UEFI Basic Tutorial (Part 3) - Running the First PEI Driver

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摘要 This article introduces the development process of UEFI PEIM module in detail, including writing source code, configuring INF and FDF files, compiling to generate EFI files, and running tests. It also compares the writing methods of PEIM and UEFI APP, providing practical reference materials for UEFI developers.

The summary is generated in C Know , supported by DeepSeek-R1 full version, go to experience>

1. Write source code

1. Write C:\edkii\OvmfPkg\MyHelloWorldPEIMDriver\MyHelloWorldPEIMDriver.c

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```c
#include <uefi.h>
#include <Library/UefiLib.h>
#include <Library/BaseLib.h>
#include <Library/DebugLib.h>
#include <Library/BaseMemoryLib.h>
#include <Library/UefiDriverEntryPoint.h>
#include <Library/PeimEntryPoint.h>
#include <Library/PeiServicesLib.h>
#include <Library/PeiServicesTablePointerLib.h>
#include <Pi/PiHob.h>

EFI_GUID gMyHelloWorldPEIGUID = { 0xbdb38129, 0x4d65, 0x39f4, { 0x72, 0x12, 0x68, 0xcf, 0x5a, 0x19, 0xa, 0xf8 }};

//ShellCEntryLib call user interface ShellAppMain
EFI_STATUS
EFIAPI
MyHelloWorldPEIMDriverEntry(
  IN       EFI_PEI_FILE_HANDLE  FileHandle,
  IN CONST EFI_PEI_SERVICES     **PeiServices
```

```
)
{
  EFI_STATUS                            Status = EFI_SUCCESS;
  DEBUG ((EFI_D_ERROR, "MyHelloWorldPEIMDriver Start..\n"));
  DEBUG ((EFI_D_ERROR, "MyHelloWorldPEIMDriver End..\n"));
  return Status;
}
```

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2. Write C:\edkii\OvmfPkg\MyHelloWorldPEIMDriver\MyHelloWorldPEIMDriver.inf

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```
[Defines]
  INF_VERSION = 0x00010006
  BASE_NAME = MyHelloWorldPEIMDriver
  FILE_GUID = 69E6DE6D-F09E-485f-9937-EB70FDCFC82B
  MODULE_TYPE = PEIM
  VERSION_STRING = 1.0
  ENTRY_POINT = MyHelloWorldPEIMDriverEntry

[Sources]
  MyHelloWorldPEIMDriver.c

[Packages]
  MdePkg/MdePkg.dec
  ShellPkg/ShellPkg.dec
  MdeModulePkg/MdeModulePkg.dec

[LibraryClasses]
  BaseLib
  PeimEntryPoint
  BaseMemoryLib
  DebugLib
  PeiServicesLib

[depex]
  TRUE
```

收起 ^

3. Modify C:\edkii\OvmfPkg\OvmfPkgX64.dsc

[Components]

```
...
#
# PEI Phase modules
#
OvmfPkg/MyHelloWorldPEIMDriver/MyHelloWorldPEIMDriver.inf
...
```

4. Modify C:\edkii\OvmfPkg\OvmfPkgX64.fdf

```
[FV.PEIFV]
...
#
#  PEI Phase modules
#
...
INF  OvmfPkg/MyHelloWorldPEIMDriver/MyHelloWorldPEIMDriver.inf
...
```

2. Compile and generate EFI files

Run and `edksetup.bat` compile the entire OvmfPkg Package, and then view the generated efi as follows:

```
c:\edkii>dir C:\edkii\Build\OvmfX64\DEBUG_VS2013x86\X64\OvmfPkg\MyHelloWorldPEIMDriver\MyHelloWorldPEIMDriver\OUTPUT\*.efi
 Volume in drive C is OSDisk
 Volume Serial Number is 2A88-3D76

 Directory of C:\edkii\Build\OvmfX64\DEBUG_VS2013x86\X64\OvmfPkg\MyHelloWorldPEIMDriver\MyHelloWorldPEIMDriver\OUTPUT

08/19/2018  08:59 AM             9,376 MyHelloWorldPEIMDriver.efi
               1 File(s)          9,376 bytes
               0 Dir(s)  11,498,831,872 bytes free
```


3. Run HelloWorld Pei Driver

1. Copy C:\edkii\Build\OvmfX64\DEBUG_VS2013x86\FV\OVMF.fd to `C:\qemu`
2. Execute `setup-qemu-x64.bat` to direct the output to the log file MyHelloWorldPEIMDriver.log.

```
C:\qemu>setup-qemu-x64.bat >> MyHelloWorldPEIMDriver.log
```

Then, view the output of MyHelloWorldPEIMDriver PEI driver from the log file as follows,

```
C:\qemu>type MyHelloWorldDXEDriver.log | findstr MyHelloWorldPEIMDriver
Loading PEIM at 0x0000FEC6000 EntryPoint=0x0000FEC6394 MyHelloWorldPEIMDriver.efi
MyHelloWorldPEIMDriver Start..
MyHelloWorldPEIMDriver End..
```

IV. Summary

`UEFI PEIM` `UEFI APP` The difference between and

1. The MODULE_TYPE in the INF file is different (`PEIM`、`UEFI_APPLICATION`)
2. `FDF` The placement of the file is different .
   `PEIM` It needs to be placed `[FV.PEIFV]` below. After the compilation is completed, it will be packaged into OVMF.fd; `APP` it does not need to be forced to be placed in `FDF` , and it is generally placed in the storage device (HDD) for execution.

PEIMDriver DEMO source code