Dell Inc.

PowerEdge R720 (Intel Xeon E5-2670, 2.60 GHz)

**CPU2006 license:** 55  
**Test date:** Feb-2012

**Test sponsor:** Dell Inc.  
**Hardware Availability:** Mar-2012

**Tested by:** Dell Inc.  
**Software Availability:** Feb-2012

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint_rate2006</th>
<th>SPECint_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>468</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>350</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>500</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>955</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>480</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>934</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>32</td>
<td>795</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>32</td>
<td>470</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>32</td>
<td>796</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>374</td>
</tr>
<tr>
<td>473.astar</td>
<td>32</td>
<td>352</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>638</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext3</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (add definition here)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V9.01</td>
</tr>
</tbody>
</table>

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2670</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHZ:</td>
<td>2600</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>16 cores, 2 chips, 8 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>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 146 GB 10000 RPM SAS</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>
Dell Inc.

PowerEdge R720 (Intel Xeon E5-2670, 2.60 GHz)

**SPEC CINT2006 Result**

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

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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>668</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>904</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>515</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>306</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>713</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>375</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>32</td>
<td>836</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>32</td>
<td>178</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>32</td>
<td>884</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>568</td>
</tr>
<tr>
<td>473.astar</td>
<td>32</td>
<td>626</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>345</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

- **System Profile** set to Custom
- **CPU Power Management** set to Maximum Performance
- **Memory Frequency** set to Maximum Performance
- **Turbo Boost** set to Enabled
- **C States/C1E** set to Enabled
- Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6800

$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on linux-i51c Tue Feb  7 22:40:02 2012

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 E5-2670 0 @ 2.60GHz
- 2 "physical id"s (chips)
- 32 "processors"

Continued on next page
Dell Inc.

PowerEdge R720 (Intel Xeon E5-2670, 2.60 GHz)

SPECint_rate2006 = 645
SPECint_rate_base2006 = 618

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

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 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal: 132089856 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 = 2

uname -a:
Linux linux-i51c 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012
(54ddfaf) x86_64 x86_64 x86_64 GNU/Linux

run-level 3Feb 7 22:38 last=S

SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext3 131G 9.4G 120G 8% /

Additional information from dmidecode:

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
The Dell PowerEdge R720 and
the Bull NovaScale R460 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R720 model
Filesystem page cache cleared with:
echo 1>/proc/sys/vm/drop_caches
runcpec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
Dell Inc.
PowerEdge R720 (Intel Xeon E5-2670, 2.60 GHz)

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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:
   -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/smartheap -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
   456.hmmer: icc -m64
   458.sjeng: icc -m64

C++ benchmarks:
   icpc -m32
SPEC CINT2006 Result

Dell Inc.

PowerEdge R720 (Intel Xeon E5-2670, 2.60 GHz)

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Test date: Feb-2012
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Software Availability: Feb-2012

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: -xSSE4.2 -ipo -03 -no-prec-div
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

C++ benchmarks:
471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/smartheap -lsmartheap
473.astar: basepeak = yes

Continued on next page
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**Peak Optimization Flags (Continued)**

483.xalancbmk: basepeak = yes

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**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-ic12.1-official-linux64.20111122.html

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

http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.xml

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

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