tianocore

UEFI & EDK II Training

Open Source UEFI Platforms

tianocore.org

LESSON OBJECTIVE

- Chart the organization of the Tianocore.org repositories
- Recognize the various Open Source UEFI Platforms

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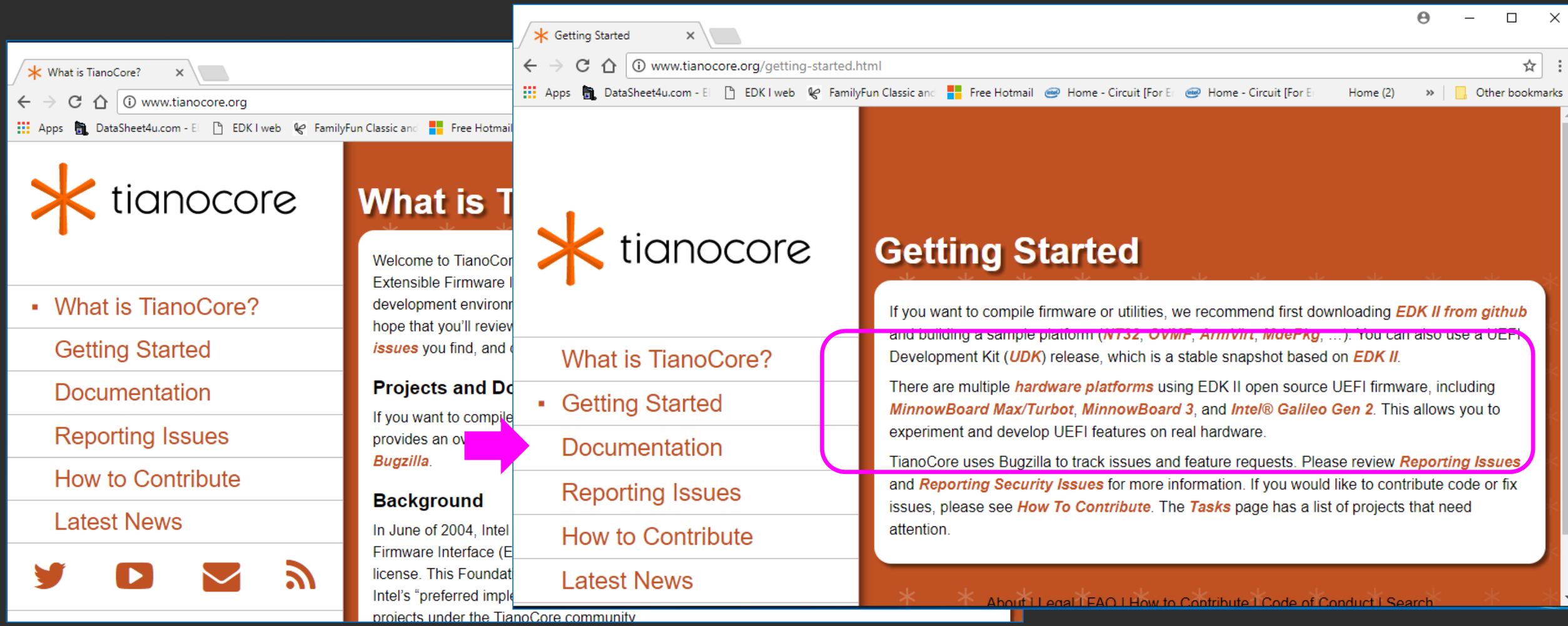
Tianocore.org



Platforms *Emulator*, *OVMF*, *ArmVirt*, *MdePkgHardware platforms*: *MinnowBoard Max/Turbot*, *Up Squared*, and *Intel® Galileo Gen 2*.

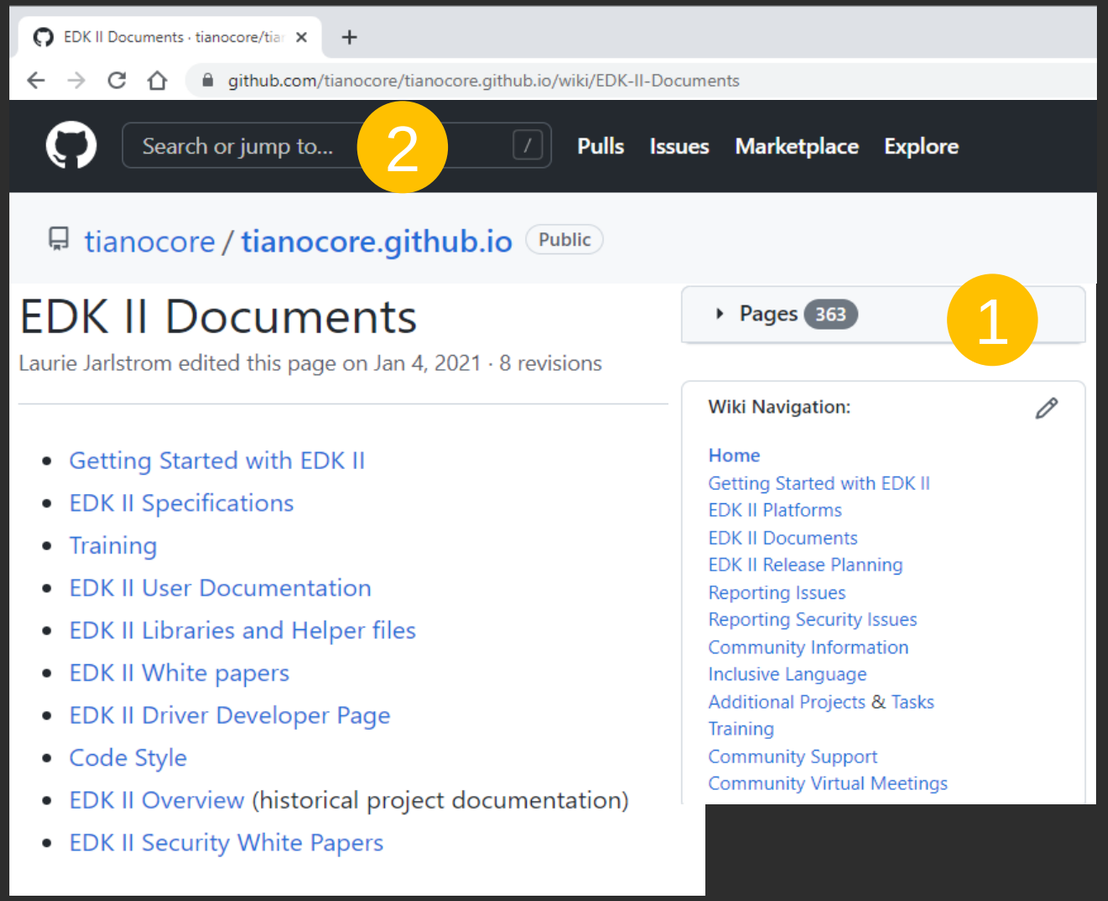
Tianocore Documentation & Wiki

GitHub EDK II Documents

Rich set of documentation on EDK II

How to find documentation:

