Dell Inc.

PowerEdge R720 (Intel Xeon E5-2603, 1.80 GHz)

SPECint®2006 = 27.5
SPECint_base2006 = 26.3

**Hardware**
- **CPU Name:** Intel Xeon E5-2603
- **CPU Characteristics:**
  - CPU MHz: 1800
  - FPU: Integrated
  - CPU(s) enabled: 8 cores, 2 chips, 4 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: 10 MB I+D on chip per chip
  - Other Cache: None
  - Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
- **Disk Subsystem:** 1 x 1 TB 7200 RPM SATA
- **Other Hardware:** None

**Software**
- **Operating System:** SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default
- **Compiler:** C++ Version 12.1.0.225 of Intel C++ Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** ext3
- **System State:** Run level 3 (add definition here)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>612</td>
<td>16.0</td>
<td>611</td>
<td>16.0</td>
<td>609</td>
<td>16.1</td>
<td>509</td>
<td>19.2</td>
<td>508</td>
<td>19.2</td>
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<tr>
<td>401.bzip2</td>
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<td>12.1</td>
<td>800</td>
<td>12.1</td>
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<td>12.0</td>
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<td>403.gcc</td>
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<td>16.7</td>
<td>484</td>
<td>16.6</td>
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<td>16.6</td>
<td>478</td>
<td>16.9</td>
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<tr>
<td>429.mcf</td>
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<td>13.6</td>
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<td>456.hmmer</td>
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<tr>
<td>462.libquantum</td>
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<td>19.7</td>
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<td>18.9</td>
<td>1100</td>
<td>19.7</td>
<td>1050</td>
<td>19.7</td>
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<tr>
<td>464.h264ref</td>
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<td>26.2</td>
<td>848</td>
<td>26.1</td>
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<td>26.2</td>
<td>781</td>
<td>28.3</td>
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<tr>
<td>471.omnetpp</td>
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<td>14.4</td>
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<tr>
<td>473.astar</td>
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<td>15.8</td>
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<tr>
<td>483.xalancbmk</td>
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<td>27.3</td>
<td>245</td>
<td>28.1</td>
<td>245</td>
<td>28.1</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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
C States/CIE set to Enabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on linux-gwzc Tue Feb 28 11:11:54 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 E5-2603 0 @ 1.80GHz
  2 "physical id"s (chips)
    8 "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 : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3

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

Platform Notes (Continued)  

    cache size : 10240 KB  
    
    From /proc/meminfo  
    MemTotal: 132122696 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-gwzc 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 3 Feb 28 11:10 last=S  
    SPEC is set to: /root/cpu2006-1.2  
    
    Additional information from dmidecode:  
    (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"  
OMP_NUM_THREADS = "8"  
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  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop_caches  
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  

Base Compiler Invocation  

C benchmarks:  
icc -m64  
Continued on next page
SPEC CINT2006 Result

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CPU2006 license: 55
Test date: Feb-2012
Test sponsor: Dell Inc.
Hardware Availability: Mar-2012
Tested by: Dell Inc.
Software Availability: Feb-2012

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
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: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/smartheap -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
445.gobmk: icc -m32

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

Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
icpc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch
-ansi-alias

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

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

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SPEC CINT2006 Result

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Software Availability: Feb-2012

Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes
464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-prof-use(pass 2) -unnroll2
-ansi-alias

C++ benchmarks:
471.omnetpp: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -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-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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