Hewlett-Packard Company

ProLiant DL360 Gen9
(2.50 GHz, Intel Xeon E5-2680 v3)

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

CPU Name: Intel Xeon E5-2680 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 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

Hardware Availability: Sep-2014
Software Availability: Sep-2014

SPECfp®2006 = 115
SPECfp_base2006 = 110

Test date: Nov-2014

SPECfp2006 = 115
SPECfp_base2006 = 110

Hewlett-Packard Company
### Results Table

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<td>265</td>
<td>73.5</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/enable
```

### 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

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Hewlett-Packard Company
ProLiant DL360 Gen9
(2.50 GHz, Intel Xeon E5-2680 v3)

SPECfp2006 = 115
SPECfp_base2006 = 110

CPU2006 license: 3
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Test sponsor: Hewlett-Packard Company
Hardware Availability: Sep-2014
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Software Availability: Sep-2014

Platform Notes (Continued)

Processor Power and Utilization Monitoring set to Disabled
Energy/Performance Bias set to Maximum Performance
Memory Refresh Rate set to 1x Refresh
Intel Hyperthreading Options set to Disabled

Sysinfo program /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb866b5a285913ceab81e28219e1

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 E5-2680 v3 @ 2.50GHz
  2 "physical id"s (chips)
  24 "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 : 12
siblings : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

From /proc/meminfo
MemTotal: 263845892 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

uname -a:
Linux Pilot-DL360-G9 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 Nov 10 15:51

SPEC is set to: /home/cpu2006

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SPEC CFP2006 Result

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Platform Notes (Continued)

Filesystem Type  Size  Used  Avail  Use%  Mounted on
/dev/mapper/rhel_pilot--dl360--g9-home xfs  318G  101G  217G  32% /home

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:
16x 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 one line reading as:
16x 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 = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "24"

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_LP 64

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SPEC CFP2006 Result

Hewlett-Packard Company
ProLiiant DL360 Gen9
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Base Portability Flags (Continued)

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
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calcualix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

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 DL360 Gen9
(2.50 GHz, Intel Xeon E5-2680 v3)

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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 Portability Flags
Same as Base Portability Flags

### Peak Optimization Flags

**C benchmarks:**

433.milc: 
```plaintext
-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: 
```plaintext
-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: 
```plaintext
-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: 
```plaintext
-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: 
```plaintext
-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: 
```plaintext
-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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ProLiant DL360 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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For other inquiries, please contact webmaster@spec.org.

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