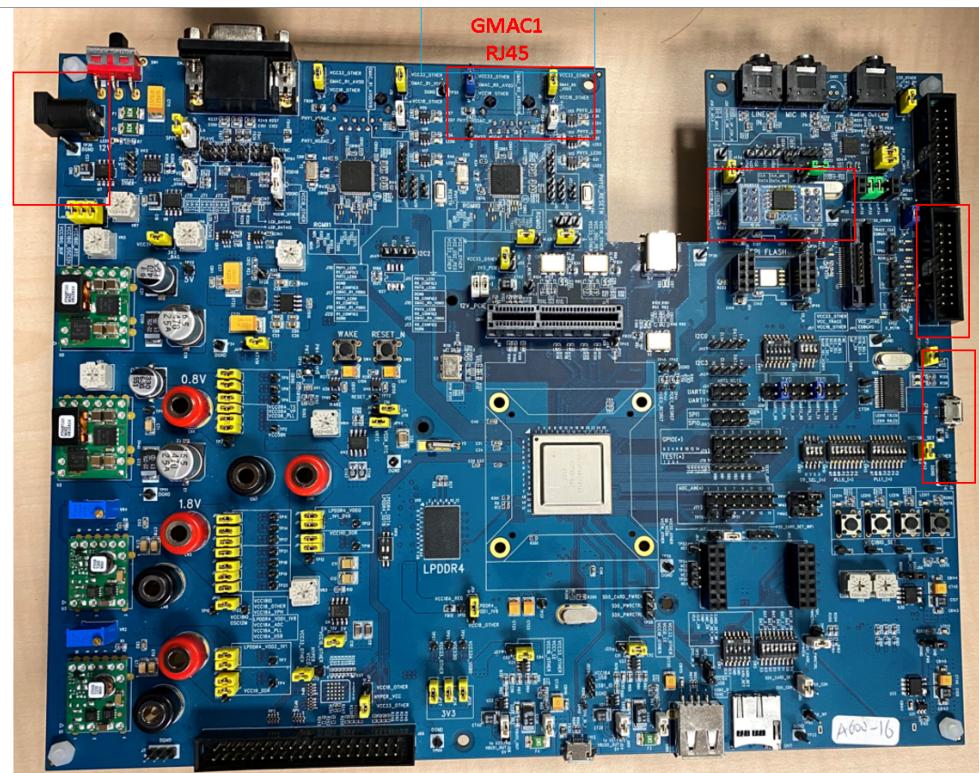


Booting Linux on A600 EVB

A600 EVB Overview



Environment setup

Please prepare these materials as below list

Hardware

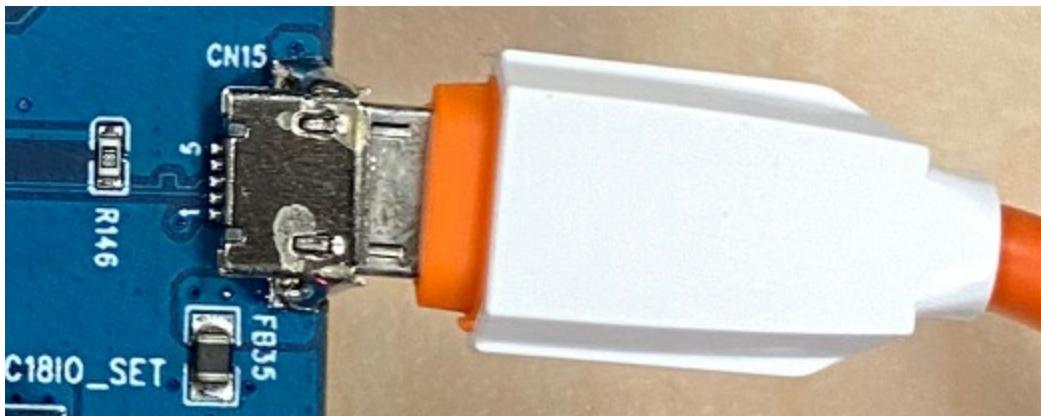
- A600 EVB
- 12V5A DC adapter
- MicroUSB cable
- Ethernet RJ-45 cable (connector in the bottom side of EVB)
- CVD Codeviser or ARM DStream ICE(optional)