1. Search the Wiki pages from the Pages Tab
2. Search all the Tianocore wiki pages from the GitHub search



Tianocore EDK II Specifications

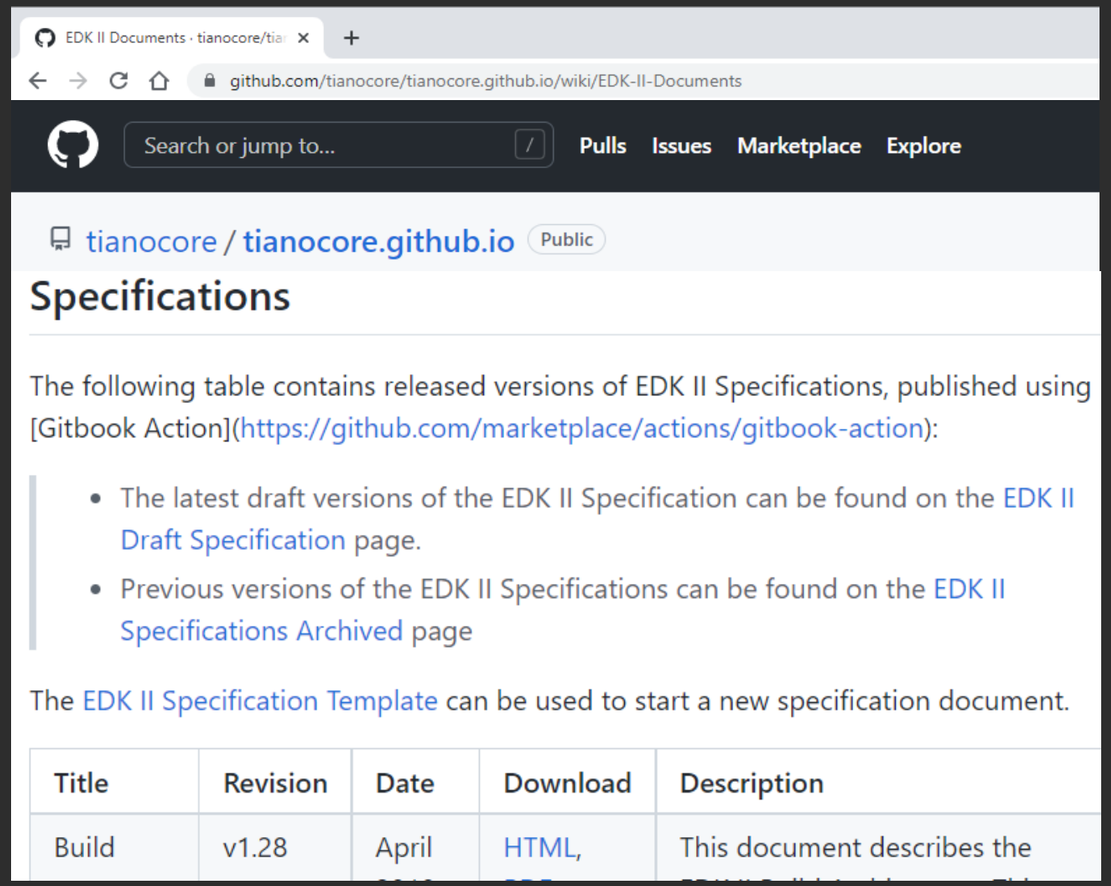
GitHub EDK II Specifications

EDK II Specifications include:

- Build, DEC, DSC, FDF, IDF, INF, Meta Data, UNI, VFR, C coding standards, Min-Platform

Specifications can be viewed with various formats

- On-Line HTML
- Download PDF
- ePub
- GitHub Repo of doc



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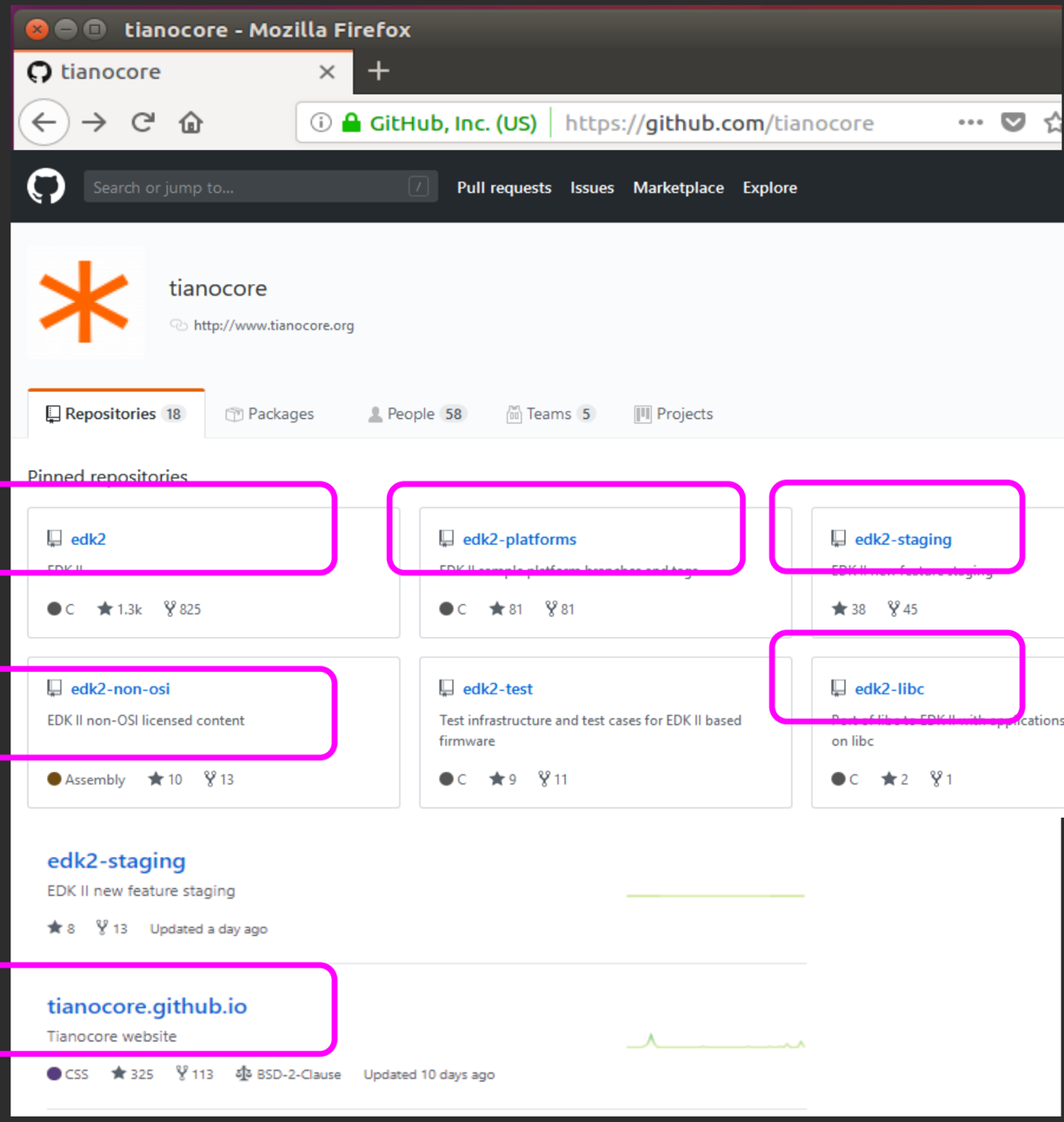
GitHub

Github/tianocore

Concept of Repositories

- Main development - `edk2`
- Other platforms - `edk2-platforms`
- Not compatible w/ `edk2` & `edk2-platforms` licensing - `edk2-non-osi`
- C Library- Python 3 `edk2-libc`
- Work in Progress - `edk2-staging`
- Online Info & Help (Wiki pages) `tianocore.github.io`

