tianocore

UEFI & EDK II TRAINING

EDK II BUILD SPECIFICATION FILES

tianocore.org

LESSON OBJECTIVE

- Explain the Build components and build text files DSC, DEC, & FDF

EDK II BUILD TEXT FILES

EDK II File Extensions

- Located on tianocore.org project edk2

.DSC	**- Platform Description**
.DEC	**- Package Declaration**
.INF	**- Module Definition *define a component***
.FDF	**- Flash Description**
.VFR	- Visual Forms Representation for User interface
.UNI	- Unicode String text files w/ ease of localization
.c & .h	- Source code files
.FD	- Final Flash Device Image
.FV	- Firmware Volume File

EDK II Spec

Source

Output

BUILD DESCRIPTION FILE TYPES

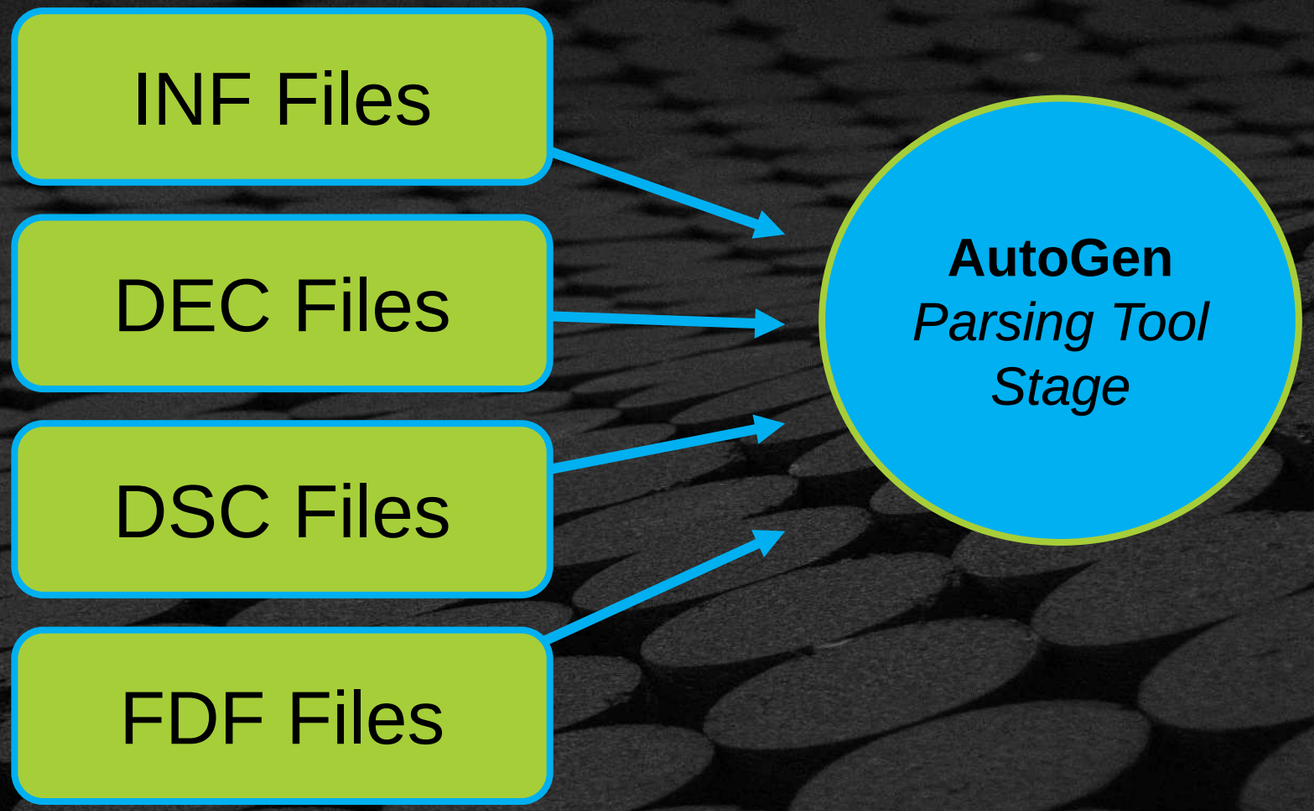
EDK II Spec

- INF Files
- DEC Files
- DSC Files
- FDF Files

Wiki Link: Build Description Files
Edk II Specifications

BUILD DESCRIPTION FILE TYPES

EDK II Spec



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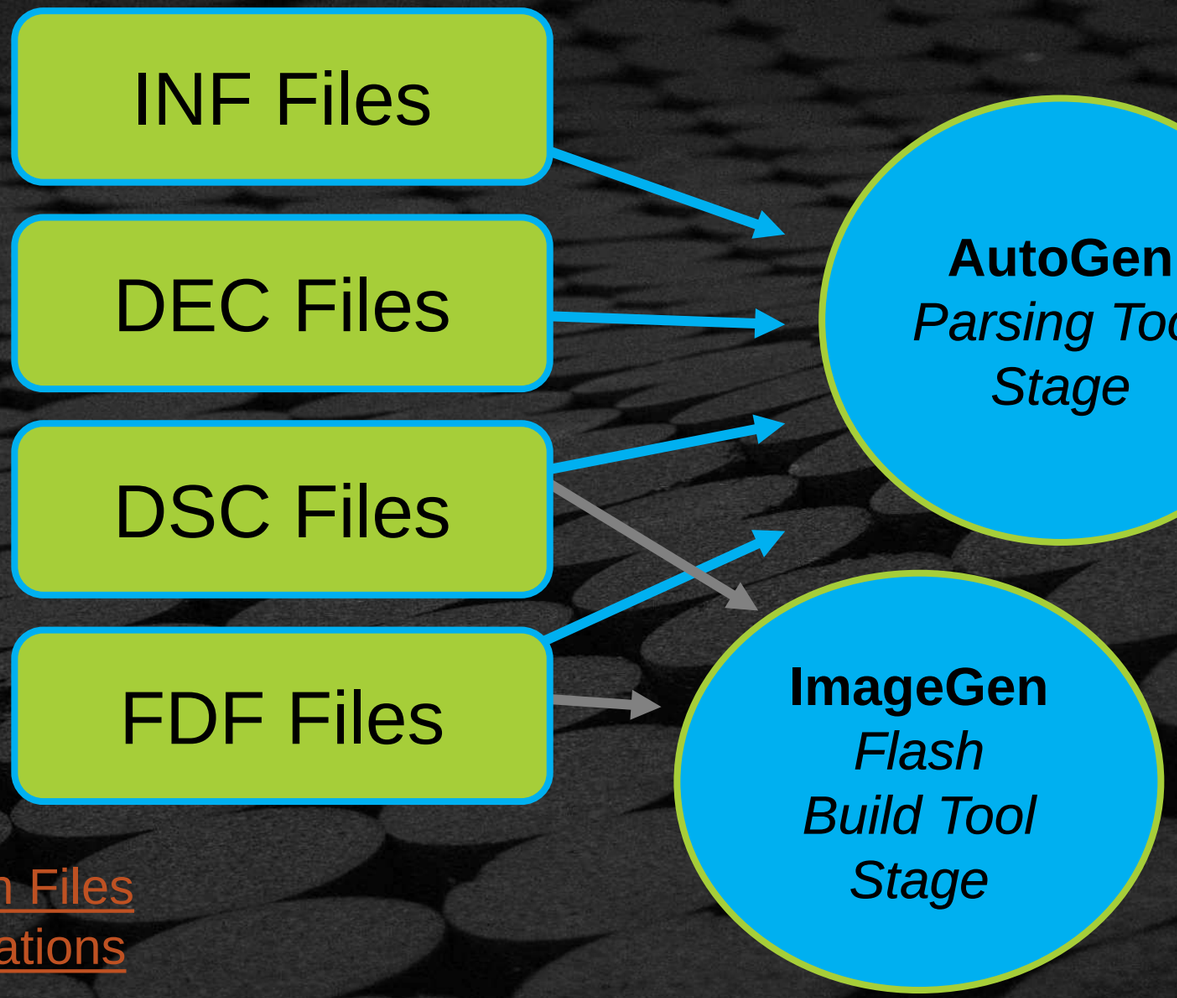
BUILD DESCRIPTION FILE TYPES

EDK II Spec



Wiki Link: Build Description Files
Edk II Specifications

PACKAGE DECLARATION FILE (DEC)

Declare

Syntax:

```
<DECfile> ::=   <Defines>
                Include
                [<LibraryClass>]
                [<Guids>]
                [<Protocols>]
                [<Ppis>]
                [<Pcd>]
                [<UserExtensions>]
```