Software

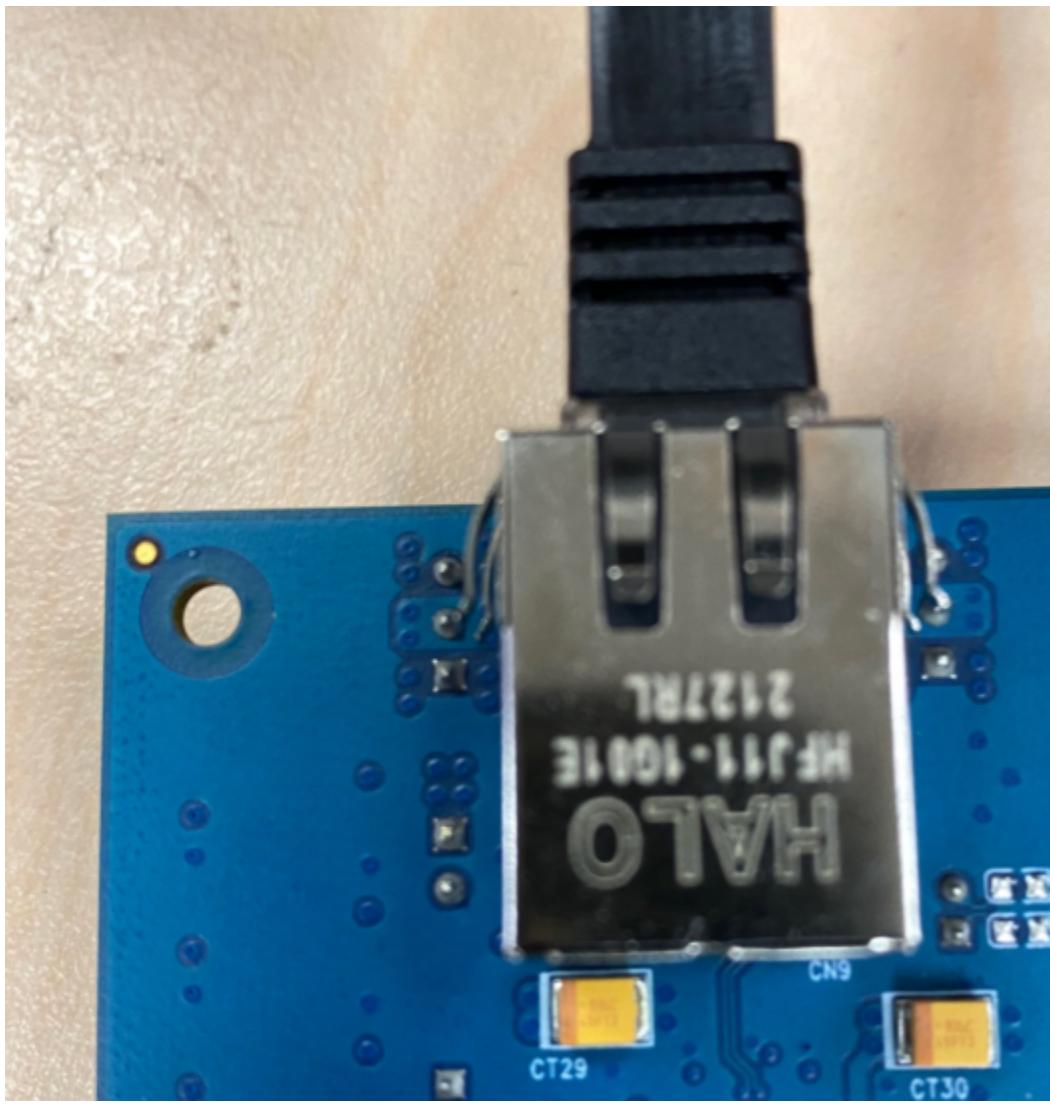
- Ubuntu 18.04.4 LTS
- Tftp64 TFTP server
- TeraTerm Terminal