- To download use "`git clone`" then "`git checkout`"



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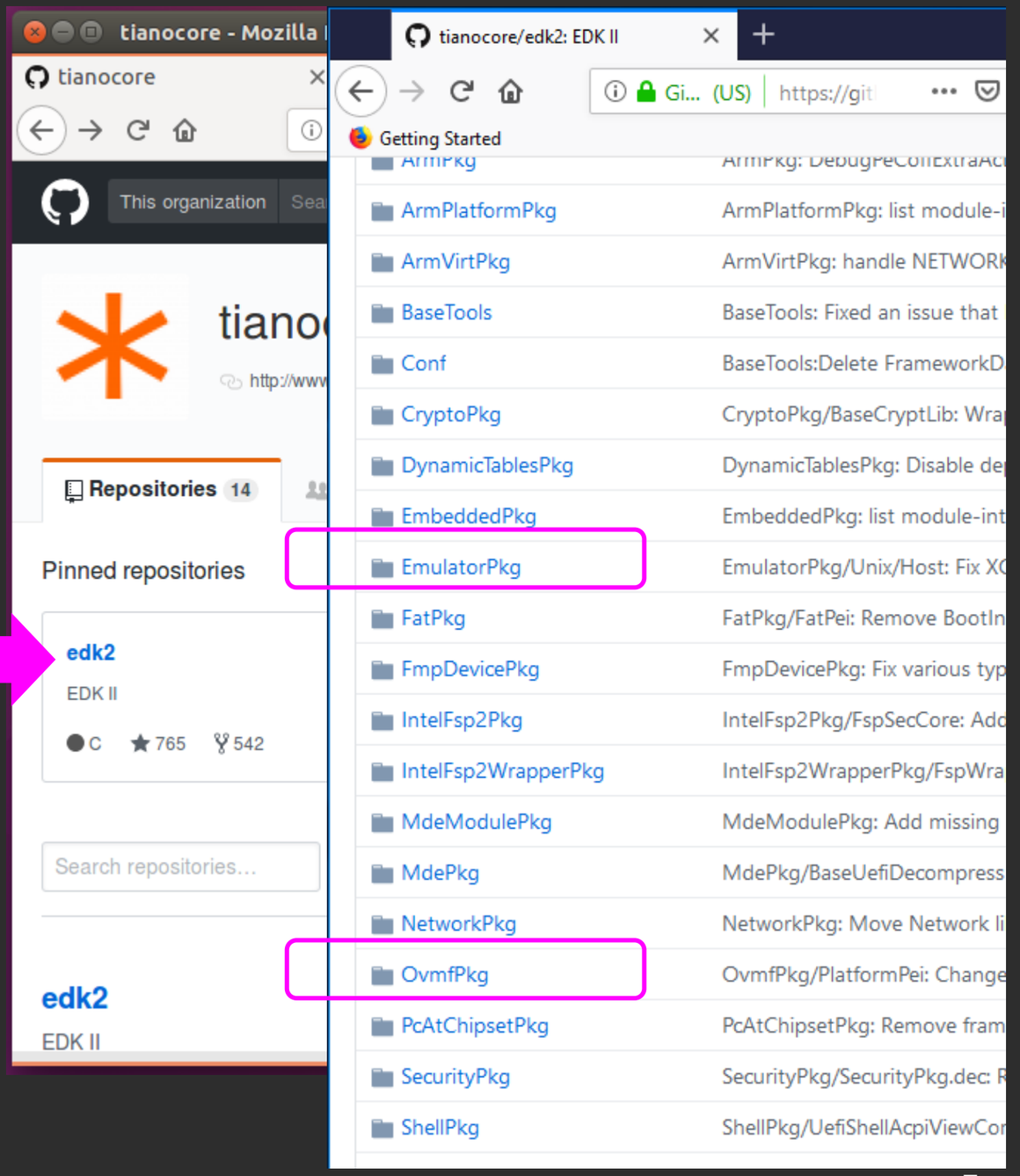
GitHub Tianocore.org

edk2 – Platforms on edk2- “**CORE**”

