SPEC® CINT2006 Result

Dell Inc.
PowerEdge R720 (Intel Xeon E5-2603 v2, 1.80 GHz)

**SPECint® rate2006 = 186**
**SPECint_rate_base2006 = 180**

<table>
<thead>
<tr>
<th>CPU2006 license: 55</th>
<th>Test date: Aug-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Sep-2013</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2013</td>
</tr>
</tbody>
</table>

**CPU Name:** Intel Xeon E5-2603 v2
**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: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
- Disk Subsystem: 1 x 1 TB 7200 RPM SATA
- Other Hardware: None

**Operating System:** SUSE Linux Enterprise Server 11 SP3 (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>
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<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>bzip2</td>
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<td>858</td>
<td>90.0</td>
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<td>257</td>
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</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 Wed Aug 28 20:02:47 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 E5-2603 v2 @ 1.80GHz
  2 "physical id"s (chips)
  8 "processors"

Continued on next page

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info@spec.org
http://www.spec.org/
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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 : 4
- siblings : 4
- physical 0: cores 0 1 2 3
- physical 1: cores 0 1 2 3
- cache size : 10240 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

run-level 3 Aug 28 19:47 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 HMT42GR7MFR4C-RD 16 GB 1333 MHz
  - 8x 00AD04B300AD HMT42GR7AFR4C-RD 16 GB 1333 MHz

(End of data from syinfo program)

---

**General Notes**

Environment variables set by runspec before the start of the run:
- LD_LIBRARY_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"

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:

Continued on next page
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General Notes (Continued)

```bash
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.: 
umactl --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:
- -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

Continued on next page
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### Peak Compiler Invocation (Continued)

- **456.hmmer:** `icc -m64`
- **458.sjeng:** `icc -m64`

**C++ benchmarks:**

- `icpc -m32`

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### 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`

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### Peak Optimization Flags

**C benchmarks:**

- **400.perlbench:** `-xSSE4.2(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:** `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(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 -O3 -no-prec-div -unroll2 -auto-ilp32`
- **458.sjeng:** `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32`
- **462.libquantum:** `basepeak = yes`
- **464.h264ref:** `-xSSE4.2(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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Continued on next page
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Peak Optimization Flags (Continued)

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/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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