**Hewlett-Packard Company**

ProLiant SL230s Gen8
(2.70 GHz, Intel Xeon E5-2680)

| SPECint_rate2006 | 665 |
| SPECint_rate_base2006 | 637 |

**CPU2006 license:** 3
**Test sponsor:** Hewlett-Packard Company
**Tested by:** Hewlett-Packard Company
**Software Availability:** Jun-2012
**Hardware Availability:** Mar-2012

**Test date:** Mar-2012

**Operating System:** Red Hat Enterprise Linux Server release 6.2, Kernel 2.6.32-220.el6.x86_64
**Compiler:** C/C++: Version 12.1.0.225 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 V9.01, HP Array Configuration Utility, CLI version

---

### Hardware

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2680</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2700</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
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<tr>
<td>CPU(s) orderable</td>
<td>1.2 chips</td>
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<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
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<tr>
<td>Memory</td>
<td>128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
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<tr>
<td>Disk Subsystem</td>
<td>2 x 300 GB 15 K SAS, RAID 1</td>
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<tr>
<td>Other Hardware</td>
<td>None</td>
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</tbody>
</table>

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### Software

<table>
<thead>
<tr>
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<th>Details</th>
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<td>File System</td>
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<td>System State</td>
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<td>Base Pointers</td>
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<td>Peak Pointers</td>
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</table>
Hewlett-Packard Company

ProLiant SL230s Gen8
(2.70 GHz, Intel Xeon E5-2680)

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

SPEC CINT2006 Result

SPECint_rate2006 = 665
SPECint_rate_base2006 = 637

Results Table

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<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
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<td>654</td>
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<td>650</td>
<td>481</td>
<td>650</td>
<td>481</td>
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<td>547</td>
<td>572</td>
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<td>547</td>
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<td>401.bzip2</td>
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<td>876</td>
<td>352</td>
<td>878</td>
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<td>403.gcc</td>
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<td>502</td>
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<td>429.mcf</td>
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<td>302</td>
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<td>445.gobmk</td>
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<td>492</td>
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<td>686</td>
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<td>803</td>
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<td>804</td>
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<td>462.libquantum</td>
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<td>3820</td>
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<td>464.h264ref</td>
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<td>817</td>
<td>855</td>
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<td>832</td>
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<td>471.omnetpp</td>
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<td>473.astar</td>
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<td>371</td>
<td>607</td>
<td>370</td>
<td>610</td>
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<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>335</td>
<td>659</td>
<td>334</td>
<td>661</td>
<td>336</td>
<td>657</td>
<td>32</td>
<td>335</td>
<td>659</td>
<td>334</td>
<td>661</td>
<td>336</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.:
umactl --interleave=all runspec <etc>
Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version

Platform Notes

BIOS configuration:
HP Power Profile set to Custom
Energy/Performance Bias is set to Maximum Performance
Thermal Configuration set to Maximum Cooling
Sysinfo program /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aa42e583f96b07f99d3
running on sl230srhel62 Tue Mar 27 11:45:12 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: Continued on next page
Hewlett-Packard Company
ProLiant SL230s Gen8
(2.70 GHz, Intel Xeon E5-2680)

SPECint_rate2006 = 665
SPECint_rate_base2006 = 637

CPU2006 license: 3
Test date: Mar-2012
Test sponsor: Hewlett-Packard Company
Hardware Availability: Jun-2012
Tested by: Hewlett-Packard Company
Software Availability: Mar-2012

Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo

- model name : Intel(R) Xeon(R) CPU E5-2680 0 @ 2.70GHz
- 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
  caution.)
- 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: 132129212 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- Red Hat Enterprise Linux Server release 6.2 (Santiago)

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

- redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
- system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:

- Linux sl230srhel62 2.6.32-220.e16.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
- x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 27 11:26

SPEC is set to: /cpu2006

- Filesystem Type Size Used Avail Use% Mounted on
- /dev/sda3 ext3 90G 13G 73G 16% /

Additional information from dmidecode:

- BIOS HP P75 12/31/2011
- Memory:
  - 16x Not Specified Not Specified 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

- KMP_AFFINITY = "granularity=fine,compact,1,0"
- LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"

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Hewlett-Packard Company
ProLiant SL230s Gen8
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SPECint_rate2006 =  665
SPECint_rate_base2006 =  637

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

Test date: Mar-2012
Hardware Availability: Jun-2012
Software Availability: Mar-2012

General Notes (Continued)
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/smartheap -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
  401.bzip2: icc -m64

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Hewlett-Packard Company
ProLiant SL230s Gen8
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SPECint_rate2006 = 665
SPECint_rate_base2006 = 637

Peak Compiler Invocation (Continued)

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(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div
429.mcf: basepeak = yes
445.gobmk: -xSSE4.2(pass 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(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: -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
SPEC CINT2006 Result

Hewlett-Packard Company

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(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/smartheap -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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120523.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120523.xml

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For other inquiries, please contact webmaster@spec.org.

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