TianoCore Updates: Tags, Testing & Platforms

Fall 2018 UEFI Plugfest
October 15 – 19, 2018
Presented by Brian Richardson & Leif Lindholm
Tags, Testing & Platforms: What’s New?
TianoCore Updates: Tags, Testing & Platforms

Tags
Tags

• Now releasing ‘stable tag’ every quarter
  – Increase cadence for EDK II ‘core’ updates
  – More frequent than UDK20xx release cycle

• Created from `edk2/master` based on validation with various platforms

EDK = EFI Development Kit
UDK = UEFI Development Kit

www.uefi.org
Stable Tags in EDK II

edk2-stable<4 digit year><2 digit month>

• edk2-stable201808

Public Roadmap, based on issues and feature requests at bugzilla.tianocore.org

• EDK II Release Planning (TianoCore wiki)
edk2-stable201811 tag planning

Proposed Features

• **SMBIOS 3.2.0 support**
• **32bit subnet mask support for IP4 PXE**
• **Non-stop mode for Heap Guard and Null Pointer Detection**
• **PEI Stack Guard**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-08-15</td>
<td>Beginning of development</td>
</tr>
<tr>
<td>2018-11-01</td>
<td>Soft Feature Freeze</td>
</tr>
<tr>
<td>2018-11-08</td>
<td>Hard Feature Freeze</td>
</tr>
<tr>
<td>2018-11-15</td>
<td>Release</td>
</tr>
</tbody>
</table>
TianoCore Updates: Tags, Testing & Platforms

Testing
The ‘MicroPython Test Framework for UEFI’ is now in edk2-staging

MicroPython is a Python* 3 variant with optimizations for microcontrollers

Introduced at Spring 2018 UEFI Plugfest in Seattle

This Photo by Unknown Author is licensed under CC BY-SA
Why go Micro(Python)?

• UEFI has a CPython* 2.7 port, but not widely used...
  ▪ Poor performance & large footprint
  ▪ No direct access to firmware/hardware resources
  ▪ Limited usage with UEFI Shell dependencies
• MicroPython is a lean and efficient implementation of Python 3 for constrained environments
• Python 2.7 will EOL in 2020
Features of MicroPython on UEFI

• Provides scripts with access to resources:
  – UEFI & EFI Development Kit II (EDK II) interfaces
  – Hardware-level access
  – Interpreter and Native Interface
  – Automates human interaction (shell & setup menu)
• Use Cases: unit/manufacturing tests, legacy migration
• Note: There are small differences between MicroPython and Python 3 behavior (documented on website)
MicroPython Test Framework for UEFI

Released to edk2-staging branch in August 2018

https://github.com/tianocore/edk2-staging/tree/MicroPythonTestFramework

- MicroPythonPkg - MicroPython Interpreter for UEFI
- MpyTestFrameworkPkg - Test Framework for UEFI
- MpyTestCasePkg - Repo for test cases

$ git clone https://github.com/tianocore/edk2-staging
$ cd edk2-staging
$ git checkout MicroPythonTestFramework
$ git submodule update --init --recursive
Current Status & Future Work

Code is in staging branch for community evaluation

Next Steps:
• Create Branches for MicroPython Engine and Framework
  – Engine will keep MIT License, contribute back to micropython.org
  – Test Framework will move to master branch (BSD license)
• Optimize and Extend MicroPython Engine
  – Increase the number of default libraries and reference scripts
  – Remove dependency on StdLib (reduce size)
Platforms
Platforms

- Existing EDK II platform support migrated from OpenPlatformPkg (now disbanded)
- Platform support now adopted by TianoCore
  - edk2-platforms & edk2-non-osci repos
- Remaining hardware platform support in EDK II scheduled for migration
  - EDK II retains virtual platforms, industry standard drivers, and de-facto standards
edk2-platforms

https://github.com/tianocore/edk2-platforms

(open source components only)