EXAMPLE DEC FILE

```
[Defines]
  DEC_SPECIFICATION              = 0x00010005
  PACKAGE_NAME                   = OvmfPkg
  PACKAGE_GUID                   = 2daf5f34-50e5-4b9d-b8e3-5562334d87e5
  PACKAGE_VERSION                = 0.1

[Includes]
  Include

[LibraryClasses]
  ##  @libraryclass  Loads and boots a Linux kernel image
  #
  LoadLinuxLib|Include/Library/LoadLinuxLib.h

[Guids]
  gUefiOvmfPkgTokenSpaceGuid          = {0x93bb96af, 0xb9f2, 0x4eb8, {0x94, 0x62, 0xe0, 0xba, 0x74, 0x56, 0x42, 0x36}}
  gEfiXenInfoGuid                     = {0xd3b46f3b, 0xd441, 0x1244, {0x9a, 0x12, 0x0, 0x12, 0x27, 0x3f, 0xc1, 0x4d}}

[Protocols]
  gVirtioDeviceProtocolGuid           = {0xfa920010, 0x6785, 0x4941, {0xb6, 0xec, 0x49, 0x8c, 0x57, 0x9f, 0x16, 0x0a}}
  gXenBusProtocolGuid                 = {0x3d3ca290, 0xb9a5, 0x11e3, {0xb7, 0x5d, 0xb8, 0xac, 0x6f, 0x7d, 0x65, 0xe6}}

[PcdsFixedAtBuild]
  gUefiOvmfPkgTokenSpaceGuid.PcdOvmfPeiMemFvBase|0x0|UINT32|0
  gUefiOvmfPkgTokenSpaceGuid.PcdOvmfPeiMemFvSize|0x0|UINT32|1
```

Link to Gitpitch

EXAMPLE: DEC FILE DETAILS

https://gitpitch.com/tianocore-training/EDK_II_Build_Spec_Files_Pres/master#/6

PLATFORM DESCRIPTION FILE (DSC)

Description

Syntax:

```
DSCfile ::= [<Header>]
            <Defines>
            [<SkuIds>]
            [<Libraries>]
            [<LibraryClasses>]
            [<Pcds>]
            [<Components>]
            [<UserExtensions>]
```

PLATFORM DESCRIPTION FILE (DSC)

DSC file is the recipe for creating a package

Definitions for the package build

EDK libraries (for EDK Components)

EDK II Library Class Instance Mappings (for EDK II Modules)

EDK II PCD Entry Settings

EXAMPLE: DSC FILE

```
[Defines]
  PLATFORM_NAME                  = Ovmf
  PLATFORM_GUID                  = 5a9e7754-d81b-49ea-85ad-69eaa7b1539b
  PLATFORM_VERSION               = 0.1
  DSC_SPECIFICATION              = 0x00010005
  OUTPUT_DIRECTORY               = Build/OvmfX64
  SUPPORTED_ARCHITECTURES        = X64
  BUILD_TARGETS                  = NOOPT|DEBUG|RELEASE
  SKUID_IDENTIFIER               = DEFAULT
  FLASH_DEFINITION               = OvmfPkg/OvmfPkgX64.fdf

  #
  # Defines for default states.  These can be changed on the command line.
  # -D FLAG=VALUE
. . .
[BuildOptions.common.EDKII.DXE_RUNTIME_DRIVER]
  GCC:*_*_*_DLINK_FLAGS = -z common-page-size=0x1000
  XCODE:*_*_*_DLINK_FLAGS =
[LibraryClasses]
  PcdLib|MdePkg/Library/BasePcdLibNull/BasePcdLibNull.inf
  TimerLib|OvmfPkg/Library/AcpiTimerLib/BaseAcpiTimerLib.inf
```

Link to Gitpitch

EXAMPLE: DSC FILE DETAILS

https://gitpitch.com/tianocore-training/EDK_II_Build_Spec_Files_Pres/master#/9

FLASH DESCRIPTION FILE(FDF)

Flash Layout

Syntax:

```
FDFfile ::= [<Header>]
    [<Defines>]
    <FD>
    <FV>
    [<Capsule>]
    [<VTF>]
    [<Rules>]
    [<OptionRom>]
    [<UserExtensions>]
```

