Dell Inc.

PowerEdge R430 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint_rate2006 = 524
SPECint_rate_base2006 = 506

CPU2006 license: 55
Test date: Oct-2014
Test sponsor: Dell Inc.
Hardware Availability: Dec-2014
Tested by: Dell Inc.
Software Availability: Jan-2014

Hardware

CPU Name: Intel Xeon E5-2620 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x 300 GB 10000 RPM SAS
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
Compiler: C/C++: Version 14.0.0.080 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 V10.0
## Results Table

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</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:
- Snoop Mode set to Cluster on Die
- Virtualization Technology disabled
- Execute Disable disabled
- System Profile set to Custom
- Memory Patrol Scrub set to Disabled

Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Mon Oct 20 10:59:57 2014

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 E5-2620 v3 @ 2.40GHz
  2 "physical id"s (chips) Continued on next page
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### Platform Notes (Continued)

24 "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 : 6`
- `siblings : 12`
- `physical 0: cores 0 1 2 3 4 5`
- `physical 1: cores 0 1 2 3 4 5`
- `cache size : 15360 KB`

From `/proc/meminfo`

- `MemTotal:` 132054904 kB
- `HugePages_Total:` 0
- `Hugepagesize:` 2048 kB

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

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

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
uname -a:
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Oct 20 10:58
```

```
SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 271G 9.7G 248G 4% /
```

Additional information from dmidecode:

- `BIOS Dell Inc. 1.0.0 10/15/2014`
- `Memory: 4x 000000000000 Not Specified 1867 MHz 1 rank`
- `8x 00CE00B300CE M393A2G40DB0-CPB 16 GB 1867 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:/root/cpu2006-1.2/sh"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Filesystem page cache cleared with:

(Continued on next page)
SPEC CINT2006 Result

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General Notes (Continued)

- echo 1>/proc/sys/vm/drop_caches
- 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:
- -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
- -opt-mem-layout-trans=3

C++ benchmarks:
- -xCORE-AVX2 -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

Continued on next page
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Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3
456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
458.sjeng: -xCORE-AVX2(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

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### Peak Optimization Flags (Continued)

464.h264ref:
- `xCORE-AVX2` (pass 2)
- `prof-gen` (pass 1)
- `ipo` (pass 2)
- `O3` (pass 2)
- `no-prec-div` (pass 2)
- `prof-use` (pass 2)
- `unroll2`
- `ansi-alias`

C++ benchmarks:

471.omnetpp:
- `xCORE-AVX2` (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:


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


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