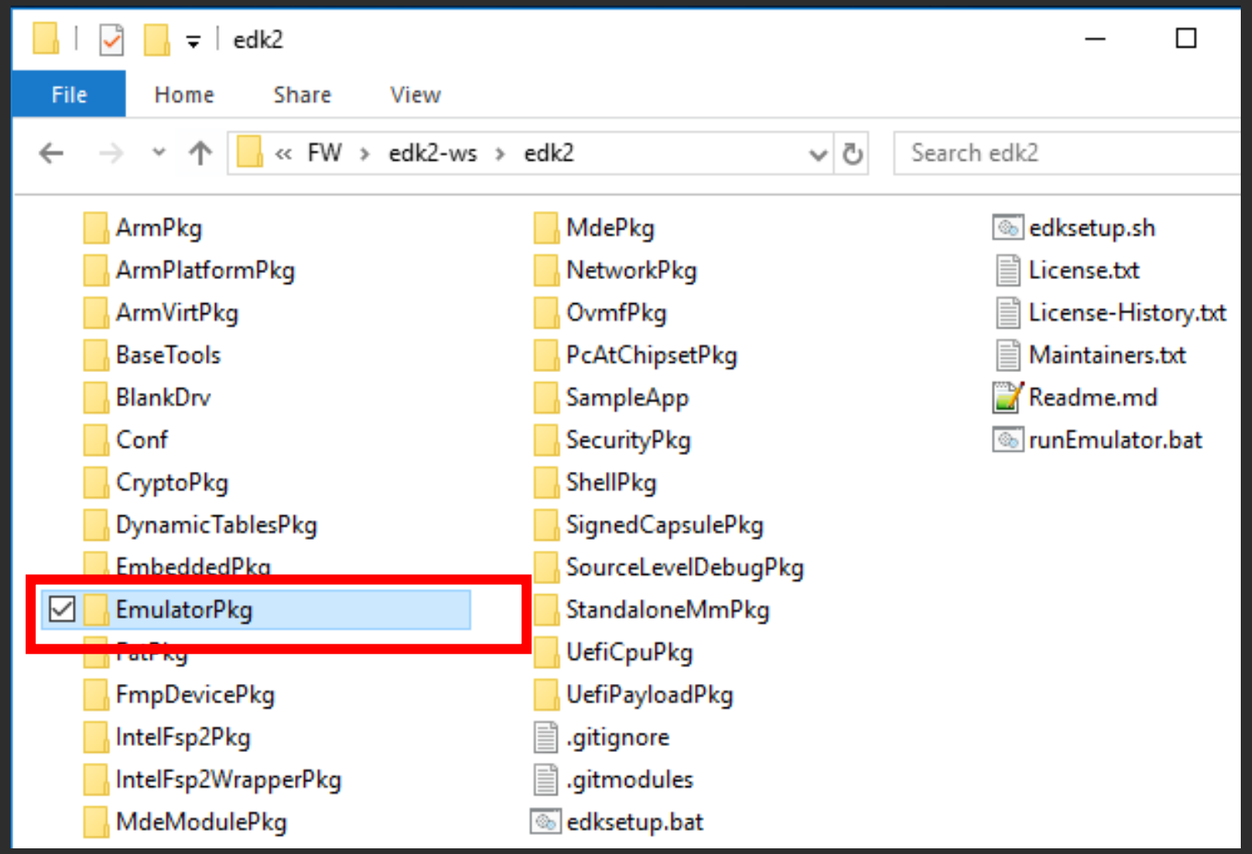
EmulatorPkg

OvmfPkg

See *Readme.md* files



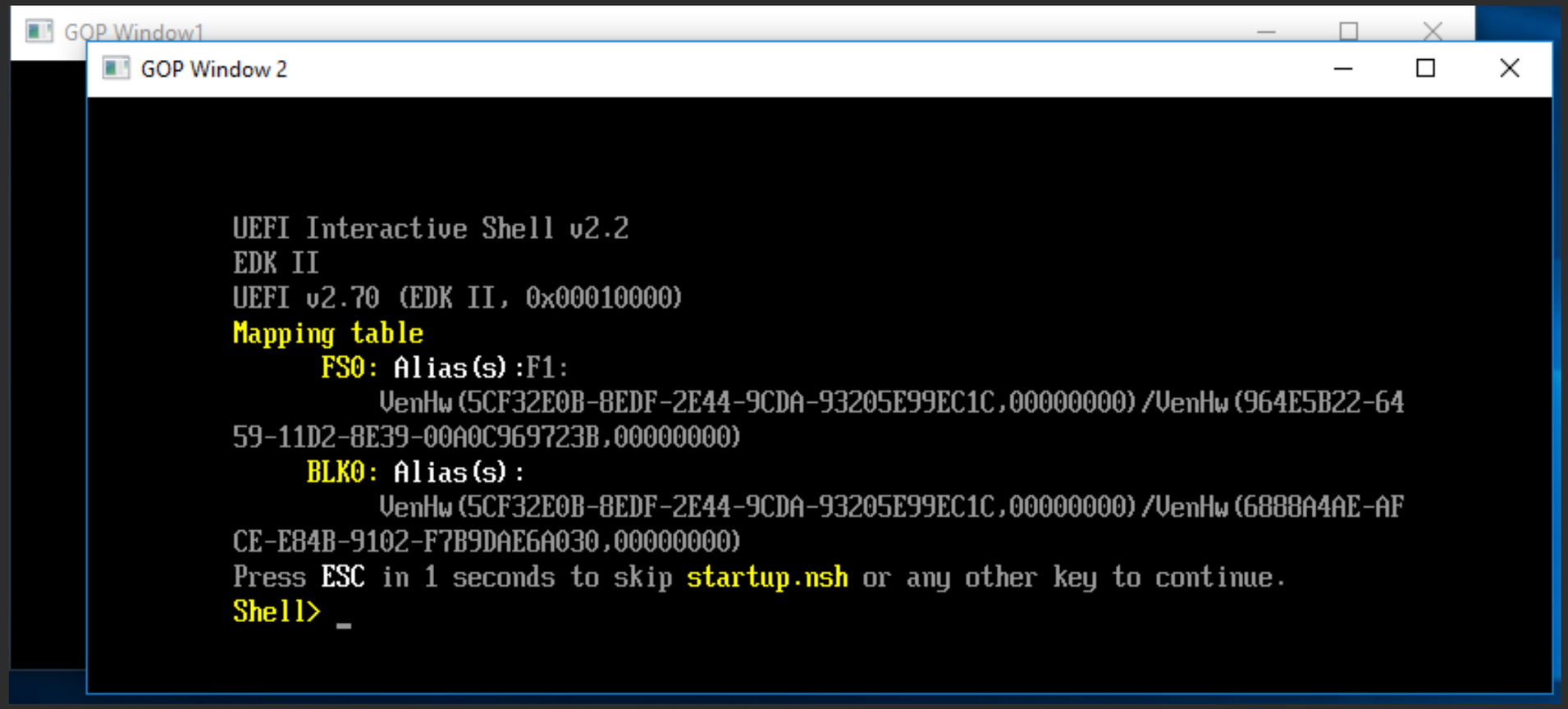
Emulation Directory Structure



EmulatorPkg files

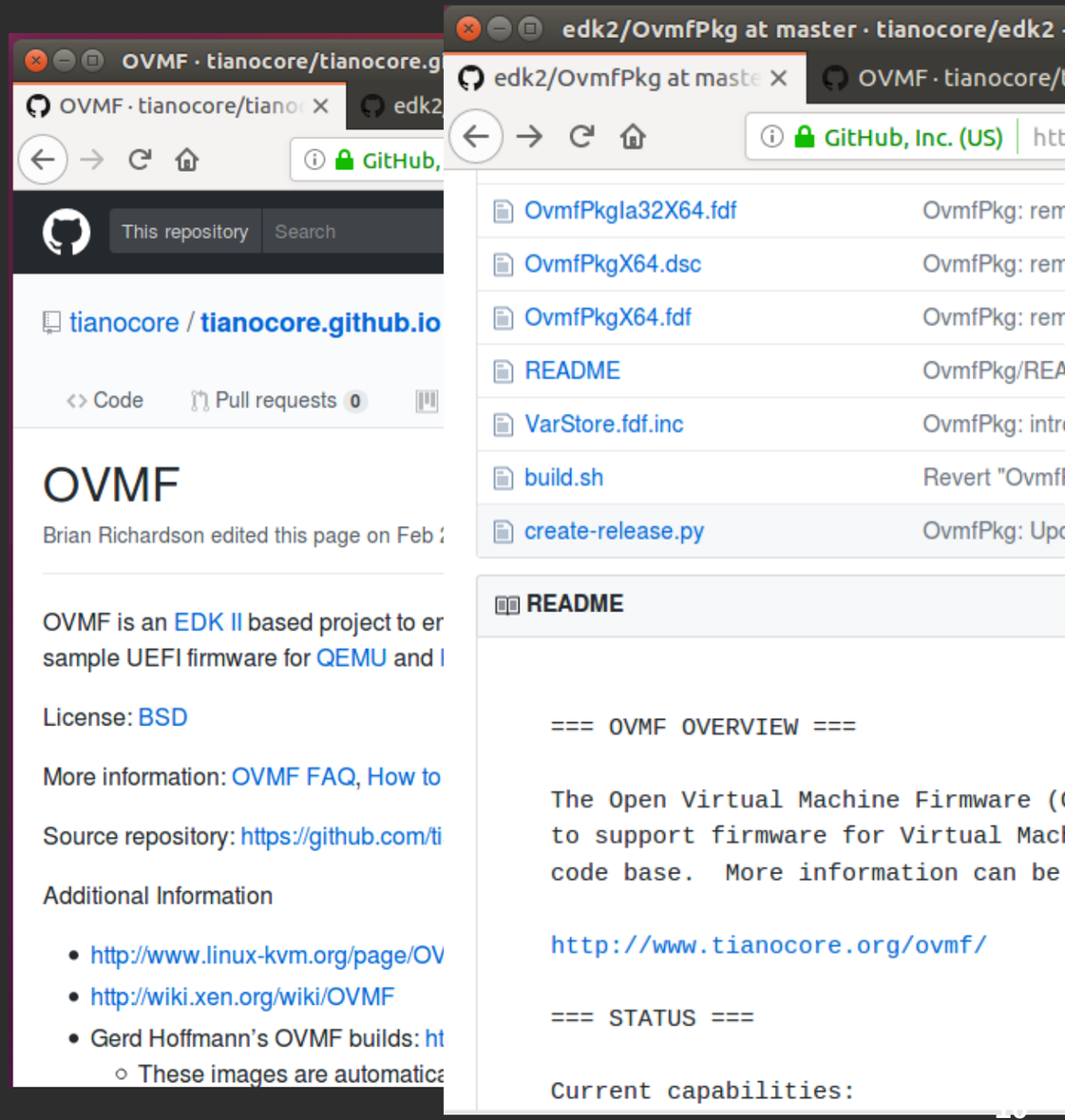
- ✓ EmulatorPkg.dsc
- ✓ EmulatorPkg.dec
- ✓ EmulatorPkg.fdf

