IBM Corporation

IBM System x3650 M4
(Intel Xeon E5-2630L v2, 2.40 GHz)

**SPECint**

Specint\_rate\_2006 = 460

Specint\_rate\_base\_2006 = 442

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**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

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**CPU Name:** Intel Xeon E5-2630L v2

**CPU Characteristics:** Intel Turbo Boost Technology up to 2.80 GHz

**CPU MHz:** 2400

**FPU:** Integrated

**CPU(s) enabled:** 12 cores, 2 chips, 6 cores/chip, 2 threads/core

**CPU(s) orderable:** 1,2 chips

**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:** 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz)

**Disk Subsystem:** 1 x 400 GB SAS SSD, RAID 0

**Other Hardware:** None

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**Operating System:** Red Hat Enterprise Linux Server release 6.4 (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
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Results Table

<table>
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<tr>
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<td>495</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" Zone reclaim mode enabled with: echo 1 > /proc/sys/vm/zone_reclaim_mode Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf: intel_idle.max_cstate=0

Platform Notes
BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6818 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191 running on x3650M4 Sat Aug 16 10:28:05 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 E5-2630L v2 @ 2.40GHz 2 "physical id"s (chips)

Continued on next page
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
cautions.)

```
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: 264341576 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

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

```
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
uname -a:
Linux x3650M4 2.6.32-358.18.1.el6.x86_64 #1 SMP Fri Aug 2 17:04:38 EDT 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 15 14:34
```

```
SPEC is set to: /home/SPECcpu-20140116-ic14.0
```

```
Additional information from dmidecode:
BIOS IBM -[VVE135VUS-1.60]- 12/05/2013
Memory:
 8x Not Specified Not Specified
16x Samsung M393B2G70QH0-CMA 16 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 = "/home/SPECcpu-20140116-ic14.0/libs/32:/home/SPECcpu-20140116-ic14.0/libs/64:/home/SPECcpu-20140116-ic14.0/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
```

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Software Availability: Sep-2013

General Notes (Continued)
Filesystem page cache cleared with:
  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:
  -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

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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: -xSSE4.2(pas 2) -prof-gen(pass 1) -ipo(pass 2)
   -O3(pas 2) -no-prec-div(pass 2) -prof-use(pass 2)
   -auto-ilp32

401.bzip2: -xSSE4.2(pas 2) -prof-gen(pass 1) -ipo(pass 2)
   -O3(pas 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(pas 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(pas 2) -prof-gen(pass 1) -ipo(pass 2)
   -O3(pas 2) -no-prec-div(pass 2) -prof-use(pass 2)
   -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

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SPEC CINT2006 Result

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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)
-unroll2 -ansi-alias

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 -L/sh -lsmartheap

473.astar: basepeak = yes
483.xalanchmk: 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/IBM-Platform-Flags-V1.2-IVB-B.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/IBM-Platform-Flags-V1.2-IVB-B.xml

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