Dell Inc.  

PowerEdge R630 (Intel Xeon E5-2603 v3, 1.60 GHz)  

| Test date: | Jul-2014 |
| Hardware Availability: | Sep-2014 |

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

| CPU Name: | Intel Xeon E5-2603 v3 |
| CPU Characteristics: |  
| CPU MHz: | 1600 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip |
| CPU(s) orderable: | 1.2 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: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz) |
| Disk Subsystem: | 1 x 1000 GB 7200 RPM SATA |
| Other Hardware: | None |

| SPECint<sup>®</sup>_rate<sub>2006</sub> = 275 |
| SPECint_rate_base<sub>2006</sub> = 266 |

**Software**  
**Operating System:** SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default  
**Compiler:** C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
**Auto Parallel:** No  
**File System:** ext2  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 32-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** Microquill SmartHeap V10.0
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds (Base)</th>
<th>Ratio</th>
<th>Seconds (Peak)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>12</td>
<td>590</td>
<td>199</td>
<td>472</td>
<td>249</td>
</tr>
<tr>
<td>bzip2</td>
<td>12</td>
<td>960</td>
<td>121</td>
<td>895</td>
<td>129</td>
</tr>
<tr>
<td>gcc</td>
<td>12</td>
<td>473</td>
<td>204</td>
<td>473</td>
<td>204</td>
</tr>
<tr>
<td>mcf</td>
<td>12</td>
<td>282</td>
<td>397</td>
<td>282</td>
<td>397</td>
</tr>
<tr>
<td>gobmk</td>
<td>12</td>
<td>812</td>
<td>155</td>
<td>797</td>
<td>158</td>
</tr>
<tr>
<td>hammer</td>
<td>12</td>
<td>321</td>
<td>352</td>
<td>320</td>
<td>350</td>
</tr>
<tr>
<td>sjeng</td>
<td>12</td>
<td>798</td>
<td>182</td>
<td>799</td>
<td>182</td>
</tr>
<tr>
<td>libquantum</td>
<td>12</td>
<td>88.6</td>
<td>2810</td>
<td>88.8</td>
<td>2800</td>
</tr>
<tr>
<td>h264ref</td>
<td>12</td>
<td>790</td>
<td>332</td>
<td>797</td>
<td>333</td>
</tr>
<tr>
<td>omnetpp</td>
<td>12</td>
<td>506</td>
<td>148</td>
<td>759</td>
<td>350</td>
</tr>
<tr>
<td>astar</td>
<td>12</td>
<td>583</td>
<td>145</td>
<td>583</td>
<td>145</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>12</td>
<td>254</td>
<td>326</td>
<td>254</td>
<td>326</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:
Snoop Mode set to Early Snoop
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818

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 E5-2603 v3 @ 1.60GHz
 2 "physical id"s (chips)
 12 "processors"

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SPEC CINT2006 Result

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CPU2006 license: 55
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Platform Notes (Continued)

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 : 6
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5

From /proc/meminfo
MemTotal: 264441016 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3

uname -a:
Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 15 11:30 last=S

SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext2 726G 11G 715G 2% /

Additional information from dmidecode:
BIOS Dell Inc. 0.3.25 06/19/2014
Memory:
16x 002C00B3002C 36ASF2G72PZ-2G1A1 16 GB 1600 MHz
8x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:

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## SPEC CINT2006 Result

**Dell Inc.**

PowerEdge R630 (Intel Xeon E5-2603 v3, 1.60 GHz)

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### General Notes (Continued)

- echo 1> /proc/sys/vm/drop_caches
- runspec command invoked through numacll i.e.: numacll --interleave=all runspec <etc>

### Base Compiler Invocation

- **C benchmarks:**  
  - icc -m32
- **C++ benchmarks:**  
  - icpc -m32

### Base Portability Flags

- 400.perlbench: -DSPEC_CPU_LINUX_IA32
- 462.libquantum: -DSPEC_CPU_LINUX
- 483.xalancbmk: -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
  - 400.perlbench: icc -m64

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**Peak Compiler Invocation (Continued)**

401.bzip2: icc -m64  
458.sjeng: icc -m64

**C++ benchmarks:**  
icpc -m32

---

**Peak Portability Flags**

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

---

**Peak Optimization Flags**

**C benchmarks:**

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
              -O3(pass 2) -no-prec-div(pass 2) -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/Dell-Platform-Settings-V1.2-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.xml

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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 24 September 2014.