Running Emulator with Windows



Open Virtual Machine Firmware (OVMF)

- Uses EDK II to support firmware in the OvmfPkg platform package
- Supports UEFI: Helps develop/debug drivers & applications
- QEMU VM; emulates IA32 (x86)/X64 (x86-64) based system
- Exit condition → UEFI Shell
- Tool Chain/OS Support
- Information Ovmf wiki, Tianocore.org



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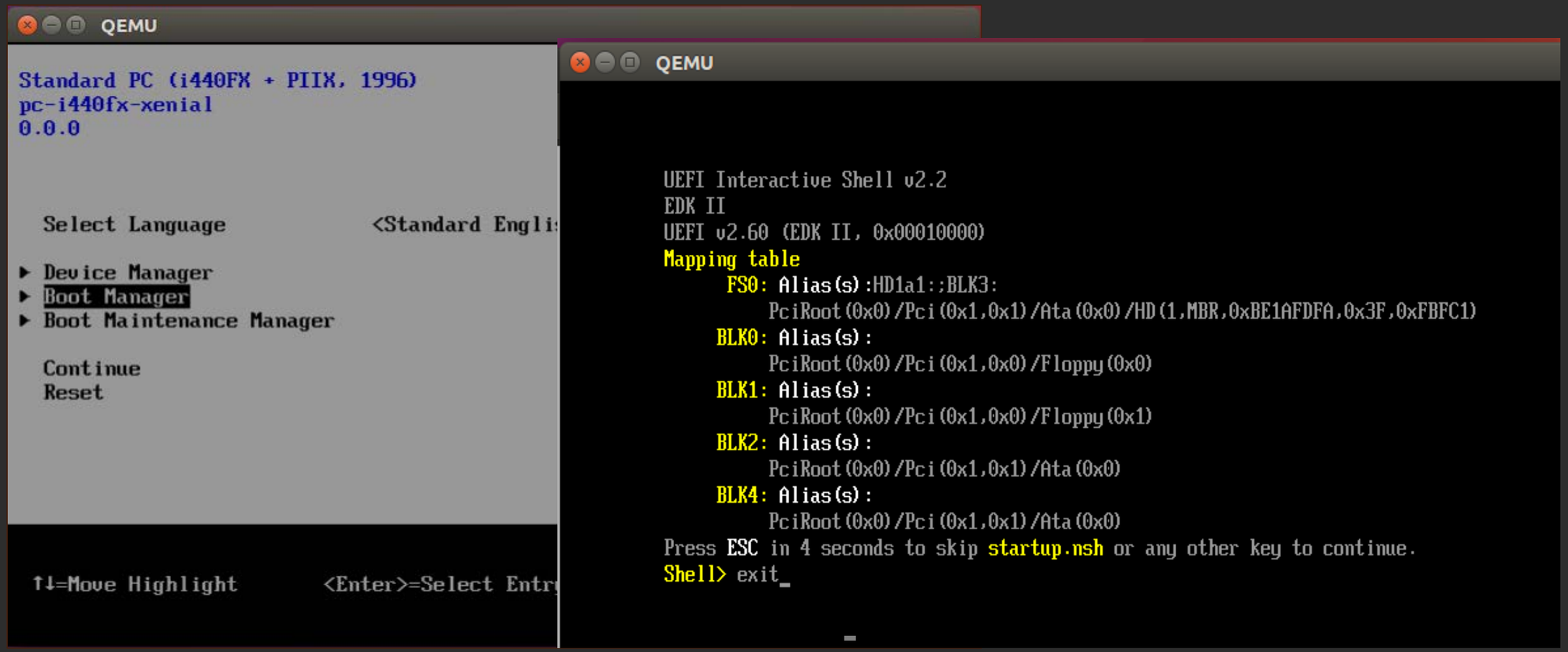
OVMF BIOS w/ QEMU

Boots to UEFI Shell



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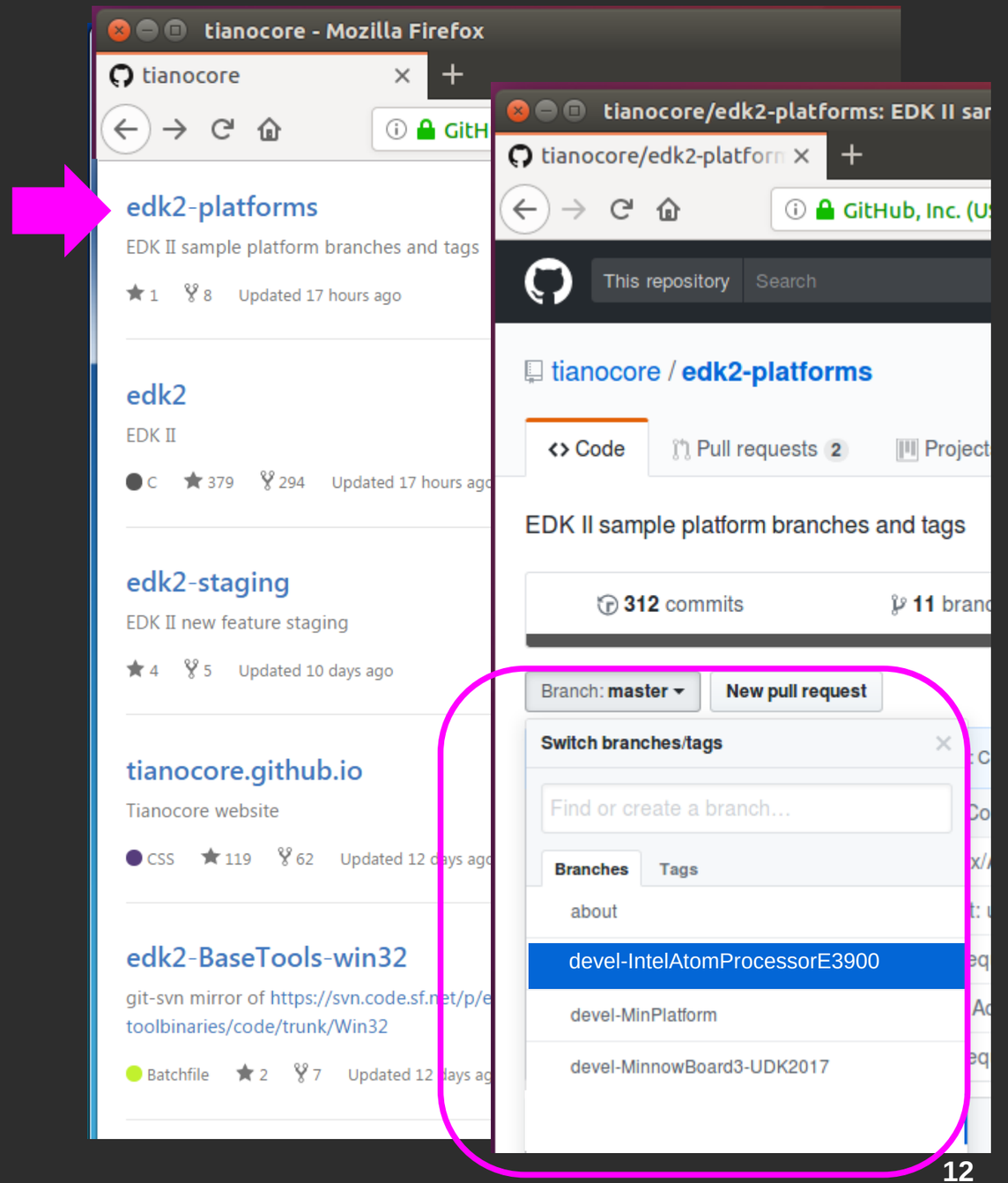
Intel Platforms Tianocore.org

edk2-platforms – Platforms

- devel-IntelAtomProcessorE3900
  – Leaf Hill, Up Squared (Apollo Lake)
- Vlv2TbltDevicePkg
  – BayTrail-I
- MinPlatformPkg – (w/ FSP)
  - KabylakeOpenBoardPkg
  - TigerlakeOpenBoardPkg
  - WhiskeyLakeOpenBoardPkg
  - WhitleyOpenBoardPkg
  - SimicsOpenBoardPkg
- How to build

