Dell Inc.

PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)

**SPECint®2006 = 67.6**  
**SPECint_base2006 = 64.7**

---

**CPU2006 license:** 55  
**Test date:** Jun-2016

**Test sponsor:** Dell Inc.  
**Hardware Availability:** Jun-2016

**Tested by:** Dell Inc.  
**Software Availability:** Nov-2015

---

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2637 v4</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>3500</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>8 cores, 2 chips, 4 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>15 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Primary Memory</td>
<td>512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 250 GB 7200 RPM SATA HDD</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
</tbody>
</table>

---

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.2 (Maipo)</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>
SPEC CINT2006 Result

Dell Inc.
PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)

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

SPECint2006 = 67.6
SPECint_base2006 = 64.7

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Peak</th>
<th>Ratio</th>
<th>Seconds Peak</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>227</td>
<td>43.0</td>
<td>228</td>
<td>42.8</td>
<td>209</td>
<td>46.8</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>363</td>
<td>26.6</td>
<td>363</td>
<td>26.6</td>
<td>360</td>
<td>26.8</td>
</tr>
<tr>
<td>403.mcf</td>
<td>215</td>
<td>37.5</td>
<td>217</td>
<td>37.2</td>
<td>214</td>
<td>37.7</td>
</tr>
<tr>
<td>429.gcc</td>
<td>339</td>
<td>31.0</td>
<td>339</td>
<td>31.0</td>
<td>337</td>
<td>31.1</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>104</td>
<td>90.1</td>
<td>104</td>
<td>90.0</td>
<td>104</td>
<td>90.0</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>336</td>
<td>36.0</td>
<td>336</td>
<td>36.0</td>
<td>333</td>
<td>36.3</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>5.31</td>
<td>3900</td>
<td>5.42</td>
<td>3820</td>
<td>5.40</td>
<td>3830</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>350</td>
<td>63.2</td>
<td>348</td>
<td>63.7</td>
<td>439</td>
<td>63.5</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>244</td>
<td>25.6</td>
<td>241</td>
<td>25.9</td>
<td>242</td>
<td>25.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>187</td>
<td>37.6</td>
<td>187</td>
<td>37.6</td>
<td>187</td>
<td>37.6</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>90.0</td>
<td>76.7</td>
<td>90.1</td>
<td>76.6</td>
<td>81.0</td>
<td>85.2</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:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
System Profile set to custom
CPU Power Management set to Maximum Performance
C States set to Autonomous
CIE 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

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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Dell Inc.  
PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)  

SPECint2006 = 67.6  
SPECint_base2006 = 64.7

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

**Platform Notes (Continued)**

From `/proc/cpuinfo`:
- model name: Intel(R) Xeon(R) CPU E5-2637 v4@ 3.50GHz
- 2 "physical id"s (chips)
- 16 "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: 4
  - siblings: 8
  - physical 0: cores 0 1 2 3
  - physical 1: cores 0 1 2 3
- cache size: 15360 KB

From `/proc/meminfo`:
- MemTotal: 528280400 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/etc/*release*`:
- `NAME="Red Hat Enterprise Linux Server"`
- `VERSION="7.2 (Maipo)"
- `ID="rhel"
- `ID_LIKE="fedora"
- `VERSION_ID="7.2"
- `PRETTY_NAME= "Red Hat Enterprise Linux Server 7.2 (Maipo)"
- `ANSI_COLOR="0;31"
- `CPE_NAME= "cpe:/o:redhat:enterprise_linux:7.2:GA:server"
- `redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
- `system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

`uname -a:`

Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 22 19:17

SPEC is set to: /root/cpu2006-1.2

`Filesystem Type Size Used Avail Use% Mounted on`
/dev/sda2  xfs  230G  8.0G  222G  4% /

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. 2.2.1 06/07/2016
Memory:
- 16x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz
- 8x Not Specified Not Specified

Continued on next page
**SPEC CINT2006 Result**

**Dell Inc.**

PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)

<table>
<thead>
<tr>
<th>SPECint2006</th>
<th>67.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>64.7</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test date:** Jun-2016

**Hardware Availability:** Jun-2016

**Software Availability:** Nov-2015

### Platform Notes (Continued)

(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 = "8"

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>403.gcc</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>473.astar</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

### 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
```
## SPEC CINT2006 Result

### Dell Inc.

**PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)**

| SPECint2006 | 67.6 |
| SPECint_base2006 | 64.7 |

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

### 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: `-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`

### 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-ipl32`

Continued on next page
Dell Inc.
PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)

SPECint2006 = 67.6
SPECint_base2006 = 64.7

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

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

Peak Optimization Flags (Continued)

401.bzip2 (continued):
  -opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
  -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen: threadsafe(pass 1)
  -prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

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)
  -opt-ra-region-strategy=block -ansi-alias
  -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

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
<table>
<thead>
<tr>
<th>Dell Inc.</th>
<th>SPECint2006 = 67.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerEdge M630 (Intel Xeon E5-2637 v4, 3.50 GHz)</td>
<td>SPECint_base2006 = 64.7</td>
</tr>
<tr>
<td>CPU2006 license: 55</td>
<td>Test date: Jun-2016</td>
</tr>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Jun-2016</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Nov-2015</td>
</tr>
</tbody>
</table>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 23 August 2016.