SPEC® CINT2006 Result

Hewlett-Packard Company

ProLiant DL160 Gen9
(2.40 GHz, Intel Xeon E5-2620 v3)

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

SPECint®_rate2006 = 270
SPECint_rate_base2006 = 259

Test date: Aug-2015
Hardware Availability: May-2015
Software Availability: Mar-2015

<table>
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<th>Test Case</th>
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<td>473.astar</td>
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<td>153</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>12</td>
<td>294</td>
</tr>
</tbody>
</table>

**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: 6 cores, 1 chip, 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: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
- Disk Subsystem: 2 x 400 GB SAS SSD RAID 10
- Other Hardware: None

**Software**

- Operating System: Red Hat Enterprise Linux Server release 7.1 (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
**Hewlett-Packard Company**

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**SPEC CINT2006 Result**

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<td>294</td>
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<td>295</td>
<td>12</td>
<td>282</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"
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

**Platform Notes**

BIOS Configuration:
HP Power Regulator set to HP Static High Performance Mode
Thermal Configuration set to Maximum Cooling
Minimum Processor Idle Power Core State set to C6 State
Minimum Processor Idle Power Package State set to No Package State
QPI Snoop Configuration set to Home Snoop
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh
Power Profile set to Custom

Sysinfo program /home/spec/config/sysinfo.rev6914
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### SPEC CINT2006 Result

#### Hewlett-Packard Company

ProLiant DL160 Gen9  
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**Test sponsor:** Hewlett-Packard Company  
**Tested by:** Hewlett-Packard Company

**Test date:** Aug-2015  
**Hardware Availability:** May-2015  
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### Platform Notes (Continued)

$Rev: 6914 $  
$Date:: 2014-06-25 #e3fbb8667b5a285932ceab81e28219e1$


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
  1 "physical id"s (chips)
  12 "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
  cache size : 15360 KB

From /proc/meminfo
  MemTotal:       131734264 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /proc/meminfo
  MemTotal:       131734264 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

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

  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.1 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="7.1"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
    ANSI_COLOR="0;31"
    CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)

  uname -a:
    Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Aug 26 12:36

  SPEC is set to: /home/spec

  Filesystem    Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   318G  8.4G  310G  3% /home

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

Continued on next page
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Platform Notes (Continued)

BIOS HP U20 05/06/2015
Memory:
   6x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1866 MHz
   8x UNKNOWN NOT AVAILABLE
   2x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1866 MHz

(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 two lines reading as:
   6x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1866 MHz
   2x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1866 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/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:
   -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
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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: -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: -xCORE-AVX2 -ipo -O3 -no-prec-div
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Peak Optimization Flags (Continued)

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
-ipo -O3 -no-prec-div -unroll2 -auto-ilp32
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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32
462.libquantum: basepeak = yes
464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(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-HSW-revE.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-HSW-revE.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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