Dell Inc. PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)  

SPEClnt\_rate\_2006 = 2850  
SPEClnt\_rate\_base\_2006 = 2740  

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

Test date: Apr-2016  
Hardware Availability: Jun-2016  
Software Availability: Mar-2016  

CPU Name: Intel Xeon E5-4667 v4  
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
CPU MHz: 2200  
FPU: Integrated  
CPU(s) enabled: 72 cores, 4 chips, 18 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: 45 MB I+D on chip per chip  
Other Cache: None  
Memory: 512 GB (32 x 16 GB 2Rx8 PC4-2400T-R)  
Disk Subsystem: 1 x 800 GB SATA SSD  
Other Hardware: None  

Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default  
Compiler: C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux  
Auto Parallel: No  
File System: btrfs  
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

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)

SPECint_rate2006 = 2850
SPECint_rate_base2006 = 2740

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

Results Table

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<th>Seconds</th>
<th>Ratio</th>
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</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 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-4pvp Tue Apr 26 09:31:36 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
Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)

**SPEC CINT2006 Result**

**SPECint_rate2006 = 2850**

**SPECint_rate_base2006 = 2740**

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Test date:** Apr-2016

**Tested by:** Dell Inc.

**Hardware Availability:** Jun-2016

**Software Availability:** Mar-2016

---

**Platform Notes (Continued)**

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

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) CPU E5-4667 v4 @ 2.20GHz
  4 "physical id"s (chips)
  144 "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 : 18
siblings : 36
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
```

```
cache size : 46080 KB
```

From /proc/meminfo

```
MemTotal:       529326748 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"
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.
```

```
uname -a:
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Apr 26 09:30
```

```
SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 271G 12G 260G 5% /
```

Continued on next page
SPEC CINT2006 Result

Dell Inc.
PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)

SPECint_rate2006 = 2850
SPECint_rate_base2006 = 2740

CPU2006 license: 55  Test date:  Apr-2016
Test sponsor:  Dell Inc.  Hardware Availability:  Jun-2016
Tested by:  Dell Inc.  Software Availability:  Mar-2016

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. 2.0.2 04/14/2016
Memory:
  5x 002C00B3002C 18ASF2G72PDZ-2G3A1 16 GB 2 rank 2400 MHz
  19x 00AD00B300AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz
  8x 00AD063200AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz
  16x 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.:
  numactl --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

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Dell Inc.
PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)

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CPU2006 license: 55
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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 -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

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Dell Inc.  
PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)  

```
SPECint_rate2006 = 2850
SPECint_rate_base2006 = 2740
```

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

Peak Portability Flags (Continued)

```
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
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
```
Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4667 v4, 2.20 GHz)

**SPECint**

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>2850</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>2740</td>
</tr>
</tbody>
</table>

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

---

**Peak Optimization Flags (Continued)**

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) -ansi-alias  
-opt-ra-region-strategy=block -Wl,-z,muldefs  
-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 questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

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