Hewlett-Packard Company
ProLiant DL380 Gen9
(2.40 GHz, Intel Xeon E5-2630 v3)

SPECint®2006 = 58.7
SPECint_base2006 = 56.0

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

Test date: Oct-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Hardware
CPU Name: Intel Xeon E5-2630 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
CPU(s) orderable: 1.2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
Other Hardware: None

Software
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: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
Hewlett-Packard Company
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
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<td>259</td>
<td>37.8</td>
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<td>37.5</td>
<td>261</td>
<td>37.5</td>
<td>226</td>
<td>43.2</td>
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<td>43.0</td>
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<tr>
<td>401.bzip2</td>
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<td>23.5</td>
<td>413</td>
<td>23.4</td>
<td>412</td>
<td>23.4</td>
<td>409</td>
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<td>445.gobmk</td>
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<td>398</td>
<td>26.4</td>
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<td>456.hmmer</td>
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<tr>
<td>462.libquantum</td>
<td>4.20</td>
<td>4940</td>
<td>4.32</td>
<td>4800</td>
<td>4.29</td>
<td>4830</td>
<td>4.20</td>
<td>4940</td>
<td>4.32</td>
<td>4800</td>
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<td>464.h264ref</td>
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<td>42.8</td>
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<td>42.8</td>
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<td>471.omnetpp</td>
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<td>26.7</td>
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<td>26.5</td>
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<td>38.4</td>
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<td>38.2</td>
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<tr>
<td>473.astar</td>
<td>226</td>
<td>31.1</td>
<td>226</td>
<td>31.1</td>
<td>226</td>
<td>31.1</td>
<td>225</td>
<td>31.2</td>
<td>225</td>
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</tr>
<tr>
<td>483.xalancbmk</td>
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<td>61.4</td>
<td>112</td>
<td>61.5</td>
<td>112</td>
<td>61.4</td>
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<td>112</td>
<td>61.4</td>
</tr>
</tbody>
</table>

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

Submit Notes
The config file option 'submit' was used.

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

Platform Notes
BIOS Configuration:
HP Power Profile set to Custom
HP Power Regulator to HP Static High Performance Mode
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 Early Snoop
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Double Refresh Rate set to 1x Refresh
Intel Hyperthreading Technology set to Disabled

Sysinfo program /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Oct 7 07:24:03 2014

This section contains SUT (System Under Test) info as seen by
Continued on next page
Platform Notes (Continued)

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 E5-2630 v3 @ 2.40GHz
  2 "physical id"s (chips)
  16 "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: 8
  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: 263846868 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 localhost.localdomain 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 Oct 7 06:45

SPEC is set to: /home/cpu2006
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 ext4 364G 190G 156G 55% /

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.

BIOS HP P89 09/04/2014

Continued on next page
## SPEC CINT2006 Result

**Hewlett-Packard Company**  
ProLiant DL380 Gen9  
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**Test date:** Oct-2014  
**Test sponsor:** Hewlett-Packard Company  
**Hardware Availability:** Sep-2014  
**Tested by:** Hewlett-Packard Company  
**Software Availability:** Sep-2014

### Platform Notes (Continued)

Memory:  
16x HP NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1866 MHz  
8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 256 GB and the dmidecode description should have one line reading as:  
16x HP 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:  
KMP_AFFINITY = "granularity=fine,scatter"  
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"  
OMP_NUM_THREADS = "16"

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

### Base Compiler Invocation

<table>
<thead>
<tr>
<th>C benchmarks:</th>
<th>icc  -m64</th>
</tr>
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<tbody>
<tr>
<td>C++ benchmarks:</td>
<td>icpc -m64</td>
</tr>
</tbody>
</table>

### Base Portability Flags

| 400.perlbench: | -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64 |
| 401.bzip2:     | -DSPEC_CPU_LP64                      |
| 403.gcc:       | -DSPEC_CPU_LP64                      |
| 429.mcf:       | -DSPEC_CPU_LP64                      |
| 445.gobmk:     | -DSPEC_CPU_LP64                      |
| 456.hmmer:     | -DSPEC_CPU_LP64                      |
| 458.sjeng:     | -DSPEC_CPU_LP64                      |
| 462.libquantum:| -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX     |
| 464.h264ref:   | -DSPEC_CPU_LP64                      |
| 471.omnetpp:   | -DSPEC_CPU_LP64                      |
| 473.astar:     | -DSPEC_CPU_LP64                      |
| 483.xalancbmk: | -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX     |
## SPEC CINT2006 Result

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**Software Availability:** Sep-2014

## Base Optimization Flags

- **C benchmarks:**
  - `-xCORE-AVX2`
  - `-ipo`
  - `-O3`
  - `-no-prec-div`
  - `-parallel`
  - `-opt-prefetch`
  - `-auto-p32`

- **C++ benchmarks:**
  - `-xCORE-AVX2`
  - `-ipo`
  - `-O3`
  - `-no-prec-div`
  - `-opt-prefetch`
  - `-auto-p32`
  - `-Wl,-z,muldefs`
  - `-L/sh -lsmartheap64`

## Base Other Flags

- **C benchmarks:**
  - `403.gcc`: `-Dalloca=_alloca`

## Peak Compiler Invocation

- **C benchmarks (except as noted below):**
  - `icc -m64`
  - `400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`
  - `445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

- **C++ benchmarks (except as noted below):**
  - `icpc -m64`
  - `471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

## Peak Portability Flags

- `400.perlbench: -DSPEC_CPU_LINUX_IA32`
- `401.bzip2: -DSPEC_CPU_LP64`
- `403.gcc: -DSPEC_CPU_LP64`
- `429.mcf: -DSPEC_CPU_LP64`
- `456.hmmer: -DSPEC_CPU_LP64`
- `458.sjeng: -DSPEC_CPU_LP64`
- `462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
- `464.h264ref: -DSPEC_CPU_LP64`
- `473.astar: -DSPEC_CPU_LP64`
- `483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
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Peak Optimization Flags

C benchmarks:
400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -ansi-alias
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias
403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32
429.mcf: basepeak = yes
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias
456.hmmer: basepeak = yes
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
462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap
473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64
483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca
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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 other inquiries, please contact webmaster@spec.org.

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