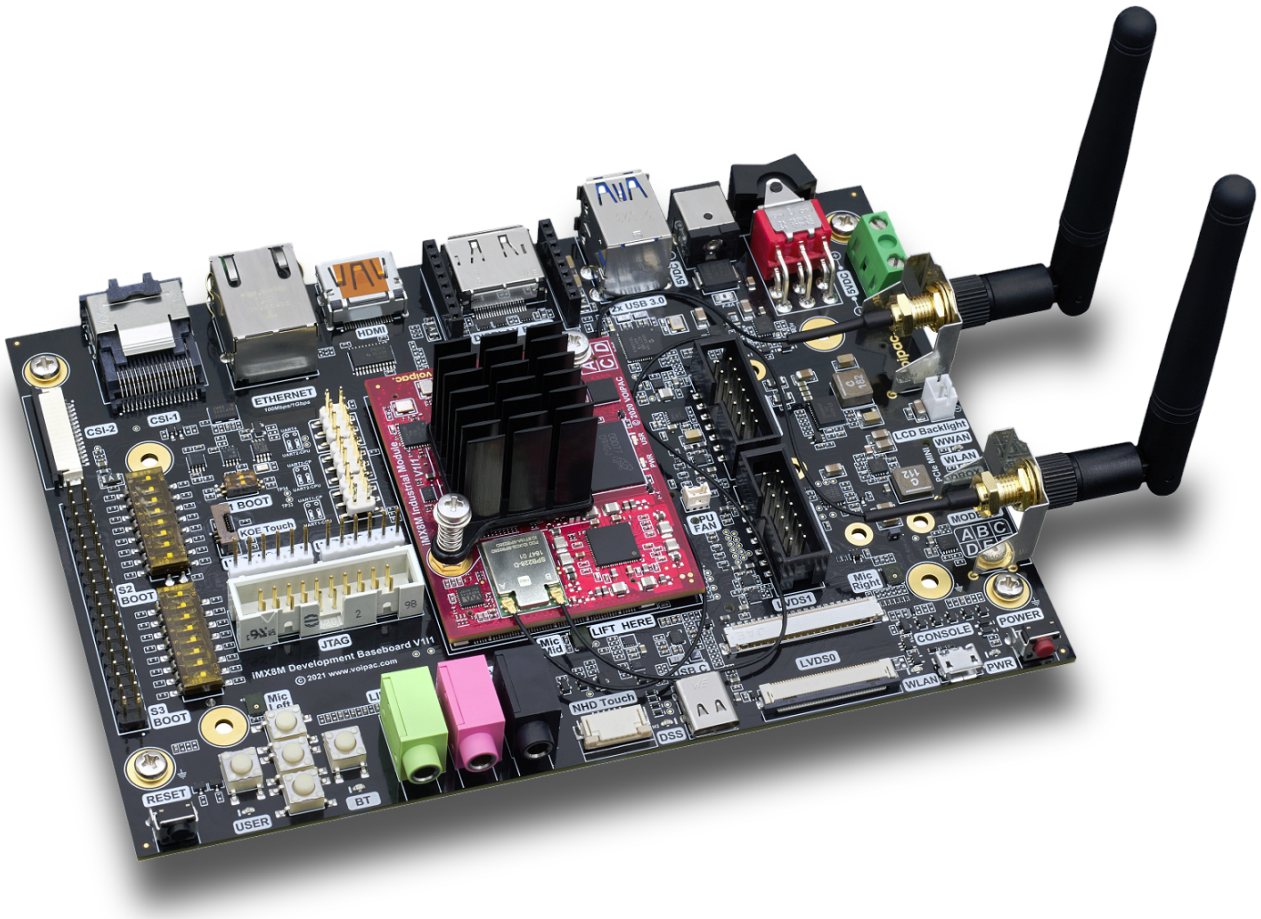
iMX8M Industrial Development Kit

QUICK GUIDE



voipac.

