### CINT2006 Result

#### Hewlett-Packard Company

**ProLiant BL460c Gen8**  
(2.00 GHz, Intel Xeon E5-2640 v2)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = 544</th>
<th>SPECint_rate_base2006 = 523</th>
</tr>
</thead>
</table>

**CPU2006 license:** 3  
**Test sponsor:** Hewlett-Packard Company  
**Tested by:** Hewlett-Packard Company  
**Test date:** Aug-2013  
**Hardware Availability:** Sep-2013  
**Software Availability:** Sep-2013

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E5-2640 v2</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.50 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2000</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>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chips</td>
</tr>
<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>
</tr>
<tr>
<td>Memory:</td>
<td>128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 300 GB SAS SSD, RAID 1</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

| 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>
<thead>
<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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<tbody>
<tr>
<td></td>
<td>Base</td>
<td></td>
<td></td>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>822</td>
<td>380</td>
<td>823</td>
<td>380</td>
<td>824</td>
<td>379</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>1102</td>
<td>280</td>
<td>1102</td>
<td>280</td>
<td>1100</td>
<td>281</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>616</td>
<td>418</td>
<td>607</td>
<td>424</td>
<td>609</td>
<td>423</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>344</td>
<td>849</td>
<td>345</td>
<td>845</td>
<td>344</td>
<td>848</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>907</td>
<td>370</td>
<td>908</td>
<td>370</td>
<td>889</td>
<td>378</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>431</td>
<td>693</td>
<td>432</td>
<td>692</td>
<td>431</td>
<td>692</td>
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<tr>
<td>458.sjeng</td>
<td>32</td>
<td>1049</td>
<td>369</td>
<td>1046</td>
<td>370</td>
<td>1045</td>
<td>371</td>
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<tr>
<td>462.libquantum</td>
<td>32</td>
<td>196</td>
<td>3380</td>
<td>196</td>
<td>3390</td>
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<td>3390</td>
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<td>464.h264ref</td>
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<td>1130</td>
<td>627</td>
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<td>625</td>
<td>1131</td>
<td>626</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>653</td>
<td>306</td>
<td>650</td>
<td>308</td>
<td>649</td>
<td>308</td>
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<tr>
<td>473.astar</td>
<td>32</td>
<td>743</td>
<td>302</td>
<td>732</td>
<td>307</td>
<td>742</td>
<td>303</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>378</td>
<td>585</td>
<td>378</td>
<td>584</td>
<td>379</td>
<td>582</td>
</tr>
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</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>
Disabled unused Linux services through "stop_services.sh" before running.

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
  Dynamic Power Capping Functionality set to Disabled
  Thermal Configuration set to Maximum Cooling
  Processor Power and Utilization Monitoring set to Disabled

Sysinfo program /cpu2006/config/sysinfo.rev6818
Continued on next page
**SPEC CINT2006 Result**

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**Platform Notes (Continued)**

$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191  
running on BL460cGen8-BT Fri Aug 30 15:26:46 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 E5-2640 v2 @ 2.00GHz  
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: 132119288 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 BL460cGen8-BT 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 Aug 29 16:12

SPEC is set to: /cpu2006  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 ext4 451G 39G 389G 10% /

Additional information from dmidecode:  
BIOS HP I31 09/08/2013  
Memory:  
16x HP 689911-071 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
Hewlett-Packard Company
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General Notes
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

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

400.perlbench: icc -m64

Continued on next page
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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(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: basepeak = yes
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

Continued on next page
Hewlett-Packard Company

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<td>Software Availability:</td>
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</tr>
</tbody>
</table>

### 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  -Wl,-z,muldefs  
- L/sh -lsmartheap

473.astar: basepeak = yes

483.xalanchbmk: 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-revB.html

http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.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-revB.xml

http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 24 September 2013.