### Dell Inc.

**PowerEdge R720 (Intel Xeon E5-2667 v2, 3.30 GHz)**

<table>
<thead>
<tr>
<th>SPECint®_rate2006 = 806</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006 = 779</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** Aug-2013  
**Hardware Availability:** Sep-2013  
**Software Availability:** Sep-2013

<table>
<thead>
<tr>
<th>Software Availability:</th>
<th>Dell Inc.</th>
<th>Dell Inc.</th>
<th>Dell Inc.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2667 v2</td>
<td>Operating System: SUSE Linux Enterprise Server 11 SP3 (x86_64) 3.0.76-0.11-default</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz</td>
<td>Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>CPU MHz: 3300</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: ext2</td>
</tr>
<tr>
<td>CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
<td>Base Pointers: 32-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Other Software: Microquill SmartHeap V10.0</td>
</tr>
<tr>
<td>L3 Cache: 25 MB I+D on chip per chip</td>
<td>Other Hardware: None</td>
</tr>
<tr>
<td>Other Cache: None</td>
<td>Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 1 TB 7200 RPM SATA</td>
<td></td>
</tr>
</tbody>
</table>
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>519</td>
<td>603</td>
<td>524</td>
<td>596</td>
<td>521</td>
<td>600</td>
<td>32</td>
<td>440</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>719</td>
<td>429</td>
<td>720</td>
<td>428</td>
<td>721</td>
<td>428</td>
<td>32</td>
<td>704</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>416</td>
<td>619</td>
<td>418</td>
<td>617</td>
<td>417</td>
<td>618</td>
<td>32</td>
<td>416</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>251</td>
<td>1160</td>
<td>252</td>
<td>1160</td>
<td>251</td>
<td>1160</td>
<td>32</td>
<td>251</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>579</td>
<td>579</td>
<td>576</td>
<td>583</td>
<td>576</td>
<td>583</td>
<td>32</td>
<td>573</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>278</td>
<td>1070</td>
<td>279</td>
<td>1070</td>
<td>277</td>
<td>1080</td>
<td>32</td>
<td>248</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>32</td>
<td>680</td>
<td>569</td>
<td>680</td>
<td>569</td>
<td>680</td>
<td>570</td>
<td>32</td>
<td>650</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>32</td>
<td>128</td>
<td>5170</td>
<td>128</td>
<td>5170</td>
<td>128</td>
<td>5170</td>
<td>32</td>
<td>128</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>32</td>
<td>721</td>
<td>983</td>
<td>726</td>
<td>976</td>
<td>721</td>
<td>982</td>
<td>32</td>
<td>713</td>
</tr>
<tr>
<td>471.onetpp</td>
<td>32</td>
<td>489</td>
<td>409</td>
<td>488</td>
<td>410</td>
<td>490</td>
<td>408</td>
<td>32</td>
<td>467</td>
</tr>
<tr>
<td>473.astar</td>
<td>32</td>
<td>507</td>
<td>443</td>
<td>508</td>
<td>442</td>
<td>510</td>
<td>441</td>
<td>32</td>
<td>507</td>
</tr>
<tr>
<td>483.xalanmbk</td>
<td>32</td>
<td>265</td>
<td>832</td>
<td>265</td>
<td>832</td>
<td>266</td>
<td>832</td>
<td>32</td>
<td>265</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:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled
System Profile set to Performance
Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Mon Aug 26 11:00:06 2013

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 E5-2667 v2 @ 3.30GHz
  2 "physical id"s (chips)
  32 "processors"
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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 : 8  
siblings : 16  
physical 0: cores 1 2 3 4 8 9 10 11  
physical 1: cores 1 2 3 4 8 9 10 11  
cache size : 25600 KB
```

From /proc/meminfo
```
MemTotal: 264601764 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB
```

```
/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
```

```
r山东 3 Aug 26 10:57 last=S  
SPEC is set to: /root/cpu2006.1.2.ic13
```

```
Filesystem     Type  Size  Used Avail Use% Mounted on  
/dev/sda2      ext2  817G   11G  806G   2% /
```

**Additional information from dmidecode:**
```
BIOS Dell Inc. 2.0.18 08/10/2013  
Memory:  
8x 00AD00B300AD HMT42GR7MF4C-RD 16 GB 1866 MHz  
8x 00AD04B300AD HMT42GR7AF4C-RD 16 GB 1866 MHz
```

(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 RHEL5.5

Transparent Huge Pages enabled with:
```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:

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General Notes (Continued)

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

Base Compiler Invocation

C benchmarks:
```
icc -m32
```

C++ benchmarks:
```
icc -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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -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
401.bzip2: icc -m64
```

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Peak Compiler Invocation (Continued)

456.hmmer: 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
456.hmmer: -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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes
429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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: -xSSE4.2(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/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml

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For other inquiries, please contact webmaster@spec.org.

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