Hewlett-Packard Company
ProLiant BL460c Gen9
(1.80 GHz, Intel Xeon E5-2630L v3)

SPECfp®2006 = 96.3
SPECfp_base2006 = 90.7

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

Hardware
CPU Name: Intel Xeon E5-2630L v3
CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz: 1800
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
CPU(s) orderable: 1,2 chips
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: xfs
Hewlett-Packard Company
ProLiant BL460c Gen9
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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: 2 x 400 GB SAS SSD, RAID 1

SPECfp2006 = 96.3
SPECfp_base2006 = 90.7

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

Results Table

<table>
<thead>
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<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<td>447.dealII</td>
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<td>638</td>
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<td>481.wrf</td>
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<td>94.4</td>
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<tr>
<td>482.sphinx3</td>
<td>329</td>
<td>59.3</td>
<td>329</td>
<td>59.3</td>
</tr>
</tbody>
</table>

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

Platform Notes
BIOS Configuration:
Intel Hyperthreading Options set to Disabled
HP Power Profile set to Custom
HP Power Regulator set 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
Thermal Configuration set to Maximum Cooling

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SPEC CFP2006 Result
Hewlett-Packard Company
ProLiant BL460c Gen9
(1.80 GHz, Intel Xeon E5-2630L v3)

SPECfp2006 = 96.3
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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Test date: Dec-2014
Hardware Availability: Sep-2014
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Software Availability: Sep-2014

Platform Notes (Continued)

Collaborative Power Control set to Disabled
QPI Snoop Configuration set to Home Snoop
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh
Sysinfo program /cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab8e28219e1
running on W-b1460c_gen9-VP2.1 Fri Dec 5 14:51:00 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 E5-2630L v3 @ 1.80GHz
  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
cautions.)
  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: 263846220 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 W-b1460c_gen9-VP2.1 3.10.0-123.e17.x86_64 #1 SMP Mon May 5 11:16:57 EDT
2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 5 14:43

SPEC is set to: /cpu2006
Filesystem Type Size Used Avail Use% Mounted on

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SPEC CFP2006 Result
Hewlett-Packard Company
ProLiant BL460c Gen9
(1.80 GHz, Intel Xeon E5-2630L v3)

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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Test date: Dec-2014
Tested by: Hewlett-Packard Company
Hardware Availability: Sep-2014
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Platform Notes (Continued)
/dev/sda4      xfs   277G   41G  237G  15% /
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 I36 08/26/2014
Memory:
16x HP NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1866 MHz

(End of data from sysinfo program)

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 = "16"

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
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main

Continued on next page
**SPEC CFP2006 Result**

**Hewlett-Packard Company**

ProLiant BL460c Gen9
(1.80 GHz, Intel Xeon E5-2630L v3)

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

**Test date:** Dec-2014  
**Hardware Availability:** Sep-2014  
**Software Availability:** Sep-2014

### Base Portability Flags (Continued)

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<tr>
<td>454.calculix</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
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<td>459.GemsFDTD</td>
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<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
</tbody>
</table>

### Base Optimization Flags

- **C benchmarks:**  
  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

- **C++ benchmarks:**  
  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

- **Fortran benchmarks:**  
  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

- **Benchmarks using both Fortran and C:**  
  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

### Peak Compiler Invocation

- **C benchmarks:**  
  
  icc -m64

- **C++ benchmarks:**  
  
  icpc -m64

- **Fortran benchmarks:**  
  
  ifort -m64

- **Benchmarks using both Fortran and C:**  
  
  icc -m64 ifort -m64
Hewlett-Packard Company
ProLiant BL460c Gen9
(1.80 GHz, Intel Xeon E5-2630L v3)

SPEC CFP2006 Result

SPECfp2006 = 96.3
SPECfp_base2006 = 90.7

CPU2006 license: 3
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Tested by: Hewlett-Packard Company
Software Availability: Sep-2014

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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Hewlett-Packard Company
ProLiant BL460c Gen9
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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

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