Dell Inc.

PowerEdge R620 (Intel Xeon E5-2680, 2.70 GHz)

SPECint\textsuperscript{®} rate\textsubscript{2006} = \texttt{664}

SPECint\textsuperscript{®} rate\textsubscript{base2006} = \texttt{637}

CPU\textsuperscript{2006} license: 55

Test date: Jan-2013

Test sponsor: Dell Inc.

Hardware Availability: Dec-2012

Tested by: Dell Inc.

Software Availability: Jun-2012

400.perlbench

401.bzip2

403.gcc

429.mcf

445.gobmk

456.hmmer

458.sjeng

462.libquantum

464.h264ref

471.omnetpp

473.astar

483.xalancbmk

### Hardware

- **CPU Name:** Intel Xeon E5-2680
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz
- **CPU MHz:** 2700
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 2 chips, 8 cores/chip, 2 threads/core
- **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:** 20 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
- **Disk Subsystem:** 1 x 300 GB 15000 RPM SAS
- **Other Hardware:** None

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 6.3 (Santiago) 2.6.32-279.el6.x86_64
- **Compiler:** C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
- **Auto Parallel:** No
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V9.01
### Dell Inc.

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**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>483.xalancbmk</td>
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<td>655</td>
<td>338</td>
<td>653</td>
<td>339</td>
<td>651</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 $6f2ebdff5032aa4ae583f96b07f99d3 running on localhost.localdomain Sat Jan 12 08:34:25 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 E5-2680 0 @ 2.70GHz
  2 "physical id"s (chips)
  32 "processors"
```

Continued on next page
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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 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: 132088816 kB
- HugePages\_Total: 0
- Hugepagesize: 2048 kB

From /usr/bin/lsb\_release -d
- Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc\/*release*/etc\/*version*
- redhat\_release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
- system\_release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
- system\_release\_cpe: cpe:/o:redhat:enterprise\_linux:6server:ga:server

uname -a:
- Linux localhost.localdomain 2.6.32-279.el6.x86\_64 #1 SMP Wed Jun 13 18:24:36
- EDT 2012 x86\_64 x86\_64 x86\_64 GNU/Linux

run\_level 3 Jan 12 08:32 last=5

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use\% Mounted on
/dev/sda1 ext4 241G 8.2G 220G 4\% /

Additional information from dmidecode:
- Memory:
  - 2x 00AD04B300AD HMT31GR7BFR4C-PB 8 GB 1600 MHz 2 rank
  - 14x 00CE00B300CE M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

(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

Transparent Huge Pages enabled with:
- echo always > /sys/kernel/mm/redhat\_transparent\_hugepage\_enabled
- Filesystem page cache cleared with:
- echo 1 > /proc/sys/vm/drop\_caches
- runspec command invoked through numactl i.e.:
SPEC CINT2006 Result

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General Notes (Continued)

numactl --interleave=all runspec <etc>
The Dell PowerEdge R620 and
the Bull NovaScale R440 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R620 model.

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
**Dell Inc.**

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**SPECint_rate2006 = 664**
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**Peak Compiler Invocation (Continued)**

401.bzip2: icc  
456.hmmer: icc  
458.sjeng: icc

C++ benchmarks:

`icc -m64`

**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-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) -unroll4 -auto-ilp32
462.libquantum: basepeak = yes

Continued on next page
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Peak Optimization Flags (Continued)

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)
-ansi-alias -unroll2

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
-ansi-alias -L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalanchbmk: 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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.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.20120410.00.xml

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

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