FLASH DESCRIPTION FILE(FDF)

Describes information about flash parts

Used to create firmware images, Option ROM images or bootable images

Rules for combining binaries (Firmware Image) built from a DSC file

FLASH DEVICE CONFIGURATION COMMON LAYOUT FILE (.FDF)

FV Recovery

Used to store SEC/PEI phase code

FLASH DEVICE CONFIGURATION COMMON LAYOUT FILE (.FDF)

FV Recovery

FTW spare space

FTW working space

Used to store SEC/PEI phase code

Fault Tolerant Write (FTW) regions

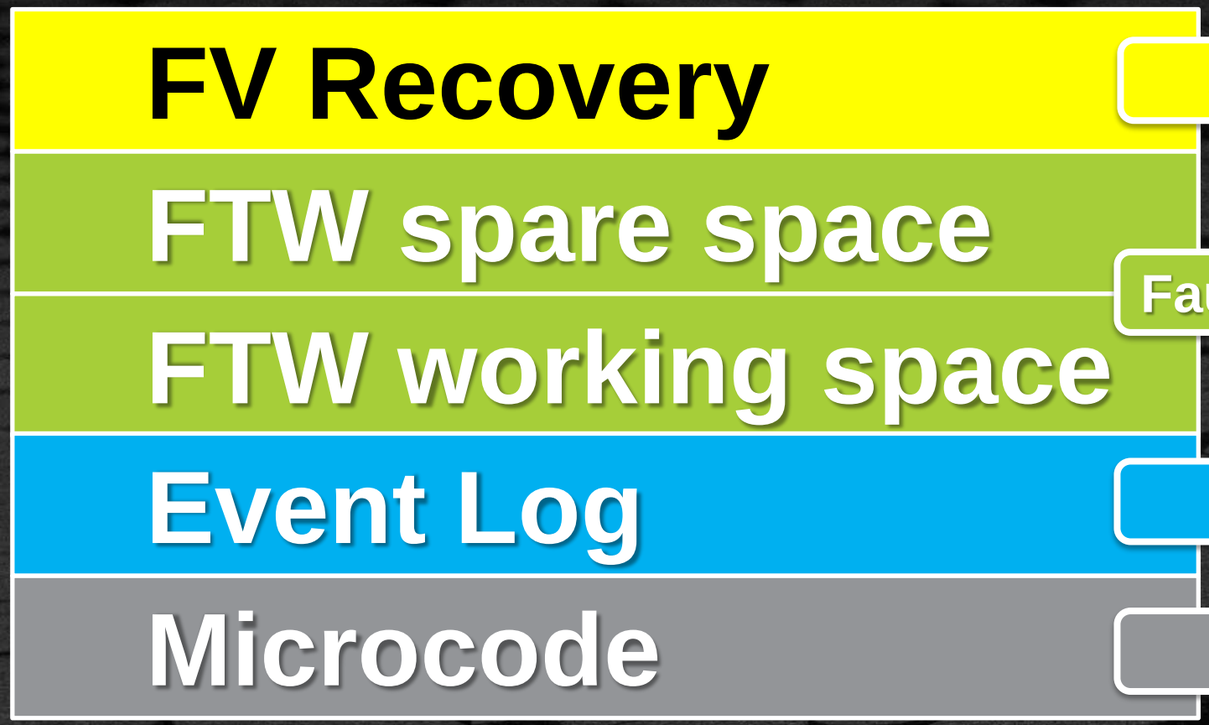
FLASH DEVICE CONFIGURATION COMMON LAYOUT FILE (.FDF)

Used to store SEC/PEI phase code

Fault Tolerant Write (FTW) regions

NVRAM storage for event logs

FLASH DEVICE CONFIGURATION COMMON LAYOUT FILE (.FDF)