Instructions

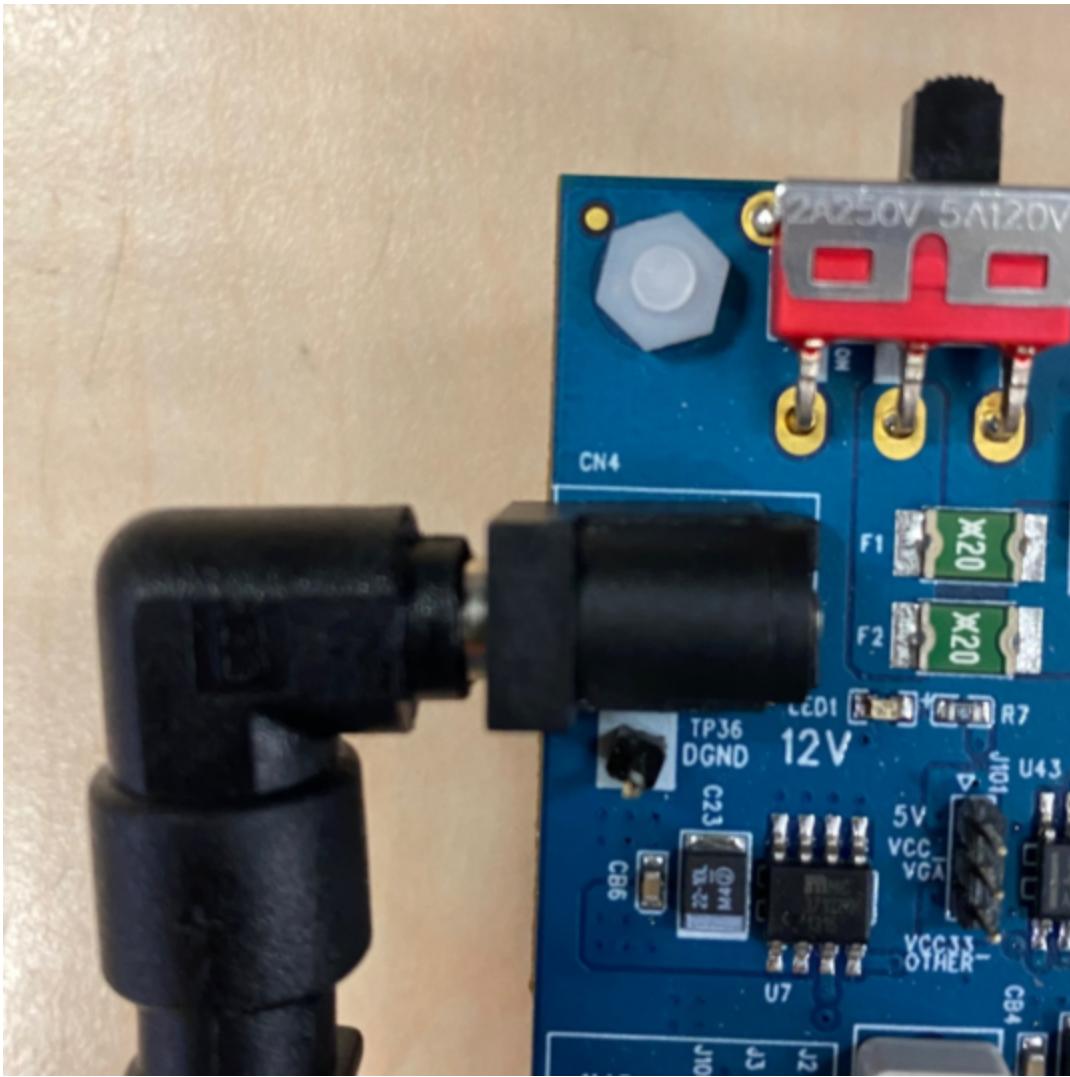
1. Connect the MicroUSB cable to A600 EVB CN15