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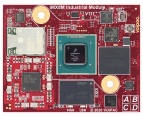
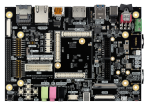
1. iMX8M Industrial Development Kit

1.1. Development Kit Parts

These items are part of each standard configuration development kit providing all the necessities required to start the custom design process.



iMX8M Industrial Module Max/Pro/Basic

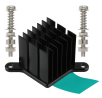


iMX8M Development Baseboard

Micro USB Cable

Patch Ethernet Cable

100-pin Shielded Connector



iMX8M Industrial Heatsink Set

1.2. Development Kit Accessories

These add-ons have been selected to fast-track the development process, and are available for the purchase directly from Voipac webshop. All of these items are supported by the BSP software and were thoroughly tested. An extensive documentation stored in the **Voipac Downloads Section** of the website helps with any future custom design changes.

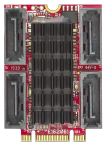
KOE LVDS Capacitive Display Set

Newhaven LVDS Capacitive Display Set

NXP MIPI-CSI Camera Set

Digilent MIPI-CSI Camera Set

CANbus Module



M.2 to 4x SATA Module

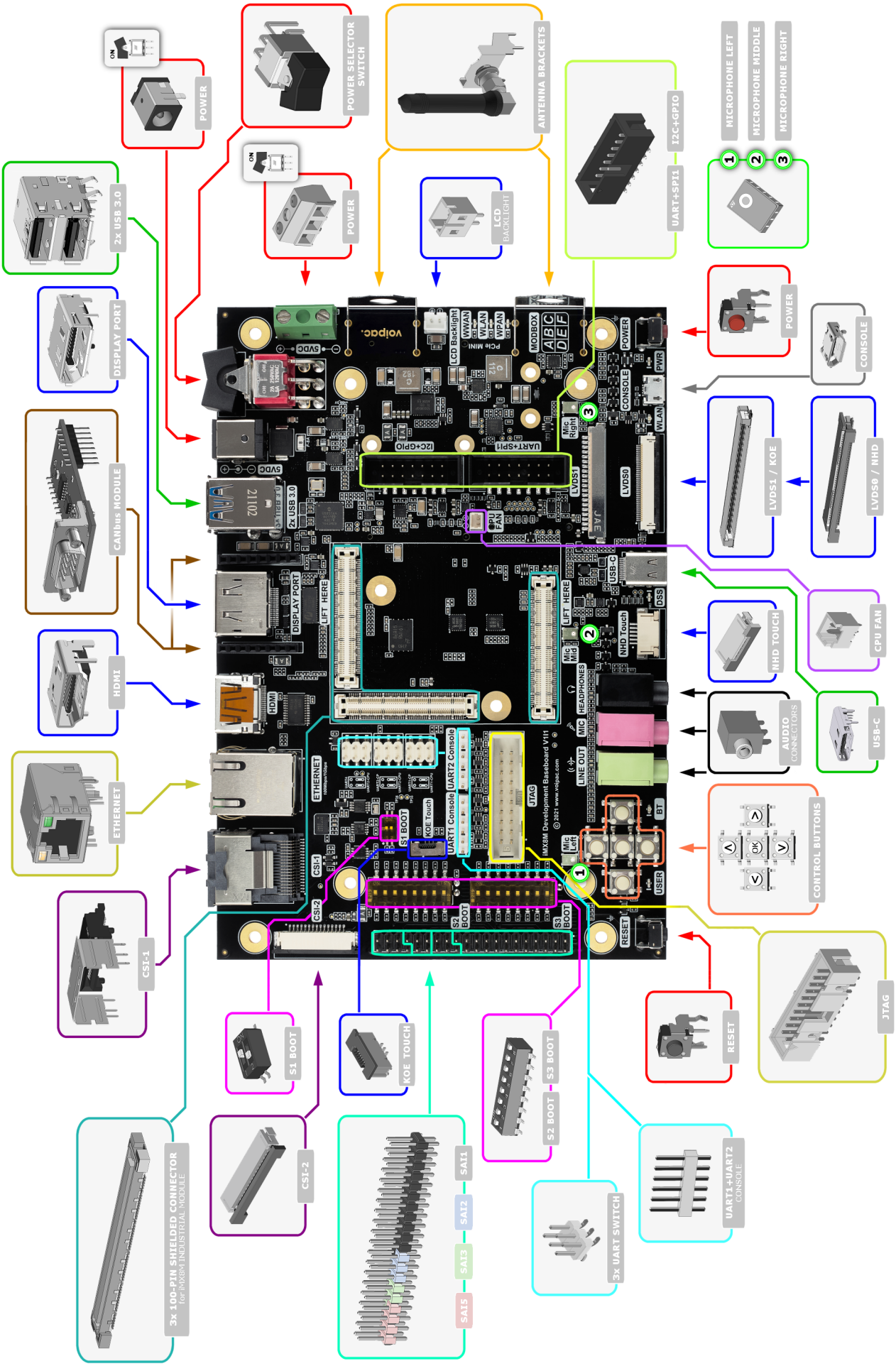
WiFi and Bluetooth Antennas Set

Power Supply 5V 40W

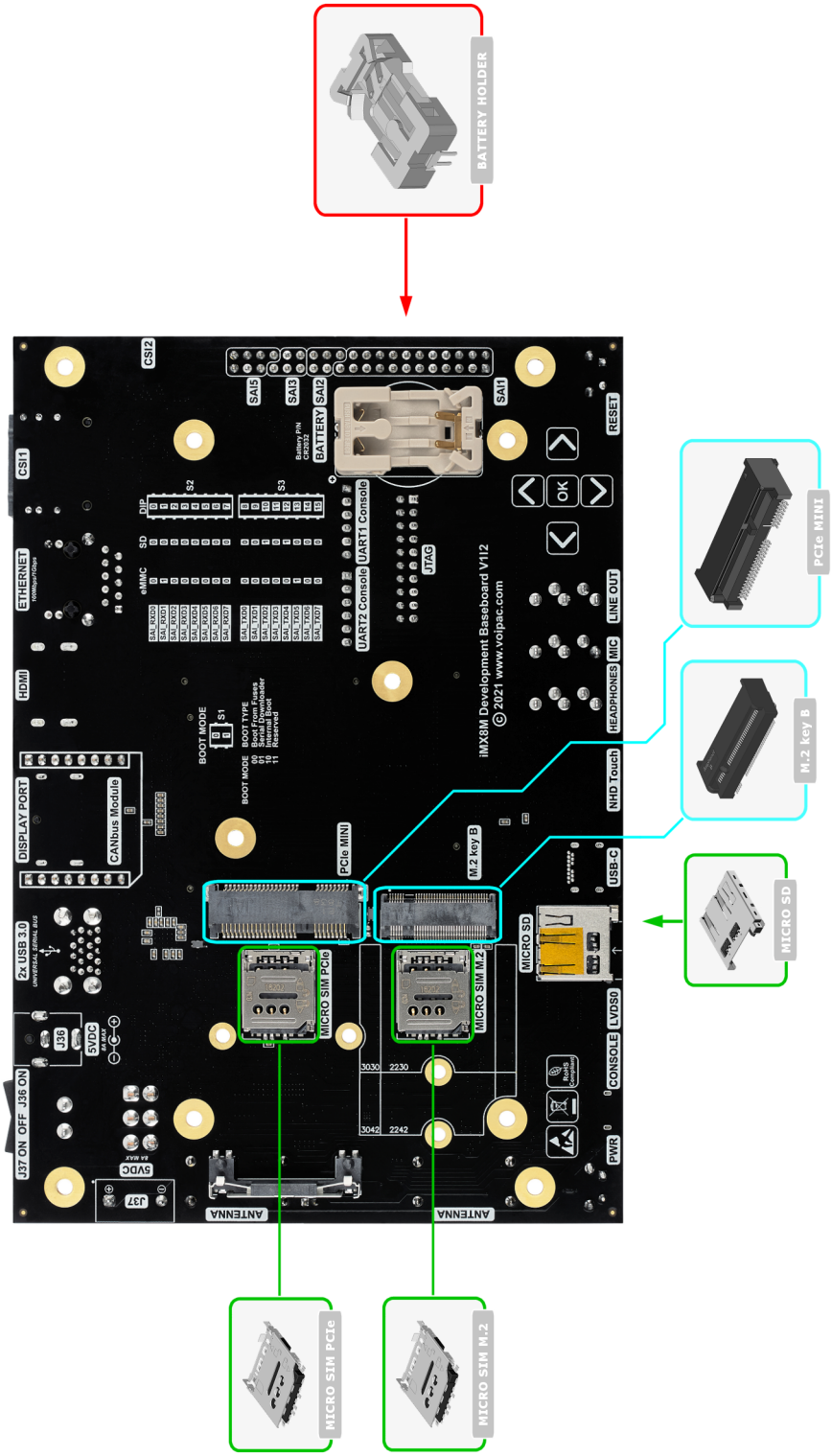
Hardware and Software Development Support