Used to store SEC/PEI phase code

Fault Tolerant Write (FTW) regions

NVRAM storage for event logs

CPU Microcode

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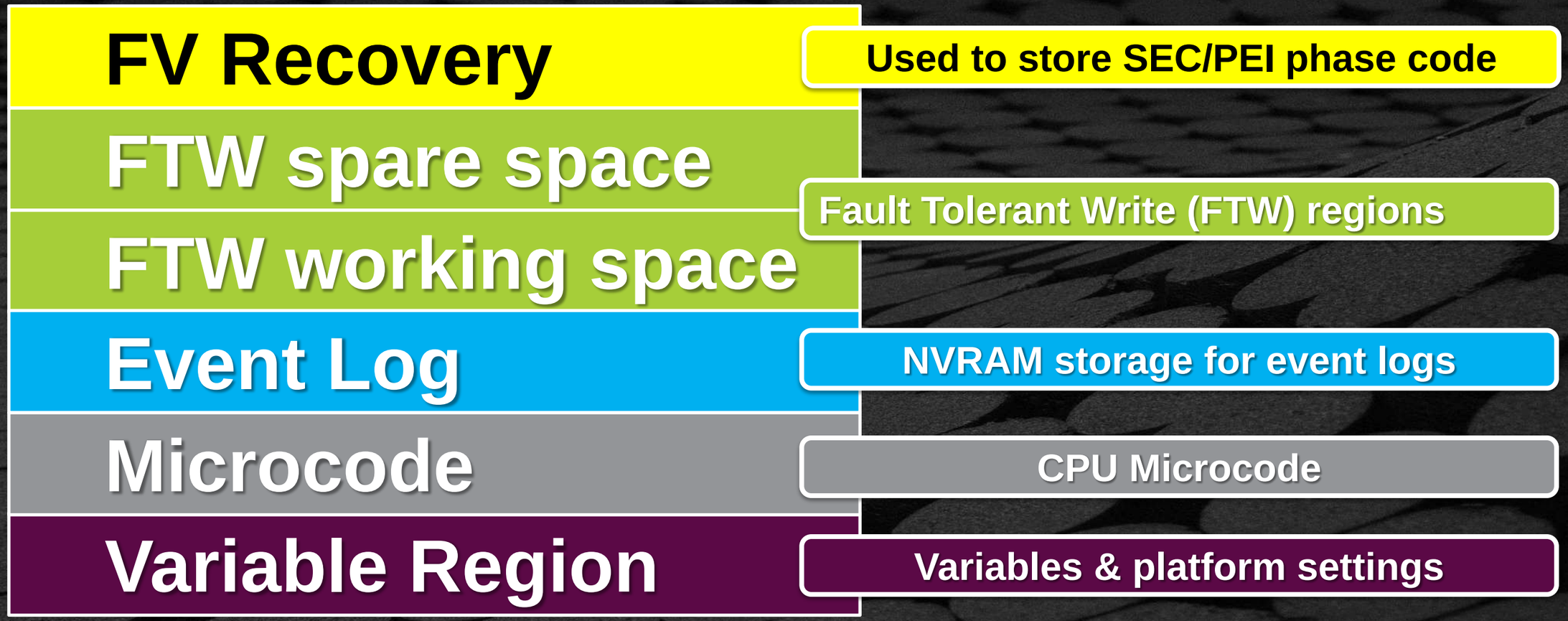

