### SPEC® CFP2006 Result

**Hewlett-Packard Company**

ProLiant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

<table>
<thead>
<tr>
<th>SPECfp²⁰⁰⁶</th>
<th>SPECfp_base²⁰⁰⁶</th>
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<tbody>
<tr>
<td>113</td>
<td>108</td>
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**CPU2006 license:** 3  
**Test date:** Oct-2014  
**Test sponsor:** Hewlett-Packard Company  
**Hardware Availability:** Sep-2014  
**Tested by:** Hewlett-Packard Company  
**Software Availability:** Sep-2014

#### Hardware

- **CPU Name:** Intel Xeon E5-2660 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.30 GHz
- **CPU MHz:** 2600
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 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)  
  Kernel 3.10.0-121.el7.x86_64
- **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

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**SPECfp²⁰⁰⁶ = 113**

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<thead>
<tr>
<th>Benchmark</th>
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**SPECfp_base²⁰⁰⁶ = 108**

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Continued on next page
Hewlett-Packard Company

ProLiant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPECfp2006 = 113
SPECfp_base2006 = 108

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

L3 Cache: 25 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

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</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/redhat_transparent_hugepage/enabled

Platform Notes

BIOS Configuration:
Intel Hyperthreading Options set to Disabled
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

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SPEC CFP2006 Result

Hewlett-Packard Company
ProLiant DL380 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPECfp2006 = 113
SPECfp_base2006 = 108

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

Platform Notes (Continued)

Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Double Refresh Rate set to 1x Refresh

Sysinfo program /cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 # e3fbb8667b5a285932ceab81e28219e1

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 E5-2660 v3 @ 2.60GHz
 2 "physical id"s (chips)
 20 "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 : 10
siblings : 10
  physical 0: cores 0 2 3 4 8 9 10 11 12
  physical 1: cores 0 2 3 4 8 9 10 11 12
  cache size : 25600 KB

From /proc/meminfo
MemTotal: 263846308 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 DL380-Gen9 3.10.0-121.el7.x86_64 #1 SMP Tue Apr 8 10:48:19 EDT 2014
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 10 12:04

SPEC is set to: /cpu2006

Filesystem Type Size Used Avail Use% Mounted on
Continued on next page
SPEC CFP2006 Result

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Platform Notes (Continued)
/dev/sda4  ext4  362G  189G  155G  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 07/11/2014
Memory:
2x HP 752369-081 16 GB 2 rank 2133 MHz
14x 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:
2x HP 752369-081 16 GB 2133 MHz 2 rank
14x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank

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 = "20"

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
**SPEC CFP2006 Result**

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

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**Base Portability Flags**

<table>
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<tr>
<th>Benchmark</th>
<th>Flags</th>
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<td>-nofor_main -DSPEC_CPU_LP64</td>
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**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

---

Continued on next page
Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

```bash
icc  -m64 ifort  -m64
```

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```bash
433.milc:  -xCORE-AVX2(pass 2)  -prof-gen(pass 1)  -ipo(pass 2)
    -03(pass 2)  -no-prec-div(pass 2)  -prof-use(pass 2)
    -auto-ilp32  -ansi-alias
```

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

C++ benchmarks:

```bash
444.namd:  -xCORE-AVX2(pass 2)  -prof-gen(pass 1)  -ipo(pass 2)
    -03(pass 2)  -no-prec-div(pass 2)  -prof-use(pass 2)
    -fno-alias  -auto-ilp32
```

```bash
447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray:  -xCORE-AVX2(pass 2)  -prof-gen(pass 1)  -ipo(pass 2)
    -03(pass 2)  -no-prec-div(pass 2)  -prof-use(pass 2)  -unroll4
    -ansi-alias
```

Fortran benchmarks:

```bash
410.bwaves: basepeak = yes
416.gamess:  -xCORE-AVX2(pass 2)  -prof-gen(pass 1)  -ipo(pass 2)
    -03(pass 2)  -no-prec-div(pass 2)  -prof-use(pass 2)  -unroll2
    -inline-level=0  -scalar-rep-
```

```bash
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
```
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Peak Optimization Flags (Continued)

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inlined-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -03 -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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