Hewlett-Packard Company

ProLiant DL380p Gen8 (2.20 GHz, Intel Xeon E5-2660)

<table>
<thead>
<tr>
<th>SPEC® CINT2006 Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint®_rate2006 = 600</td>
</tr>
<tr>
<td>SPECint_rate_base2006 = 580</td>
</tr>
</tbody>
</table>

| CPU2006 license: | 3 |
| Test sponsor: | Hewlett-Packard Company |
| Tested by: | Hewlett-Packard Company |
| Test date: | Jun-2013 |
| Hardware Availability: | Mar-2013 |
| Software Availability: | Feb-2013 |

| SPECint_rate2006 | 600 |
| SPECint_rate_base2006 | 580 |

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2660</td>
<td></td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz</td>
<td></td>
</tr>
<tr>
<td>CPU MHz: 2200</td>
<td></td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td></td>
</tr>
<tr>
<td>CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
<td></td>
</tr>
<tr>
<td>CPU(s) orderable: 1,2 chips</td>
<td></td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td></td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td></td>
</tr>
<tr>
<td>L3 Cache: 20 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 300 GB 15 K SAS</td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td></td>
</tr>
<tr>
<td>Operating System: Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-358.el6.x86_64</td>
<td></td>
</tr>
<tr>
<td>Compiler: C/C++: Version 13.0.0.133 of Intel C++ Studio XE for Linux</td>
<td></td>
</tr>
<tr>
<td>Auto Parallel: No</td>
<td></td>
</tr>
<tr>
<td>File System: ext4</td>
<td></td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td></td>
</tr>
<tr>
<td>Base Pointers: 32-bit</td>
<td></td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.0, HP Array Configuration Utility</td>
<td></td>
</tr>
</tbody>
</table>

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SPEC CINT2006 Result

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SPECint_rate2006 = 600
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CPU2006 license: 3
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Test date: Jun-2013
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
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<td>607</td>
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<td>403.gcc</td>
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<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>462.libquantum</td>
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<td>471.omnetpp</td>
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<td>473.astar</td>
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<td>483.xalancbmk</td>
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<td>617</td>
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<td>358</td>
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<td>356</td>
<td>620</td>
<td>358</td>
<td>617</td>
<td></td>
<td></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/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
  echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
Drive Write Cache set to Enabled in HP Array Configuration Utility
Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility

Platform Notes

BIOS configuration:
  HP Power Profile set to Maximum Performance
  Dynamic Power Capping set to Disabled
  Memory Power Savings Mode set to Maximum Performance
  Power-On Logo set to Disabled
  ACPI SLIT Preferences set to Enabled
Sysinfo program /cpu2006/config/sysinfo.rev6818

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Platform Notes (Continued)

$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on dl380pGen8-rfp Thu Jun  6 16:30:16 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 E5-2660 0 @ 2.20GHz
   2 "physical id"s (chips)
   32 "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 : 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:       132119388 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 dl380pGen8-rfp 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 6 15:52

SPEC is set to: /cpu2006
   Filesystem    Type    Size  Used Avail Use% Mounted on
   /dev/sda3     ext4    273G  30G  229G  12% /

Additional information from dmidecode:
   BIOS HP P70 03/01/2013
   Memory:
      16x HP Not Specified 8 GB 1600 MHz 2 rank
      8x UNKNOWN Not Specified

(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:
Continued on next page
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Platform Notes (Continued)

16x HP Not Specified 8 GB 1600 MHz 2 rank

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

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
Hewlett-Packard Company
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**Peak Compiler Invocation**

C benchmarks (except as noted below):

- `icc -m32`
- `icc -m64`
- `icc -m64`
- `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`

**Peak Optimization Flags**

C benchmarks:

- `400.perlbench: -xSSE4.2(pas 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(pas 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`

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

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  -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/HP-Platform-Flags-Intel-V1.2-A.20120829.html
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.xml
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.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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