• **master** holds all platforms actively tracking edk2 master
• **devel** hold ports in the process of upstreaming  
  (where this is expected to be a slow task)
• **stable** tracks specific UDK releases
• Also holds any new open source device drivers
### EDK II sample platform branches and tags

- **Commits**: 501
- **Branches**: 8
- **Releases**: 0
- **Contributors**: 31
- **License**: BSD-2-Clause

#### Branches and Tags

- **about**
  - devel-IntelAtomProcessorE3900
  - devel-MinPlatform
  - devel-MinnowBoardMax-UDK2017
  - devel-OpenPlatformPkg
  - devel-dynamicTables
  - master
  - pентиум-pherd-n-udk2015

- **Latest Commit**:
  - 8c3914c on Jul 24

- **Recent Commits**:
  - Update version string to 18.08
  - silicon/setup: Enable/disable SMMU
  - options.txt: update to latest version from EDK2
  --core required text files
  - options.txt: Add Ard Biesheuvel
  - tabs: Remove Tabs
  - 3 months ago
  - 17 days ago
  - a year ago
edk2-non-os

- OpenPlatformPkg permitted inclusion of binary only components
  - edk2-platforms does not

- https://github.com/tianocore/edk2-non-os
  - All binary-only (or ‘dubiously licensed’) modules are confined to edk2-non-os
  - No default license - each subtree must specify...
Platforms Already Included

- **AMD Seattle**
  - Overdrive, Overdrive 1000
  - Cello
- **Arm**
  - Juno*, Versatile Express*
- **Marvell**
  - Armada* 70x0
- **Hisilicon**
  - D02, D03, D05
  - HiKey*, HiKey960*

- **Intel**
  - MinPlatform for UEFI
    - Kaby Lake (Intel client CRB)
    - Microsoft Mt. Olympus (OCP)
  - Intel Atom® E3900 processor family (Leaf Hill & UP Squared)
  - MinnowBoard Max/Turbot
- **Socionext**
  - SynQuacer* (EVB + 96boards)
- **Device drivers**
  - ChaosKey* (USB RNG)
Upcoming Platforms

Marvell Armada 80x0 (MacchiatoBin)

Migrate hardware platforms in edk2 master
• BeagleBoard, Intel® Quark (Galileo)

Device drivers: 96boards mezzanine support
Linaro UEFI-Tools

• [https://git.linaro.org/uefi/uefi-tools.git](https://git.linaro.org/uefi/uefi-tools.git) updated to support new structure
  • But to avoid flag-day type changeover, the new build structure is supported by a new front-end script - `edk2-build.sh` - and a new default configuration file - `edk2-platforms.config`.
  • More flexibility with build environment, but also requires explicitly pointing out edk2 (-e), edk2-platforms (-p) and edk2-non-osi (-n) directories if not present in working directory.

• `edk2-build.sh -e ../edk2 -p ../edk2-platforms -n ../edk2-non-osi juno`

• `edk2-build.sh supports specifying target architecture as part of the build target: chaoskey:ARM chaoskey:AARCH64`
The Short-Short Version

aka “How to build a big pile of firmware”

git clone https://github.com/tianocore/edk2

git clone https://github.com/tianocore/edk2-platforms

git clone https://github.com/tianocore/edk2-non-osi

git clone https://git.linaro.org/uefi/uefi-tools.git

./uefi-tools/edk2-build.sh -b DEBUG -b RELEASE all
Call to Action

There are many new TianoCore activities...

• Stable tags every three months
• MicroPython Test Framework for UEFI
• Open source platform implementations

Please review & comment!
Thanks for attending the Fall 2018 UEFI Seminar and Plugfest

For more information on the Unified EFI Forum and UEFI Specifications, visit [http://www.uefi.org](http://www.uefi.org)

*presented by*

![Tianocore Logo]
Intel, the Intel logo, Atom are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others

© Intel Corporation.