UEFI Basic Tutorial (IV) - Running the First DXE Driver

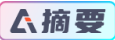Category columns: 15_Firmware Development   Article Tags: BIOS   UEFI   FIrmware

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摘要   This article details how to create and run a UEFI DXE stage driver from scratch. It includes the entire process of writing source code, configuring INF and FDF files, compiling to generate EFI files, and running on QEMU. It also compares the differences between UEFI DXE and PEIM, providing practical guidance for UEFI driver 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\MyHelloWorldDXEDriver\MyHelloWorldDXEDriver.c

```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/UefiBootServicesTableLib.h>

EFI_STATUS
EFIAPI
MyHelloWorldDXEDriverEntry(
  IN EFI_HANDLE        ImageHandle,
  IN EFI_SYSTEM_TABLE  *SystemTable
)

```

```
16  {
17    EFI_STATUS                              Status = EFI_SUCCESS;
18    DEBUG ((EFI_D_ERROR , "MyHelloWorldDXEDriverEntry Start..\n"));
19    DEBUG ((EFI_D_ERROR ,"MyHelloWorldDXEDriverEntry Endt..\n"));
20    return Status;
    }
```

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

C   AI generated projects   登录复制   run

```
1   [Defines]
2     INF_VERSION = 0x00010006
3     BASE_NAME = MyHelloWorldDXEDriver
4     FILE_GUID = 6AE7DE6E-F0AF-485f-9937-EB70FDCFC82F
5     MODULE_TYPE = UEFI_DRIVER
6     VERSION_STRING = 1.0
7     ENTRY_POINT = MyHelloWorldDXEDriverEntry
8
9   [Sources]
10    MyHelloWorldDXEDriver.c
11
12  [Packages]
13    MdePkg/MdePkg.dec
14    ShellPkg/ShellPkg.dec
15    MdeModulePkg/MdeModulePkg.dec
16
17  [LibraryClasses]
18    UefiDriverEntryPoint
19    BaseLib
20    BaseMemoryLib
twen  DebugLib
twen  DevicePathLib
twen  UefiBootServicesTableLib
twen  MemoryAllocationLib
25    UefiLib
26
27  [depex]
28    TRUE
```

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

```
1  [Components]
2  ...
3  #
4  # DXE Phase modules
5  #
6  OvmfPkg/MyHelloWorldDXEDriver/MyHelloWorldDXEDriver.inf
7  ...
```

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

```
1  [FV.DXEFV]
2  ...
3  #
4  # DXE Phase modules
5  #
6  INF  OvmfPkg/MyHelloWorldDXEDriver/MyHelloWorldDXEDriver.inf
7  ...
```

2. Compile and generate EFI files

Run and `edksetup.bat` compile the entire OvmfPkg Package

3. Run HelloWorld DXE Driver

1. Copy C:\edkii\Build\OvmfX64\DEBUG_VS2013x86\FV\OVMF.fd to C:\qemu

2. Execute as follows `setup-qemu-x64.bat | findstr MyHelloWorldDXEDriver`

```
C:\qemu>setup-qemu-x64.bat | findstr MyHelloWorldDXEDriver
WARNING: Image format was not specified for 'HDD_BOOT.img' and probing guessed raw.
         Automatically detecting the format is dangerous for raw images, write operations on block 0 will be restricted.

         Specify the 'raw' format explicitly to remove the restrictions.
Loading driver at 0x0000FA65000 EntryPoint=0x0000FA65374 MyHelloWorldDXEDriver.efi
MyHelloWorldDXEDriverEntry Start..
MyHelloWorldDXEDriverEntry Endt..
```

IV. Summary

`UEFI DXE UEFI PEIM` The difference between and

1. MODULE_TYPE in INF file is different (`PEIM`、`UEFI_DRIVER`)

2. `FDF` The placement in the file is different.

   `PEIM` It needs to be placed at `[FV.PEIFV]` the bottom, but `DXE` in the `[FV.DXEFV]` middle

DXEDriver DEMO source code