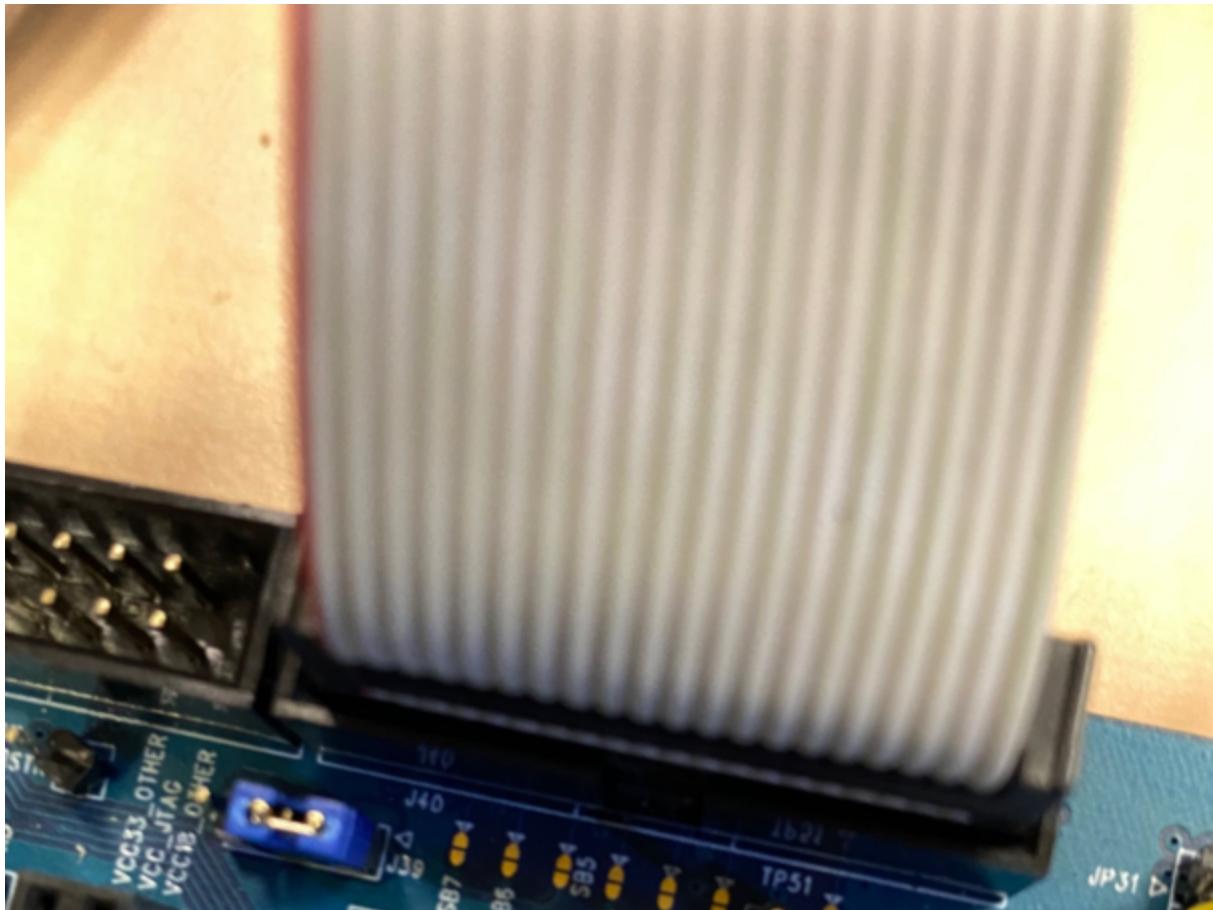
2. Connect the RJ45 cable to the connector CN9



3. Connect the 12V adapter to CN4



4. Connect the ARM ICE to J40 if need to have further debugging



5. Download the uboot and Linux source from Github

```
git clone https://github.com/FaradayA600Platform/Linux
git clone https://github.com/FaradayA600Platform/U-Boot
```

6. Build the uboot and Linux following the user guide in the wiki

<https://github.com/FaradayA600Platform/U-Boot/wiki/UBoot-User-Guide>

<https://github.com/FaradayA600Platform/Linux/wiki/Linux-User-Guide>

7. Setup the TFTP server

- Download the TFTP64 tool from : <https://pj02.github.io/tftpd64/>
- Assign the TFTP base directory to the Linux image path:
- Set the Server to 192.168.1.123. It is the NIC IP used to connect with A600 GMAC port.

