Dell Inc.

PowerEdge M830 (Intel Xeon E5-4628L v4, 1.80 GHz)

SPECint®2006 = 47.6
SPECint_base2006 = 45.9

Hardware
- CPU Name: Intel Xeon E5-4628L v4
- CPU Characteristics: Intel Turbo Boost Technology up to 2.20 GHz
- CPU MHz: 1800
- 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 2Rx8 PC4-2400T-R, running at 2133 MHz)
- Disk Subsystem: 1 x 800 GB SATA 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: btrfs
- System State: Run level 3 (multi-user)
- Base Pointers: 32/64-bit
- Peak Pointers: 32/64-bit
- Other Software: None
Dell Inc.

PowerEdge M830 (Intel Xeon E5-4628L v4, 1.80 GHz)

SPEC CINT2006 Result

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SPECint2006 = 47.6
SPECint_base2006 = 45.9

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

Results Table

Benchmark | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
--- | --- | --- | --- | --- | --- | --- | --- | --- |
400.perlbench | 373 | 26.2 | 372 | 26.2 | 372 | 26.2 | 341 | 28.6 |
401.bzip2 | 590 | 16.4 | 594 | 16.2 | 592 | 16.3 | 581 | 16.6 |
403.gcc | 309 | 26.1 | 308 | 26.1 | 309 | 26.1 | 309 | 26.1 |
429.mcf | 194 | 47.0 | 194 | 47.0 | 192 | 47.6 | 190 | 48.1 |
445.gobmk | 545 | 19.2 | 545 | 19.3 | 544 | 19.3 | 545 | 19.2 |
456.hmmer | 173 | 53.9 | 174 | 53.7 | 174 | 53.7 | 173 | 53.9 |
458.sjeng | 539 | 22.4 | 539 | 22.4 | 539 | 22.4 | 533 | 22.7 |
462.libquantum | 4.00 | 5190 | 3.94 | 5260 | 4.04 | 5120 | 4.00 | 5190 |
464.h264ref | 601 | 36.9 | 602 | 36.8 | 601 | 36.9 | 601 | 36.8 |
471.omnetpp | 192 | 32.6 | 192 | 32.5 | 184 | 34.0 | 156 | 40.2 |
473.astar | 295 | 23.8 | 295 | 23.8 | 294 | 23.9 | 294 | 23.8 |
483.xalancbmk | 141 | 49.0 | 143 | 48.3 | 142 | 48.5 | 131 | 52.5 |

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:
Snoop Mode set to Opportunistic Snoop Broadcast
Virtualization Technology disabled
System Profile set to custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E disabled
Energy Efficient Turbo disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-9j5l Thu May 5 09:35:52 2016

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

Continued on next page
Dell Inc. PowerEdge M830 (Intel Xeon E5-4628L v4, 1.80 GHz)  

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Platform Notes ( Continued )

From /proc/cpuinfo

- model name: Intel(R) Xeon(R) CPU E5-4628L v4 @ 1.80GHz
- 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: 529326752 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"
  - CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

  - x86_64 GNU/Linux

run-level 3 May 5 09:34

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 225G 8.8G 217G 4% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page
SPEC CINT2006 Result

Dell Inc.  

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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 03/31/2016  
Memory:  
16x 00AD00B300AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz, configured at 2133 MHz  
16x 00CE00B300CE M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz, configured at 2133 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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
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  
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX  
464.h264ref: -DSPEC_CPU_LP64  
471.omnetpp: -DSPEC_CPU_LP64

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Dell Inc.  

Spec CINT2006 Result

PowerEdge M830 (Intel Xeon E5-4628L v4, 1.80 GHz)

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CPU2006 license: 55  
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Test date: May-2016  
Hardware Availability: Jun-2016  
Software Availability: Mar-2016

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**Base Portability Flags (Continued)**

| 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):

```bash
icc -m64
```

400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

```bash
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
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
Dell Inc.

PowerEdge M830 (Intel Xeon E5-4628L v4, 1.80 GHz)

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SPECint_base2006 = 45.9

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

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

Peak Portability Flags (Continued)

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) -unroll4

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

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

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

**Test date:** May-2016  
**Hardware Availability:** Jun-2016  
**Software Availability:** Mar-2016

## Peak Other Flags

C benchmarks:

```
403.gcc -Dalloca=_alloca
```

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links: