Hewlett-Packard Company

ProLiant BL660c Gen8
(2.40 GHz, Intel Xeon E5-4657L v2)

SPECint\_rate2006 = 889
SPECint\_rate\_base2006 = 862

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<td>Aug-2014</td>
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<tr>
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<td>Sep-2014</td>
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</table>

CPU2006 license: 3
 Tested by: Hewlett-Packard Company

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

### Hardware

- **CPU Name:** Intel Xeon E5-4657L v2
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz
- **CPU MHz:** 2400
- **FPU:** Integrated
- **CPU(s) enabled:** 24 cores, 2 chips, 12 cores/chip, 2 threads/core
- **CPU(s) orderable:** 2,4 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:** 30 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
- **Disk Subsystem:** 300 GB 15 K SAS, RAID 1
- **Other Hardware:** None

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)
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**SPEC CINT2006 Result**

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### Results Table

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<td>368</td>
<td>899</td>
<td>367</td>
<td>902</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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### 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"
Transparent Huge Pages enabled with:
```bash
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```
Filesystem page cache cleared with:
```bash
echo 1 >       /proc/sys/vm/drop_caches
```
runcase command invoked through numactl i.e.:
```bash
numactl --interleave=all runspec <etc>
```

---

### Platform Notes

**BIOS Configuration:**
- HP Power Profile set to Maximum Performance
- Memory Power Savings Mode set to Maximum Performance
- Collaborative Power Control set to Disabled
- Thermal Configuration set so Maximum Cooling
- Processor Power and Utilization Monitoring set to Disabled
- Memory Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on pl26.epc.external.hp.com Thu Jan 22 10:01:04 2015

Continued on next page
Platform Notes (Continued)

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 E5-4657L v2 @ 2.40GHz
2 "physical id"s (chips)
48 "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 : 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
MemTotal:       131818388 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release*/etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux pl26.epc.external.hp.com 3.10.0-123.el7.x86_64 #1 SMP Mon May 5
11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 22 09:45

SPEC is set to: /home/cpu

Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/rootvg01-lv01 xfs  279G  149G  130G  54% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

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Platform Notes (Continued)

BIOS HP I32 08/03/2014
Memory:
  16x HP 712382-071 8 GB 2 rank 1866 MHz
  16x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 128 GB and the dmidecode description should have one line reading as:
  16x HP 712382-071 8 GB 2 rank 1866 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu/libs/32:/home/cpu/libs/64:/home/cpu/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Base Compiler Invocation

C benchmarks:
  icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
C++ benchmarks:
  icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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
C++ benchmarks:
  -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
  -L/sh -lsmartheap
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Software Availability: Sep-2014

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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)
-03(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -03 -no-prec-div

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Peak Optimization Flags (Continued)

429.mcf: basepeak = yes
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias
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: basepeak = yes

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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.xml
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For other inquiries, please contact webmaster@spec.org.

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