Dell Inc.

PowerEdge FC640 (Intel Xeon Gold 6126, 2.60 GHz)  

SPECint®2006 = 76.3  
SPECint_base2006 = 72.8

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

CPU Name: Intel Xeon Gold 6126  
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
CPU MHz: 2600  
FPU: Integrated  
CPU(s) enabled: 24 cores, 2 chips, 12 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: 1 MB I+D on chip per core  
L3 Cache: 19.25 MB I+D on chip per chip  
Other Cache: None  
Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem: 1 x 960 GB SATA SSD  
Other Hardware: None

Operating System: SUSE Linux Enterprise Server 12 SP3 (x86_64)  
4.4.70-2-default  
Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler 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: Microquill SmartHeap V10.2
Dell Inc.
PowerEdge FC640 (Intel Xeon Gold 6126, 2.60 GHz)

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</thead>
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<tr>
<td>400.perlbench</td>
<td>207</td>
<td>47.2</td>
<td>207</td>
<td>47.1</td>
<td>208</td>
<td>47.0</td>
<td>184</td>
<td>53.2</td>
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<tr>
<td>401.bzip2</td>
<td>340</td>
<td>28.4</td>
<td>341</td>
<td>28.3</td>
<td>341</td>
<td>28.3</td>
<td>338</td>
<td>28.5</td>
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<tr>
<td>403.gcc</td>
<td>214</td>
<td>37.7</td>
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<td>37.7</td>
<td>214</td>
<td>37.6</td>
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<tr>
<td>429.mcf</td>
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<td>33.5</td>
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<td>33.4</td>
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<td>33.9</td>
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<tr>
<td>456.hmmer</td>
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<td>95.1</td>
<td>98.1</td>
<td>95.3</td>
<td>97.9</td>
<td>95.0</td>
<td>98.2</td>
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<tr>
<td>458.sjeng</td>
<td>329</td>
<td>36.8</td>
<td>328</td>
<td>36.8</td>
<td>328</td>
<td>36.9</td>
<td>323</td>
<td>37.5</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.11</td>
<td>6650</td>
<td>3.21</td>
<td>6460</td>
<td>3.12</td>
<td>6650</td>
<td>3.11</td>
<td>6650</td>
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<tr>
<td>464.h264ref</td>
<td>314</td>
<td>70.4</td>
<td>316</td>
<td>70.1</td>
<td>315</td>
<td>70.2</td>
<td>314</td>
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<tr>
<td>471.omnetpp</td>
<td>204</td>
<td>30.7</td>
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<td>31.6</td>
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<td>30.6</td>
<td>146</td>
<td>42.8</td>
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<tr>
<td>473.astar</td>
<td>180</td>
<td>39.0</td>
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<td>39.1</td>
<td>185</td>
<td>37.9</td>
<td>180</td>
<td>39.0</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>83.8</td>
<td>82.4</td>
<td>83.0</td>
<td>83.1</td>
<td>83.3</td>
<td>82.9</td>
<td>76.9</td>
<td>89.8</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:
Sub NUMA Cluster disabled
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
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-bek4 Wed Sep  6 01:39:45 2017
Continued on next page
SPEC INT2006 Result

Dell Inc. PowerEdge FC640 (Intel Xeon Gold 6126, 2.60 GHz)

SPECint2006 = 76.3
SPECint_base2006 = 72.8

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

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) Gold 6126 CPU @ 2.60GHz
  2 "physical id"s (chips)
  48 "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 : 12
siblings : 24
physical 0: cores 1 2 3 4 5 6 8 9 10 11 12 13
physical 1: cores 0 1 3 4 5 6 8 9 10 11 12 13
cache size : 19712 KB

From /proc/meminfo
MemTotal: 196687956 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
  NAME="SLES"
  VERSION="12-SP3"
  VERSION_ID="12.3"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
Linux linux-bek4 4.4.70-2-default #1 SMP Wed Jun 7 15:12:06 UTC 2017
(4502c76) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Sep 6 01:35

SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesyste Type Size Used Avail Use% Mounted on
/dev/sda7 btrfs 855G 8.2G 846G 1% /

Additional information from dmidecode:

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

**Dell Inc.**

PowerEdge FC640 (Intel Xeon Gold 6126, 2.60 GHz)

**SPECint2006 =** 76.3  
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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. 1.0.0 08/10/2017

**Memory:**

- 12x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 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:

- KMP_AFFINITY = "granularity=fine,scatter"
- LD_LIBRARY_PATH = "/root/cpu2006-1.2_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"
- OMP_NUM_THREADS = "24"

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:

shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run

**Base Compiler Invocation**

- C benchmarks:  
  - icc -m64
- C++ benchmarks:  
  - icpc -m64

**Base Portability Flags**

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

Test date: Sep-2017
Hardware Availability: Sep-2017
Software Availability: Nov-2016

Base Optimization Flags

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

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -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_2017/linux/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks (except as noted below):
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
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: -D_FILE_OFFSET_BITS=64
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: -D_FILE_OFFSET_BITS=64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
Dell Inc.  
PowerEdge FC640 (Intel Xeon Gold 6126, 2.60 GHz)  

**SPEC CINT2006 Result**

| SPECint2006 = | 76.3 |
| SPECint_base2006 = | 72.8 |

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

**Peak Optimization Flags**

C benchmarks:

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

- 401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -qopt-prefetch
  -prof-use(pass 2)
  -prof-gen(pass 1)

- 403.gcc: basepeak = yes
- 429.mcf: basepeak = yes
- 445.gobmk: basepeak = yes
- 456.hmmer: basepeak = yes
- 458.sjeng: basepeak = yes
- 462.libquantum: basepeak = yes
- 464.h264ref: basepeak = yes

**Peak Other Flags**

C benchmarks:

- 403.gcc: -Dalloca=_alloca

C++ benchmarks:

- 471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -qopt-ra-region-strategy=block
  -L/wl,-z,muldefs -L/sh10.2 -lsmartheap

- 473.astar: basepeak = yes
- 483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
  -Wl,-z,muldefs -L/sh10.2 -lsmartheap
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The flags files that were used to format this result can be browsed at:

- [Intel-ic17.0-official-linux64-revF.html](http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html)

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

- [Intel-ic17.0-official-linux64-revF.xml](http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml)
- [Dell-Platform-Flags-PowerEdge14G-revC.xml](http://www.spec.org/cpu2006/flags/Dell-Platform-Flags-PowerEdge14G-revC.xml)

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