**Dell Inc.**

PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)

**SPECint_rate2006 = 986**

**SPECint_rate_base2006 = 935**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default</td>
<td>CPU Name: Intel Xeon E5-2650L v4</td>
</tr>
<tr>
<td>Compiler: C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux</td>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz</td>
</tr>
<tr>
<td>Auto Parallel: No</td>
<td>CPU MHz: 1700</td>
</tr>
<tr>
<td>File System: ext4</td>
<td>CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>CPU(s) orderable: 1,2 chip</td>
</tr>
<tr>
<td>Base Pointers: 32-bit</td>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.2</td>
<td>L3 Cache: 35 MB I+D on chip per core</td>
</tr>
<tr>
<td></td>
<td>Other Cache: None</td>
</tr>
<tr>
<td></td>
<td>Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td></td>
<td>Disk Subsystem: 1 x 250 GB 7200 RPM SATA HDD</td>
</tr>
<tr>
<td></td>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

| CPU2006 license: 55 | Test sponsor: Dell Inc. |
| Test date: Jun-2016 | Hardware Availability: Jun-2016 |
| Tested by: Dell Inc. | Software Availability: Dec-2015 |

400.perlbench 462.libquantum
401.bzip2 464.h264ref
403.gcc 471.omnetpp
429.mcf 473.astar
445.gobmk 483.xalancbmk
456.hmmer 49200
458.sjeng

SPECint_rate2006 = 986

SPECint_rate_base2006 = 935
Dell Inc.

PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>56</td>
<td>815</td>
<td>671</td>
<td>817</td>
<td>670</td>
<td>818</td>
<td>669</td>
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<td>830</td>
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<td>661</td>
<td>828</td>
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<tr>
<td>401.bzip2</td>
<td>56</td>
<td>1173</td>
<td>461</td>
<td>1165</td>
<td>464</td>
<td>1164</td>
<td>464</td>
<td>56</td>
<td>1119</td>
<td>483</td>
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<td>1121</td>
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<tr>
<td>403.gcc</td>
<td>56</td>
<td>616</td>
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<td>620</td>
<td>727</td>
<td>617</td>
<td>731</td>
<td>56</td>
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<td>732</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<td>462.libquantum</td>
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<tr>
<td>464.h264ref</td>
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<td>992</td>
<td>1253</td>
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<td>1211</td>
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<tr>
<td>471.omnetpp</td>
<td>56</td>
<td>645</td>
<td>543</td>
<td>646</td>
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<tr>
<td>473.astar</td>
<td>56</td>
<td>705</td>
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<td>707</td>
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<tr>
<td>483.xalancbmk</td>
<td>56</td>
<td>333</td>
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<td>333</td>
<td>1160</td>
<td>333</td>
<td>1160</td>
<td></td>
<td></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 Power Management set to Hardware P States
C States set to Autonomous
C1E disabled
Energy Efficient Turbo disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Balanced Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on linux-g0aw Mon Jun 13 09:06:49 2016

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
SPEC CINT2006 Result

Dell Inc.

PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)

SPECint_rate2006 = 986
SPECint_rate_base2006 = 935

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

Test date: Jun-2016
Hardware Availability: Jun-2016
Software Availability: Dec-2015

Platform Notes (Continued)

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

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2650L v4@ 1.70GHz
  2 "physical id"s (chips)
  56 "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 : 14
  siblings : 28
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  cache size : 17920 KB

From /proc/meminfo
  MemTotal: 264567584 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:
    SUSE Linux Enterprise Server 12 (x86_64)
    VERSION = 12
    PATCHLEVEL = 1
    # 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-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-g0aw 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
  (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 13 09:01

SPEC is set to: /root/cpu2006-1.2
  Filesystem  Type  Size  Used Avail Use% Mounted on
  /dev/sda2  ext4  221G  8.7G  212G  4%  /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
Dell Inc. PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)

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CPU2006 license: 55
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Tested by: Dell Inc.

**Platform 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. 2.0.1 04/11/2016
Memory:
8x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz
4x 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/sh"

Binaries compiled on a system with 1x Intel Core i7-4790K CPU + 32GB
memory using RedHat EL 7.2 glibc 2.17
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
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_2016/linux/compiler/lib/ia32_lin
```

C++ benchmarks:
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

**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
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
```

Continued on next page
## 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 -opt-prefetch
- -opt-mem-layout-trans=3

C++ benchmarks:
- -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
- -opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

---

## Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

---

## Peak Compiler Invocation

C benchmarks (except as noted below):
- icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
- icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

---

## Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64

Continued on next page
Dell Inc.

PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)

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SPECint_rate_base2006 = 935

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

Test date: Jun-2016
Hardware Availability: Jun-2016
Software Availability: Dec-2015

Peak Portability Flags (Continued)

456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
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

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-ipo(pass 2) -O3(pass 2) -no-precp-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-ipo(pass 2) -O3(pass 2) -no-precp-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
-auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-precp-div -unroll2 -auto-ilp32

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-ipo(pass 2) -O3(pass 2) -no-precp-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-ipo(pass 2) -O3(pass 2) -no-precp-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafepass 1
-ipo(pass 2) -O3(pass 2) -no-precp-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -ansi-alias
-opt-ra-region-strategy=block -Wl,-z,muldefs

Continued on next page
Dell Inc.  
PowerEdge R530 (Intel Xeon E5-2650L v4, 1.70 GHz)  

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CPU2006 license: 55  
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Software Availability: Dec-2015  

Peak Optimization Flags (Continued)  

471.omnetpp (continued):  
   -L/sh -lsmartheap  
473.astar: basepeak = yes  
483.xalancbmk: basepeak = yes  

Peak 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-ic16.0-official-linux64.html  

You can also download the XML flags sources by saving the following links:  
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml  
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml  

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For other inquiries, please contact webmaster@spec.org.  

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