

ZCU102 PetaLinux image build steps for system.dtb load from SD Card

1. After Installing the PetaLinux, we created the PetaLinux project using command
“petalinux-create -t project -n <name> --template <board-using> -s <path-to-bsp>”

Example: petalinux-create -t project -n zcu102_Test --template zynqMP -s /media/sf_Control_Sat/Petalinux18p3/xilinx-zcu102-v2018.3-final.bsp

2. Create PetaLinux Environment by using command “source ../settings.sh”
3. Configure the PetaLinux project with the hardware description file using command

“petalinux-config --get-hw-description=<path to hdf file directory>”

Example: petalinux-config --get-hw-description=/media/sf_Control_Sat/Zcu102_Ps/sdk

It will open configuration wizard, where we made the following changes:

- a. Enable the SD card for rootfs:

select “Image Packaging Configuration->Root file system type->SD card”

- b. Enable the SD card for system.dtb:

select “Subsystem AUTO Hardware Settings -> Advanced bootable images storage Settings -> dtb image settings -> image storage media -> primary sd”

Select Subsystem AUTO Hardware Settings ---> Advanced Bootable Images Storage Settings ---> boot image settings ---> Image Storage Media → primary sd

Select Subsystem AUTO Hardware Settings ---> Advanced Bootable Images Storage Settings ---> kernel image settings---> Image Storage Media → primary sd

- c. Modify the bootargs:

De-select DTG Settings > Kernel Bootargs > [] generate boot args automatically and set following kernel bootargs

“earlycon clk_ignore_unused earlyprintk root=/dev/mmcblk0p2 rw rootwait cma=1024M”

- d. Save and Exit the wizard.

4. Configure the Kernel by using command “petalinux-config -c kernel”

It will open configuration wizard,

- a. Disable initramfs in kernel configuration GUI

“General setup -> Initial RAM file system and RAM disk (initramfs/initrd) support”

- b. Disabling the PMBUS PMIC so that power demo can use them without any issues

“Device Drivers->Hardware Monitoring support->PMBus support->Maxim MAX20751”

- c. Disable the PCI settings

“Bus Support -> PCI support” This needs to be disabled for this version”

- d. Save and Exit the kernel wizard.
5. Build the updated Project Directory by using command “petalinux-build”
6. After successful build, Output binaries can be found in “<petalinux-project>/images/linux” directory.
7. Create BOOT.bin (with above created binaries) using below command

“petalinux-package --boot --fsbl images/linux/zynqmp_fsbl.elf --fpga images/linux/system.bit --u-boot”
8. Copy the files “BOOT.BIN”, “image.ub” and “system.dtb” in to the BOOT partition of SDCARD
9. The second partition of SDCARD consists “filesystem” like Ubuntu or Debian.
10. Set Boot mode to SD mode (switching SW6 of ZCU102):

| | | | |
|----|-----|-----|-----|
| 1 | 2 | 3 | 4 |
| ON | OFF | OFF | OFF |

11. Place the SDCARD in the sdcard slot and switch on the board in SD mode