

# Table of contents

- Fetching Sources
- Build FSBL
- Build Uboot
- Build Device Tree Compiler
- Booting Arch Linux on Zedboard

The process of loading an OS on Zynq starts of with the internal boot ROM being loaded. It setups the system and executes the so-called First Stage Boot Loader (FSBL) dependent on the jumper configuration. The FSBL initializes the hardware as configured by the developer (ps7\_init), performs sanity checks on all system peripherals and executes any provided program. In our case, this is U-Boot in the role of a primary bootloader, which is responsible for loading and booting the Linux kernel.

## Fetching Sources

All the below git repos need to be cloned in order to build uboot and dtc.

- [The u-boot bootloader with Xilinx patches and drivers](#)
- [Device Tree generator plugin for xsdk](#)
- [Device Tree compiler \(required to build U-Boot](#)

## FSBL Building

For building FSBL we have two methods :

- Using Xilinx SDK GUI
- Using hsi command line tool

I followed the first one since it is more descriptive for first time users. The built FSBL needed to be compiled to .bif format and was then needed to be compiled along with Uboot executables into a boot.bin file with the bootgen cmd tool provided in Xilinx SDK, from this boot.bin zedboard was able to boot.

## Uboot Building

Instructions from [Xilinx's Uboot build guide](#) can be roughly followed step by step to build uboot with some extra things were needed to be taken care of:

- The [ARM Cross Compiler Toolchain](#) needs to be installed to overcome the asm-offset error faced during the buid.

- gcc6 has been made a prerequisite by the makers which is actually a serious issue since it is in the experimental stage. The build fails if we try to compile it with any gcc below version 6 linked to the path. Even after installing gcc6 and soft linking it to gcc, the checkgcc6 error didn't get resolved. Hence I edited the config.mk file in /arch/arm directory within the cloned uboot git directory and changed the checkgcc6 function to check gcc for version 4 and was able to build the uboot executable.
- Link to [original solution post](#)

## Device Tree Compiler Building

- Step by step guide on [Xilinx's dtc build guide](#) can be followed with a small edit.
- Instead of device-tree-overlay package we need to install device-tree-compiler package which is different from steps mentioned in the link .
- dtc compile process can only be done after uboot compilation since dtc compilation requires the output of the first one.

## Arch Linux on Zedboard

- Booted ARM Arch Linux on zedboard successfully
- Edited the sdboot parameter with correct boot addresses to boot it successfully after initial boot failed.
- Link to the project [Zedboard Arch Linux Project](#)