**Hewlett-Packard Company**

**ProLiant DL380 Gen9**
(2.60 GHz, Intel Xeon E5-2697 v3)

<table>
<thead>
<tr>
<th>SPECfp base2006 = 110</th>
</tr>
</thead>
</table>

**SPECfp2006 = 116**

**CPU2006 license:** 3  
**Test date:** Nov-2014  
**Test sponsor:** Hewlett-Packard Company  
**Hardware Availability:** Sep-2014  
**Tested by:** Hewlett-Packard Company  
**Software Availability:** Sep-2014

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>42.8</td>
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<tr>
<td>416.gamess</td>
<td>36.3</td>
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<tr>
<td>433.milc</td>
<td>66.1</td>
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<td>435.gromacs</td>
<td>43.0</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>907</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>345</td>
</tr>
<tr>
<td>444.namd</td>
<td>31.2</td>
</tr>
<tr>
<td>447.dealII</td>
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<td>450.soplex</td>
<td>44.1</td>
</tr>
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<td>62.7</td>
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<tr>
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<td>51.6</td>
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<tr>
<td>459.GemsFDTD</td>
<td>278</td>
</tr>
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<td>465.tonto</td>
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<td>39.8</td>
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<td>112</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>74.1</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon E5-2697 v3  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz  
- **CPU MHz:** 2600  
- **FPU:** Integrated  
- **CPU(s) enabled:** 28 cores, 2 chips, 14 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

**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; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes  
- **File System:** ext4

Continued on next page
Hewlett-Packard Company
ProLiant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2697 v3)

SPECfp2006 = 116
SPECfp_base2006 = 110

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

Test date: Nov-2014
Hardware Availability: Sep-2014
Test sponsor: Hewlett-Packard Company
Software Availability: Sep-2014

Tested by: Hewlett-Packard Company
Hardware Availability: Sep-2014
Software Availability: Sep-2014

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
Other Hardware: None

SYSTEM STATE:
Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>261</td>
<td>74.6</td>
</tr>
</tbody>
</table>

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

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 Home Snoop
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Continued on next page
# SPEC CFP2006 Result

## Hewlett-Packard Company

Proliant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2697 v3)

| SPECfp2006 | 116 |
| SPECfp_base2006 | 110 |

### CPU2006 license: 3

| Test sponsor: | Hewlett-Packard Company |
| Hardware Availability: | Sep-2014 |
| Tested by: | Hewlett-Packard Company |
| Software Availability: | Sep-2014 |

### Platform Notes (Continued)

Processor Power and Utilization Monitoring set to Disabled
Memory Double Refresh Rate set to 1x Refresh
Intel Hyperthreading Options set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on R112-BAO-DL380-Gen9VP2 Fri Nov 14 21:07:02 2014

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 E5-2697 v3 @ 2.60GHz
  - 2 "physical id"s (chips)
  - 28 "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 : 14
  - siblings : 14
  - physical 0: cores 0 2 4 5 6 8 9 10 11 12 13 14
  - physical 1: cores 0 2 4 5 6 8 9 10 11 12 13 14
- cache size : 35840 KB

From `/proc/meminfo`
- MemTotal: 263845380 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 R112-BAO-DL380-Gen9VP2 3.10.0-121.el7.x86_64 #1 SMP Tue Apr 8 10:48:19 EDT 2014 x86_64 x86_64 GNU/Linux

run-level 3 Nov 14 20:35

SPEC is set to: /cpu2006

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
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</thead>
<tbody>
<tr>
<td>/dev/sda4</td>
<td>ext4</td>
<td>362G</td>
<td>203G</td>
<td>141G</td>
<td>60%</td>
<td>/</td>
</tr>
</tbody>
</table>

Continued on next page
Hewlett-Packard Company
ProLiant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2697 v3)

SPECfp2006 = 116
SPECfp_base2006 = 110

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

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

Platform Notes (Continued)

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 07/11/2014
Memory:
1x HP 752369-081 16 GB 2 rank 2133 MHz
15x HP NOT AVAILABLE 16 GB 2 rank 2133 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 two lines reading as:
1x HP 752369-081 16 GB 2 rank 2133 MHz
15x HP NOT AVAILABLE 16 GB 2 rank 2133 MHz

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "28"

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

Base Compiler Invocation

C benchmarks:
   icc -m64

C++ benchmarks:
   icpc -m64

Fortran benchmarks:
   ifort -m64

Benchmarks using both Fortran and C:
   icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
Hewlett-Packard Company
ProLiant DL380 Gen9
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Base Portability Flags (Continued)

Base Optimization Flags

Peak Compiler Invocation

C benchmarks:

C++ benchmarks:

Fortran benchmarks:

Benchmarks using both Fortran and C:

C benchmarks:

C++ benchmarks:

Fortran benchmarks:

Benchmarks using both Fortran and C:
Hewlett-Packard Company

SPECfp2006 = 116
SPECfp_base2006 = 110

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

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: -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 -ansi-alias

470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:
444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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

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

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes

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