  See *Readme.md* files



Slim BootLoader (SBL) Project

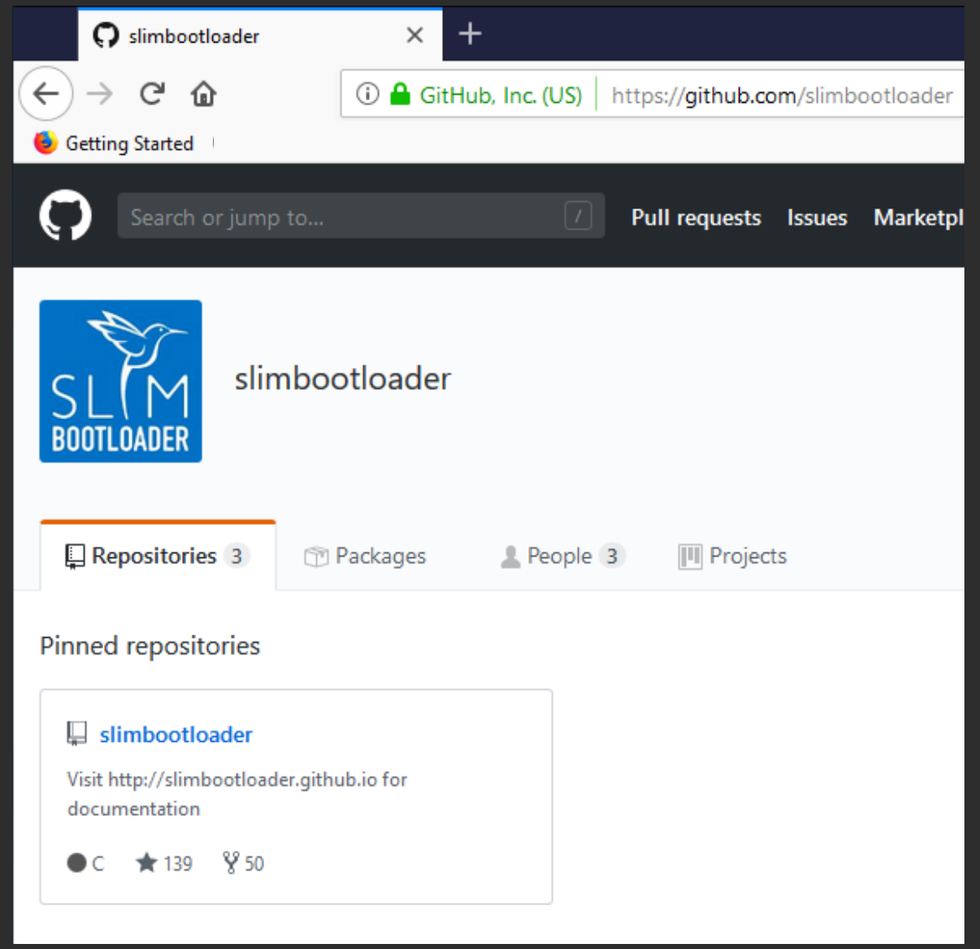
Fast & Secure Open source boot solution for IoT Use Cases

Github: https://github.com/slimbootloader

Supported Hardware:

- QEMU
- UP2 Board
- Apollo Lake CRB
- Whisky Lake CRB
- Coffee Lake Refresh CRB
- UP Xtreme Board

Documentation: Slim Bootloader Project



Intel® FSP Repository

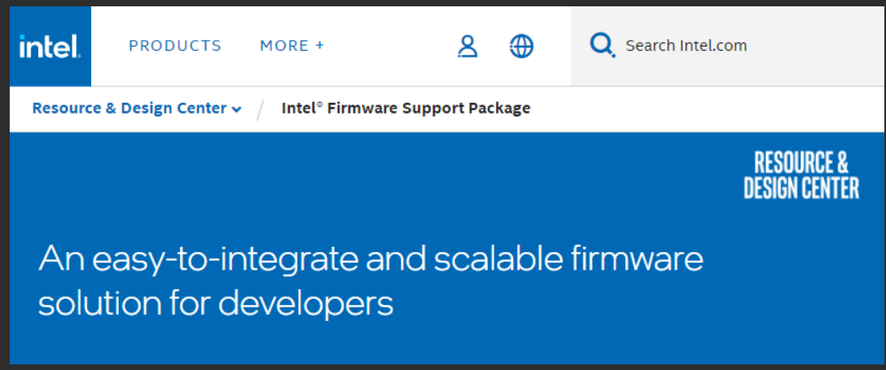
intel Intel Developer Zone Overview

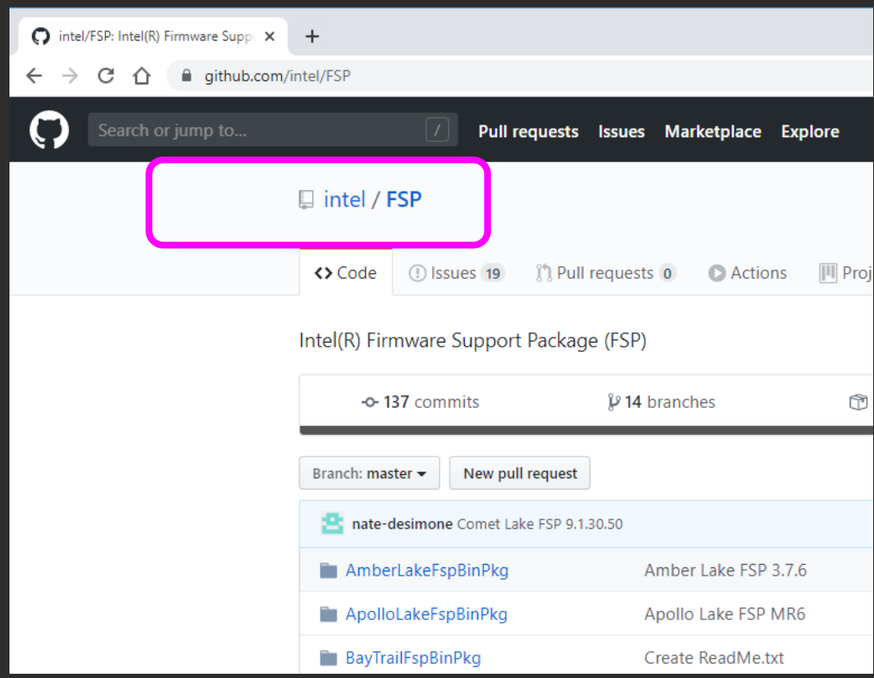
Repository of Intel FSP binaries posted by Intel on github:

