Dell Inc. PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz) SPECint®2006 = 57.7
SPECint_base2006 = 55.3

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

CPU Name: Intel Xeon E7-8855 v4
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 56 cores, 4 chips, 14 cores/chip, 2 threads/core
CPU(s) orderable: 2,4 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: 35 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)
Disk Subsystem: 1 x 480 GB SAS SSD
Other Hardware: None

Software
Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.2

Hardware
Software

SPECint2006 = 57.7
SPEC CINT2006 Result

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz)

SPECint2006 = 57.7
SPECint_base2006 = 55.3

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

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

Results Table

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<thead>
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<th>Benchmark</th>
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<th>Ratio</th>
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<td>32.6</td>
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<tr>
<td>401.bzip2</td>
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<td>20.2</td>
<td>475</td>
<td>20.3</td>
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<td>20.3</td>
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<td>429.mcf</td>
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<td>456.hmmer</td>
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<tr>
<td>462.libquantum</td>
<td>3.32</td>
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<td>6040</td>
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<td>46.5</td>
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<tr>
<td>473.astar</td>
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<td>483.xalancbmk</td>
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<td>56.9</td>
<td>101</td>
<td>68.5</td>
<td>101</td>
<td>68.5</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.

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 Power Management set to Hardware P States
Memory Frequency set to Maximum Performance
Turbo Boost Enabled
Energy Efficient Turbo Enabled
C1E Disabled
C States set to Autonomous
Collaborative CPU Performance Control Disabled
Memory Patrol Scrub Disabled
Memory Refresh Rate set to 1x
Uncore Frequency set to Dynamic
Energy Efficient Policy set to Performance
Monitor/MWait Enabled
Snoop Mode set to Home Snoop
Sysinfo program /root/ic16.0_Sept12_2015/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on bdx-perfspeed Thu May 5 14:39:49 2016

Continued on next page
SPEC CINT2006 Result

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz)

SPECint2006 = 57.7
SPECint_base2006 = 55.3

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

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

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) CPU E7-8855 v4 @ 2.10GHz
4 "physical id"s (chips)
112 "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
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo
MemTotal: 529318708 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:
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 5 14:37

SPEC is set to: /root/ic16.0_Sept12_2015

Continued on next page
## SPEC CINT2006 Result

**Dell Inc.**

PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz)

<table>
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**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Test date:** May-2016  
**Hardware Availability:** Jun-2016  
**Tested by:** Dell Inc.  
**Software Availability:** Dec-2015

### Platform Notes (Continued)

Filesystem | Type | Size | Used | Avail | Use% | Mounted on
---|---|---|---|---|---|---
/dev/sda3 | xfs | 368G | 9.0G | 359G | 3% | /

Additional information from dmidecode:

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. 2.0.1 04/20/2016  
**Memory:**

- 32x 00AD00B300AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1333 MHz  
- 64x Not Specified Not Specified

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:

- KMP_AFFINITY = "granularity=fine,scatter"
- OMP_NUM_THREADS = "56"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

`echo always > /sys/kernel/mm/transparent_hugepage/enabled`

### Base Compiler Invocation

- **C benchmarks:**
  
  - icc -m64

- **C++ benchmarks:**
  
  - icpc -m64

### Base Portability Flags

- 400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
- 401.bzip2: -DSPEC_CPU_LP64
- 403.gcc: -DSPEC_CPU_LP64
- 429.mcf: -DSPEC_CPU_LP64
- 445.gobmk: -DSPEC_CPU_LP64
- 456.hmmer: -DSPEC_CPU_LP64
- 458.sjeng: -DSPEC_CPU_LP64
SPEC CINT2006 Result

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Base Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64
400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64

Continued on next page
**SPEC CINT2006 Result**

**Dell Inc.**

PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz)

<table>
<thead>
<tr>
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| **CPU2006 license** | 55 |
| **Test sponsor** | Dell Inc. |
| **Test date** | May-2016 |
| **Tested by** | Dell Inc. |
| **Hardware Availability** | Jun-2016 |
| **Software Availability** | Dec-2015 |

### Peak Portability Flags (Continued)

- 458.sjeng: `-DSPEC_CPU_LP64`
- 462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
- 464.h264ref: `-DSPEC_CPU_LP64`
- 471.omnetpp: `-D_FILE_OFFSET_BITS=64`
- 473.astar: `-DSPEC_CPU_LP64`
- 483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

### Peak Optimization Flags

#### C benchmarks:

- 400.perlbench: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
  `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
  `-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch`
  `-ansi-alias`

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

- 403.gcc: `basepeak = yes`

- 429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel`
  `-opt-prefetch -auto-p32`

- 445.gobmk: `basepeak = yes`

- 456.hmmer: `basepeak = yes`

- 458.sjeng: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
  `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
  `-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll14`

- 462.libquantum: `basepeak = yes`

- 464.h264ref: `basepeak = yes`

#### C++ benchmarks:

- 471.omnetpp: `-xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)`
  `-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)`
  `-par-num-threads=1(pass 1) -prof-use(pass 2)`
  `-opt-ra-region-strategy=block -ansi-alias`
  `-Wl,-z,muldefs -L/sh -lsmartheap`

- 473.astar: `basepeak = yes`

Continued on next page
Dell Inc.  

PowerEdge R930 (Intel Xeon E7-8855 v4, 2.10 GHz)  

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Peak Optimization Flags (Continued)

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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

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