Dell Inc.

PowerEdge M630 (Intel Xeon E5-2640 v4, 2.40 GHz)

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 856

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Feb-2017
Hardware Availability: Jun-2016
Software Availability: Sep-2016

<table>
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<tr>
<th>Test</th>
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<td>perlbench</td>
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<td>bzip2</td>
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<td>640</td>
</tr>
<tr>
<td>gcc</td>
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<td>1170</td>
</tr>
<tr>
<td>mcf</td>
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<td>564</td>
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<tr>
<td>gobmk</td>
<td>40</td>
<td>1270</td>
</tr>
<tr>
<td>sjeng</td>
<td>40</td>
<td>581</td>
</tr>
<tr>
<td>libquantum</td>
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<td>1050</td>
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<tr>
<td>h264ref</td>
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<td>441</td>
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<tr>
<td>omnetpp</td>
<td>40</td>
<td>501</td>
</tr>
<tr>
<td>astar</td>
<td>40</td>
<td>1000</td>
</tr>
</tbody>
</table>

Hardware

CPU Name: Intel Xeon E5-2640 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 20 cores, 2 chips, 10 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: 256 KB I+D on chip per core
L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx8 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 300 GB 10000 RPM SAS
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.48-1-default
Compiler: C/C++: Version 17.0.0.098 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
SPEC CINT2006 Result

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Results Table

<table>
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<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>619</td>
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<td>407</td>
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<td>407</td>
<td>949</td>
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<tr>
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<td>1000</td>
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<td>1000</td>
<td>275</td>
<td>1000</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:
Snoop Mode set to Cluster on Die
Virtualization Technology disabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E disabled
Energy Efficient Turbo enabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Balanced Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux Fri Feb 3 04:37:04 2017

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: Continued on next page
Dell Inc.

PowerEdge M630 (Intel Xeon E5-2640 v4, 2.40 GHz)

**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate2006</td>
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<tr>
<td>SPECint_rate_base2006</td>
<td>856</td>
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</table>

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Test date:** Feb-2017

**Software Availability:** Sep-2016

**Hardware Availability:** Jun-2016

**Tested by:** Dell Inc.

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Test date:** Feb-2017

**Hardware Availability:** Jun-2016

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**Software Availability:** Sep-2016

**Platform Notes (Continued)**

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From `/proc/cpuinfo`

- model name : Intel(R) Xeon(R) CPU E5-2640 v4 @ 2.40GHz
- 2 "physical id"s (chips)
- 40 "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 : 10
  - siblings : 20
  - physical 0: cores 0 1 2 3 4 8 9 10 11 12
  - physical 1: cores 0 1 2 3 4 8 9 10 11 12
- cache size : 25600 KB

From `/proc/meminfo`

- MemTotal: 264568092 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1
```

From `/etc/*release* /etc/*version*`

```
SuSE-release:
  NAME="SLES"
  VERSION="12-SP1"
  VERSION_ID="12.1"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp1"
```

```
uname -a:
  Linux linux 3.12.48-1-default #1 SMP Fri Sep 18 13:49:47 UTC 2015 (a83966d)
  x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Feb 3 04:36
```

SPEC is set to: /root/cpu2006-1.2

```
Filesystem  Type  Size  Used  Avail  Use%  Mounted on
/dev/sda2  xfs  271G  12G  259G  5%  /
```

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
Plasmid Notes (Continued)

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. 2.3.5 11/10/2016
Memory:  
1x 00AD00B300AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz, configured at 2133
MHz  
9x 00AD063200AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz, configured at 2133
MHz  
6x 00CE00B300CE M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz, configured at 2133
MHz  
8x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/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:
   echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
umactl --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_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
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64

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Base Portability Flags (Continued)

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

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.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.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.