Includes documentation on how to integrate with various platforms: https://github.com/intel/FSP

Wiki: https://github.com/intel/FSP/wiki

- current specifications





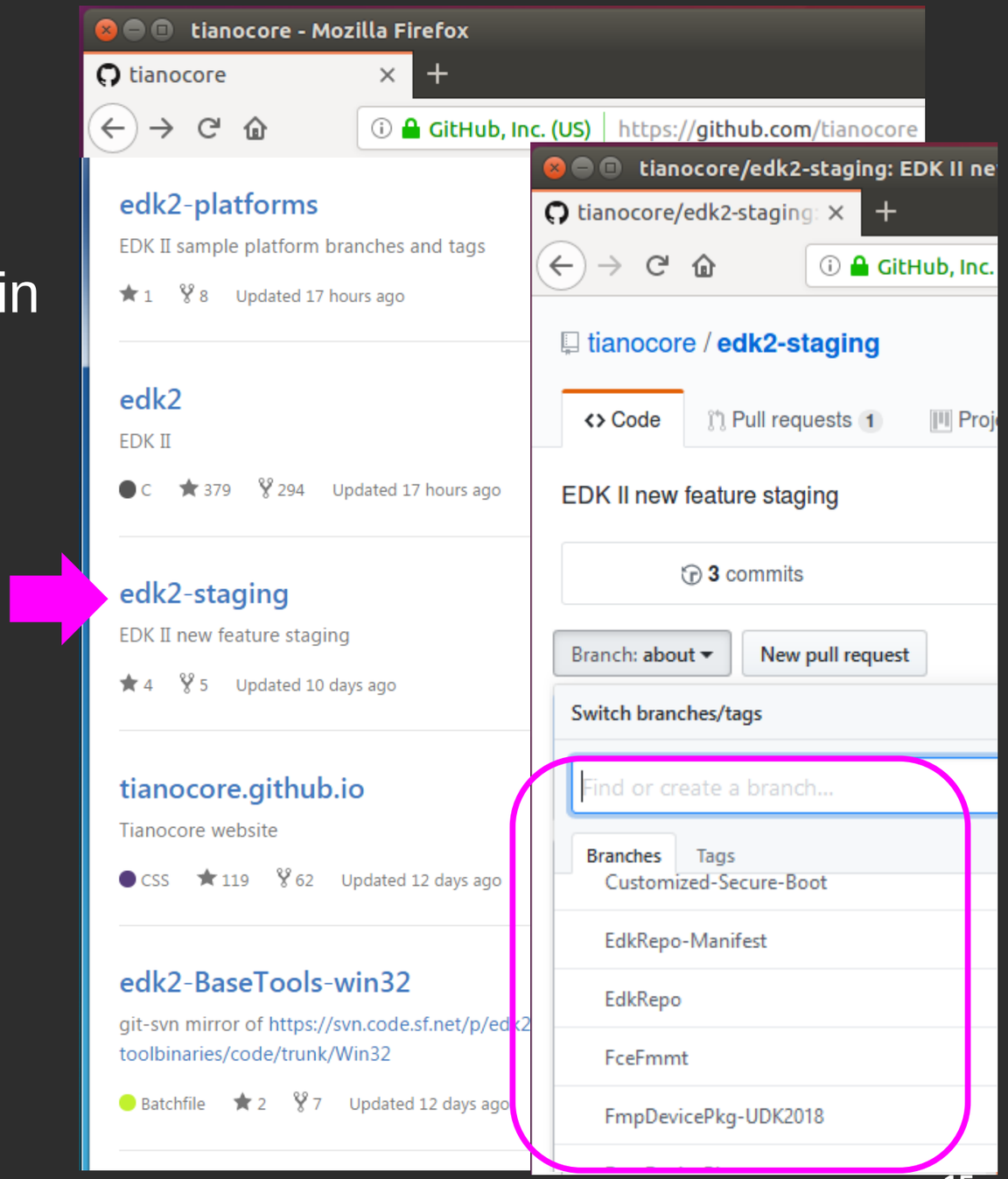
Staging TIANOCORE.ORG

Implementations not yet Ready for EDK II Main
edk2-staging

Projects on branches

- Host-based FW analysis (HBFA)
- edk2-host-test
- FceFmmt (FW Utils)
- UEFI_PCI_ENHANCE-2
- EdkRepo
- Cpu/6-level
- HTTPS-TLS
- RICS-V
- . . .

- See *Readme.md* files



Summary

- Chart the organization of the Tianocore.org repositories
- Recognize the various Open Source UEFI Platforms

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Questions?

Return to Main Training Page

Return to Training Table of contents for next presentation link

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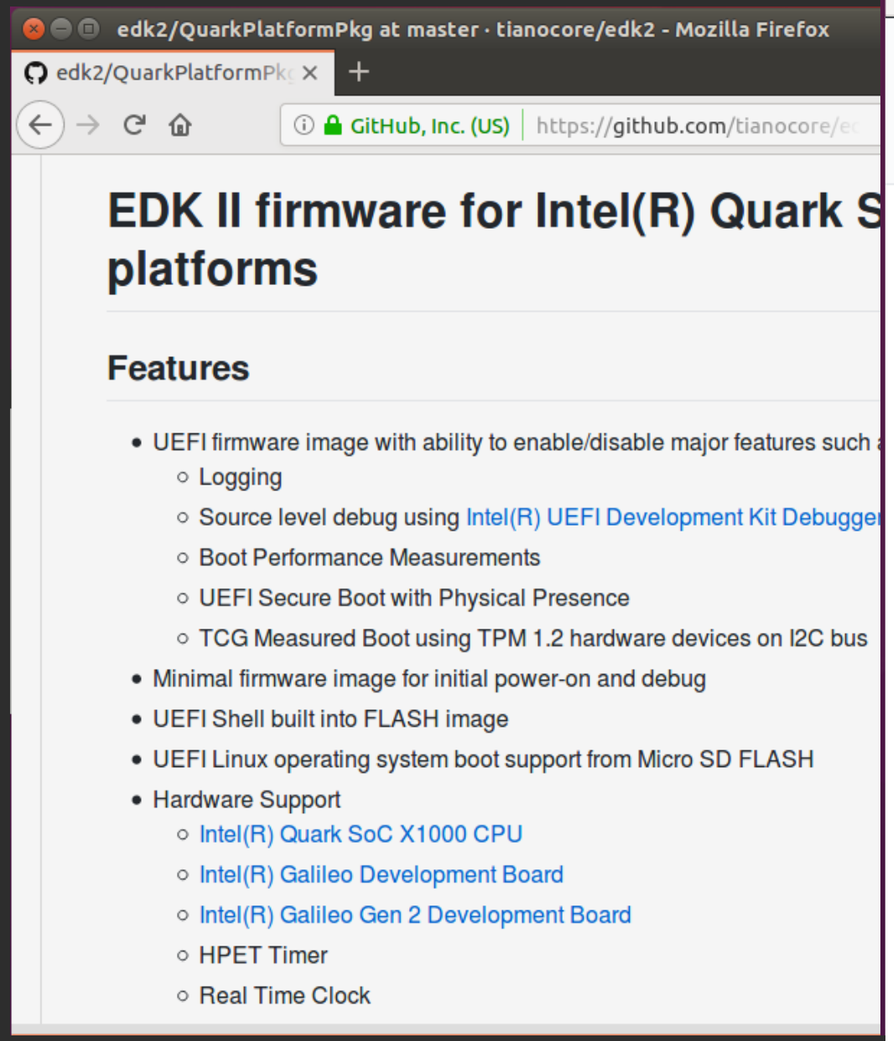
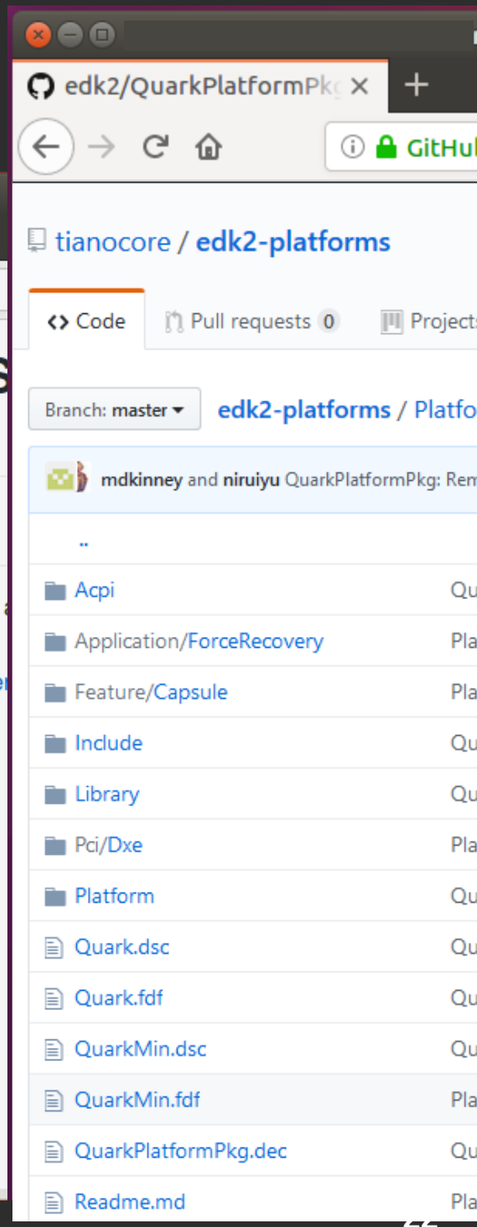
BACK UP

