SPEC® CINT2006 Result

Dell Inc.

PowerEdge M620 (Intel Xeon E5-2697 v2, 2.70 GHz)

Dell Inc.

SPECint_rate2006 = 964
SPECint_rate_base2006 = 936

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

Test date: Sep-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

CPU Name: Intel Xeon E5-2697 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 2700
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) ordable: 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: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2R x 4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 200 GB SATA SSD
Other Hardware: None

Software
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
### Dell Inc.

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**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
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#### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>48</td>
<td>630</td>
<td>745</td>
<td>743</td>
<td>631</td>
<td>744</td>
<td>48</td>
<td>539</td>
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<td>401.bzip2</td>
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<td>506</td>
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<td>445.gobmk</td>
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<td>721</td>
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<td>456.hmmer</td>
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<td>712</td>
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<td>462.libquantum</td>
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<td>471.omnetpp</td>
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<td>473.astar</td>
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<tr>
<td>483.xalancbmk</td>
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<td>958</td>
<td>48</td>
<td>345</td>
<td>960</td>
<td>958</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-lnqz Tue Sep 10 06:22:06 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 E5-2697 v2 @ 2.70GHz
- 2 "physical id"s (chips)
- 48 "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.)

```plaintext
cpu cores : 12  
siblings : 24  
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13  
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13  
cache size : 30720 KB
```

From /proc/meminfo

```plaintext
MemTotal: 264634600 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB
```

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

From /etc/*release* /etc/*version*

```plaintext
SuSE-release:  
VERSION = 11  
PATCHLEVEL = 3
```

```plaintext
uname -a:  
Linux linux-lnqz 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
```

```plaintext
run-level 3 Sep 10 06:03 last=S
```

**SPEC is set to:** /root/cpu2006.1.2.ic13  
**Filesystem**  
Type Size Used Avail Use% Mounted on  
/dev/sda1 ext2 198G 27G 170G 14% /

**Additional information from dmidecode:**

- BIOS Dell Inc. 2.0.19 08/30/2013  
- Memory:  
  16x 00AD00B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz

(End of data from sysinfo program)

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**General Notes**

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

```plaintext
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:  
echo 1> /proc/sys/vm/drop_caches

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### General Notes (Continued)

runspec command invoked through numactl i.e.:
numactl --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

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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)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilkp32

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)
-unroll4 -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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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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