1.3. Baseboard Connectors and Main Components

BASEBOARD TOP SIDE

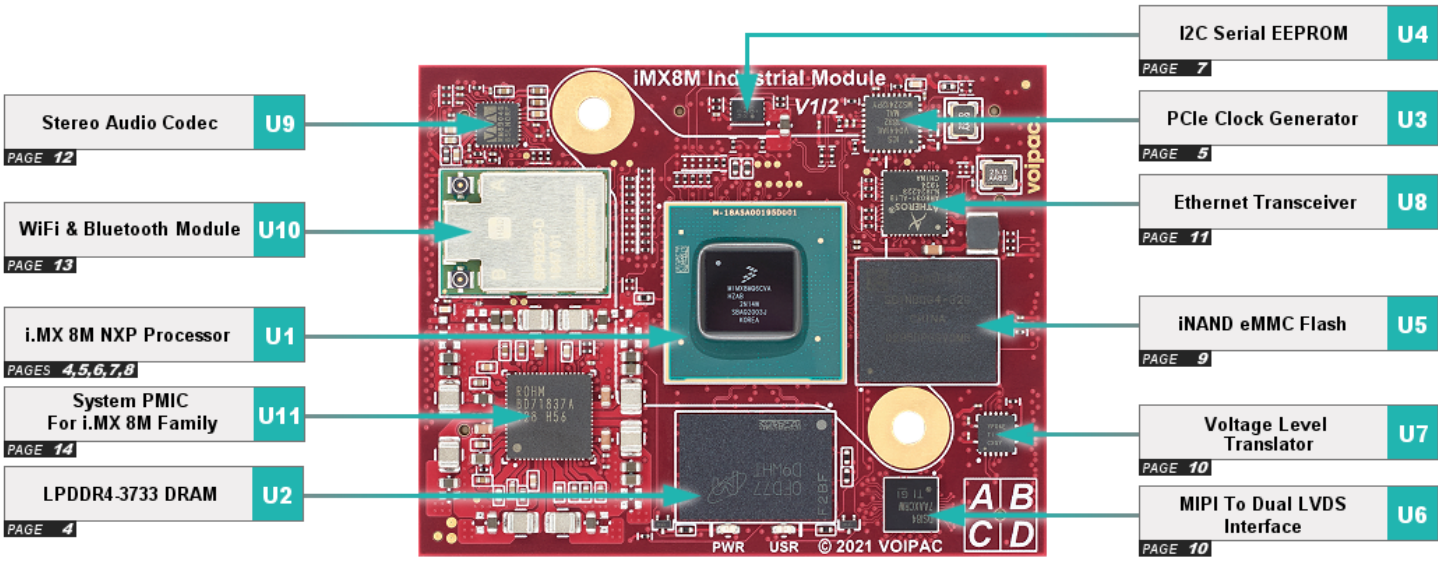


BASEBOARD BOTTOM SIDE

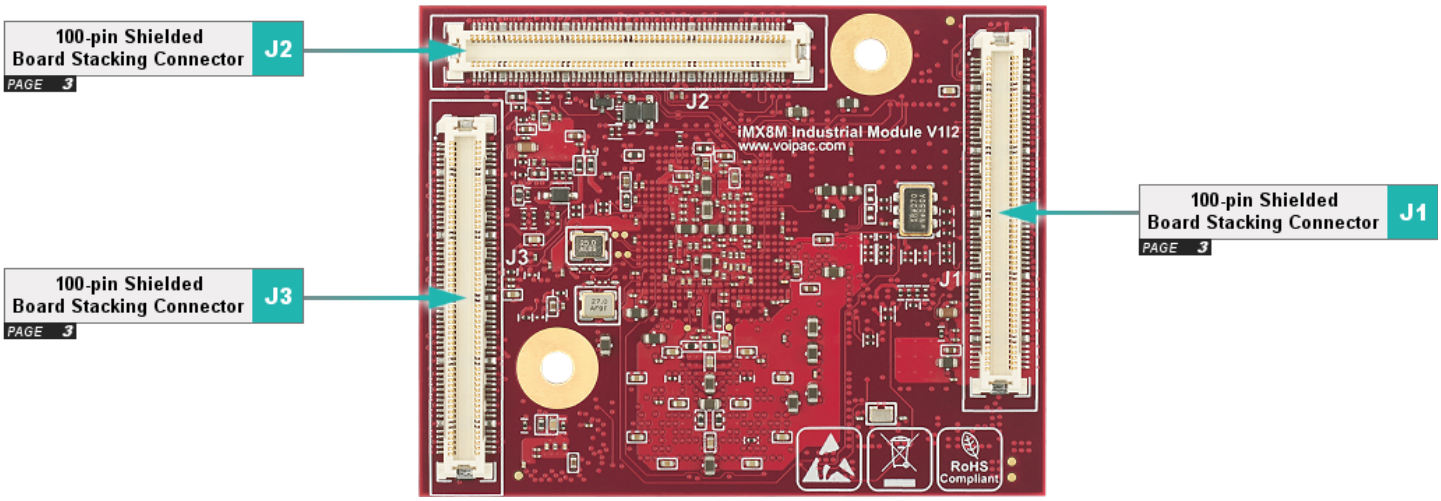


1.4 Module Key Components

MODULE TOP SIDE



MODULE BOTTOM SIDE



*NOTE: The page number in **black field** refers to the iMX8M Industrial Module schematics document page.*

*NOTE: The confidential schematics is available for download from the **kit downloads** section of the commercial web site **after the development kit purchase**.*

2. Flashing Procedure Info

This section describes how to flash binaries into iMX8M Industrial Module's eMMC Flash memory, or into SD card that is located on the iMX8M Development Baseboard.

***NOTE:** The steps listed below are NOT REQUIRED for standard configuration development kits as all of them are preinstalled with software, setup for desired configuration and tested before dispatch. This section is intended to be used as a starting point for software customization or when binaries recovery is needed.*

3. Installing Universal Upload Utility (UUU)

The **UUU** (Universal Update Utility) is an evolution of MFGTools (aka MFGTools v3). This utility is NXP's i.MX Chip image deployment tool, which has the same usage on both OS Windows and OS Linux. It means the same script works on both OS as command line tool, so users can easily integrate it into their tools with UUU library.