Intel® Quark SoC X1000 Platform Project EDK II

- Uses EDK II to support firmware
- QuarkPlatformPkg
  -Intel® Galileo Gen2
- How to Build: Quark Readme.md





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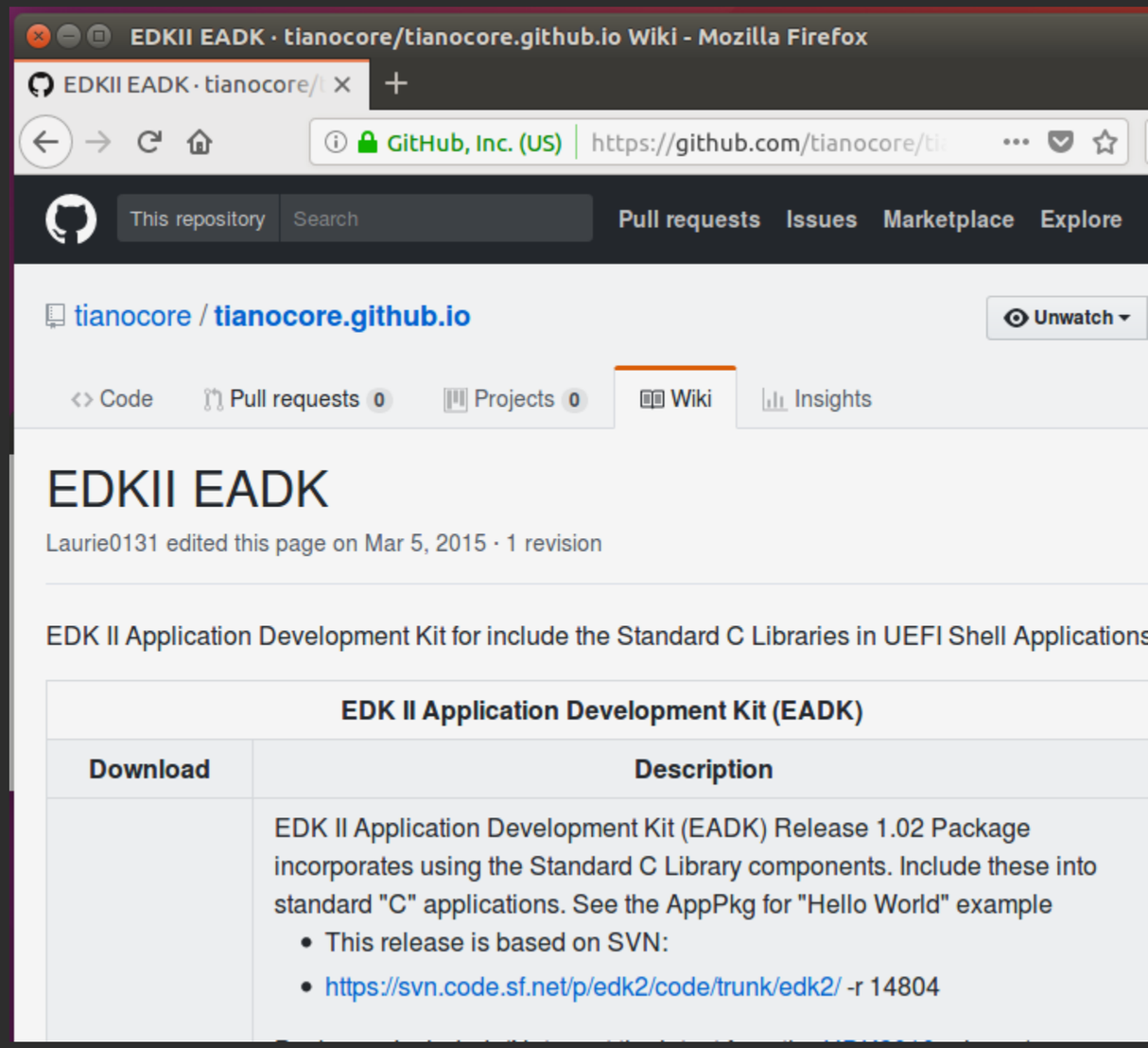
EDK II EADK

EDK II Application Development Kit includes the Standard “C” Libraries in UEFI Shell Applications

Link: wiki EADK

Github: edk2-libc



EDK II EADK COMPONENTS

EDK II Application Development Kit includes the Standard C Libraries in UEFI Shell Applications

- Components
  - Utilities (Python 2.7.2, & 2.7.10 etc.)
  - C Library
  - BSD Socket Library
  - Network Socket Library – Ipv4 / Ipv6
- Packages `/AppPkg`
  `/StdLib`

EDK II EADK – STANDARD ANSI C LIBRARY

FreeBSD Port ANSI/POSIX compliant

System I/O	- open(), read(), write(), close(), stat()
Standard I/O	- fopen(), printf(), gets(), getchar(),. . .
String/Char	- strcmp(), isascii(), atoi(), . . .
Memory	- malloc(), free(), realloc(),. . .
Time/Date	- time(), asctime(), ctime(), . . .
Math	- sqrt(), pow(), sin(), log(), . . .