Tftpd64: Settings

GLOBAL TFTP **DHCP** SYSLOG DNS

Base Directory

`W:\githome\Linux\arch\arm64\boot`

Browse

Tftpd64 by Ph. Jounin

— 

Current Directory

`W:\githome\Linux\arch\arm64\boot`

Browse

Server interfaces

192.168.1.123

Intel(R) Ethernet

Show Dir

8. Turn the power and open the device manager of Windows , we can find the USB Serial port is COM6

(It is depend on the system and can be other COM port)

-  **Electronic Team Virtual Serial Port (COM7->COM8)**
-  **Electronic Team Virtual Serial Port (COM8->COM7)**
-  **USB Serial Port (COM6)**

9. Open the Tera Term terminal and we can find the U-Boot SPL message is shown in COM6



COM6 - Tera Term VT



File Edit Setup Control Window Help

R600 Boot mode selection:

J-Boot SPL 2021.04-svn22119 (Apr 06 2022 - 13:47:36 +0800)

- 1. SPI
- 2. UART

Please select boot type[1-2]:

10. Choose “1” and U-boot will be brought up. We can see the IP address of U-Boot is 192.168.1.101 and the server IP address is 192.168.1.123 at default. You can modify it in U-boot according to the real environment



COM6 - Tera Term VT



File Edit Setup Control Window Help

```
In: uart@20700000
Out: uart@20700000
Err: uart@20700000
Net: FTGMac030
Warning: FTGMac030 (eth0) using random MAC address - 4a:7e:d7:bb:f8:69

Hit any key to stop autoboot: 0
=> printenv
baudrate=115200
bootcmd=tftpboot 0x83080000 uImage;tftpboot 0x83000000 faraday-a600.dtb;bootm 0x
83080000 - 0x83000000;
bootdelay=2
ethact=FTGMac030
fdtcontroladdr=ff7d4f90
ipaddr=192.168.1.101
netmask=255.255.255.0
serverip=192.168.1.123
stderr=uart@20700000
stdin=uart@20700000
stdout=uart@20700000
ver=U-Boot 2021.04 (Apr 08 2022 - 15:49:53 +0800)

Environment size: 351/126972 bytes
=> █
```

11.U-Boot will boot Linux from TFTP automatically after 3 seconds delay.



COM6 - Tera Term VT

-

□

×

File Edit Setup Control Window Help

U-Boot 2021.04 (Apr 08 2022 - 15:49:53 +0800)

CPU: Main ID register (0x410fd034) 1500 MHz (Cache size= 64 Bytes)

Cache Level 0 type: Instruction and Data

Cache Level 1 type: Unified

AHB: 200 MHz

APB: 100 MHz

DRAM: 2 GiB

MMC: sd@24300000: 0, sd@24400000: 1

In: uart@20700000

Out: uart@20700000

Err: uart@20700000

Net: FTGMAC030

Warning: FTGMAC030 (eth0) using random MAC address - 6e:b5:21:e2:1e:65

Hit any key to stop autoboot: 0

FTGMAC030 Waiting for PHY auto negotiation to complete.... done

FTGMAC030: link up, 100 Mbps full-duplex

Using FTGMAC030 device

TFTP from server 192.168.1.123; our IP address is 192.168.1.101

Filename 'uImage'.

Load address: 0x83080000

Loading: #####



COM6 - Tera Term VT



File Edit Setup Control Window Help

```
Bytes transferred = 13423 (346f hex)
## Booting kernel from Legacy Image at 83080000 ...
  Image Name: Linux-5.10.136
  Image Type: AArch64 Linux Kernel Image (uncompressed)
  Data Size: 18807296 Bytes = 17.9 MiB
  Load Address: 83080000
  Entry Point: 83080000
  Verifying Checksum ... OK
## Flattened Device Tree blob at 83000000
  Booting using the fdt blob at 0x83000000
  Loading Kernel Image
  Loading Device Tree to 00000000ff563000, end 00000000ff56946e ... OK
```

Starting kernel ...

```
Booting Linux on physical CPU 0x00000000100 [0x410fd034]
Linux version 5.10.21+ (root@fred-VirtualBox) (aarch64-linux-gnu-gcc (Ubuntu/Lin
aro 7.5.0-3ubuntu1~18.04) 7.5.0, GNU ld (GNU Binutils for Ubuntu) 2.30) #1 SMP P
REEMPT Fri Apr 8 15:52:49 CST 2022
Machine model: R600
Memory limited to 2040MB
earlycon: uart8250 at MMIO32 0x0000000020700000 (options '')
printf: bootconsole [uart8250] enabled
efi: UEFI not found.
```

You can also use ARM ICE to debug the target if need.

Just download the DS tool from ARM website

<https://developer.arm.com/tools-and-software/embedded/arm-development-studio>

It support 30 days free trial now