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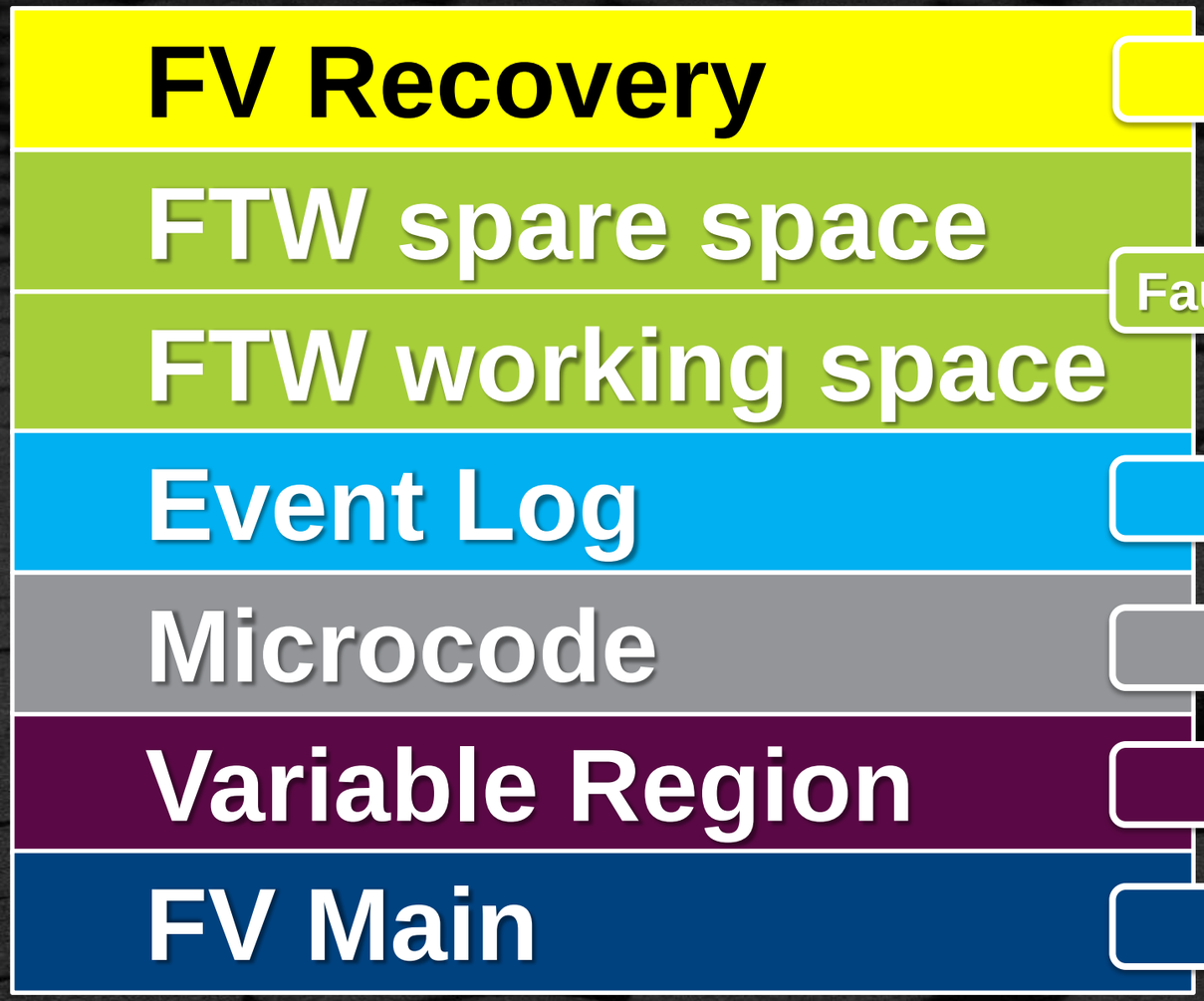

Used to store SEC/PEI phase code

Fault Tolerant Write (FTW) regions

NVRAM storage for event logs

CPU Microcode

Variables & platform settings

Contains DXE phase drivers

EXAMPLE: FDF FILE

```
[Defines]
!include OvmfPkg.fdf.inc

#
# Build the variable store and the firmware code as one unified flash device
# image.
#
[FD.OVMF]
BaseAddress   = $(FW_BASE_ADDRESS)
Size          = $(FW_SIZE)
ErasePolarity = 1
BlockSize     = $(BLOCK_SIZE)
NumBlocks     = $(FW_BLOCKS)


$(VARS_SIZE)|$(FVMAIN_SIZE)
FV = FVMAIN_COMPACT

$(SECFV_OFFSET)|$(SECFV_SIZE)
FV = SECFV
```

Link to Gitpitch

EXAMPLE: DEC FILE DETAILS

https://gitpitch.com/tianocore-training/EDK_II_Build_Spec_Files_Pres/master#/13

SUMMARY

- Explain the Build components and build text files DSC, DEC, & FDF

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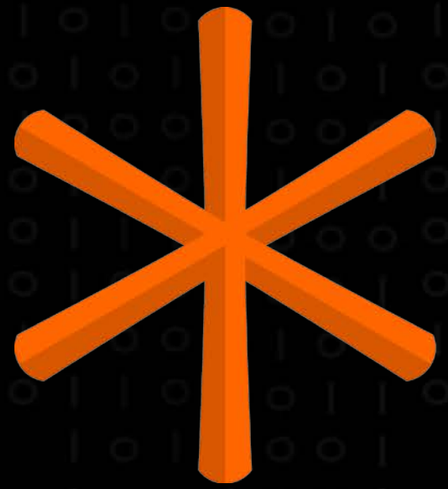

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ACKNOWLEDGEMENTS