU_LINUX_IA32
- 401.bzip2: -D_FILE_OFFSETBITS=64
- 403.gcc: -D_FILE_OFFSETBITS=64
- 429.mcf: -D_FILE_OFFSETBITS=64
- 445.gobmk: -D_FILE_OFFSETBITS=64
- 456.hmmer: -D_FILE_OFFSETBITS=64
- 458.sjeng: -D_FILE_OFFSETBITS=64
- 462.libquantum: -D_FILE_OFFSETBITS=64 -DSPEC_CPU_LINUX
- 464.h264ref: -D_FILE_OFFSETBITS=64
- 471.omnetpp: -D_FILE_OFFSETBITS=64

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Base Portability Flags (Continued)

473.astar: \(-D\_FILE\_OFFSET\_BITS=64\)
483.xalancbmk: \(-D\_FILE\_OFFSET\_BITS=64\) \(-D\_SPEC\_CPU\_LINUX\)

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

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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.