3.1. OS Windows

- Go to: **https://github.com/NXPmicro/mfgtools/releases**
- Select the latest stable release. Example: ***Releases/uuu_1.4.243***: **https://github.com/NXPmicro/mfgtools/releases/tag/uuu_1.4.243**
- Download Universal Uptade Utility (UUU): **https://github.com/NXPmicro/mfgtools/releases/download/uuu_1.4.243/uuu.exe**
- Save the file into: **C:\uuu**

3.2. OS Linux

```
git clone ssh://git@github.com/NXPmicro/mfgtools.git
cd mfgtools
mkdir .build && cd .build && cmake .. && make -j`nproc`
```

The binary called ***uuu***, which is used for flashing, is located in .build/uuu directory.

4. Preparing the Binaries

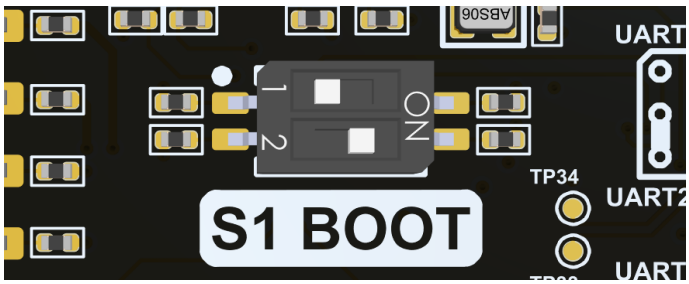
Locate the binary files for flashing the module at **Voipac Downloads Section**.

- Download the default bootloader file (imx-boot)**:** **https://downloads.voipac.com/files/iMX8M_Industrial_Development_Kit/module/software/yocto/binaries/imx-boot**
- Download the default WIC filesystem image (voipac-image-imx8mq-voipac.wic): **https://downloads.voipac.com/files/iMX8M_Industrial_Development_Kit/module/software/filesystem/voipac-image-imx8mq-voipac.wic**

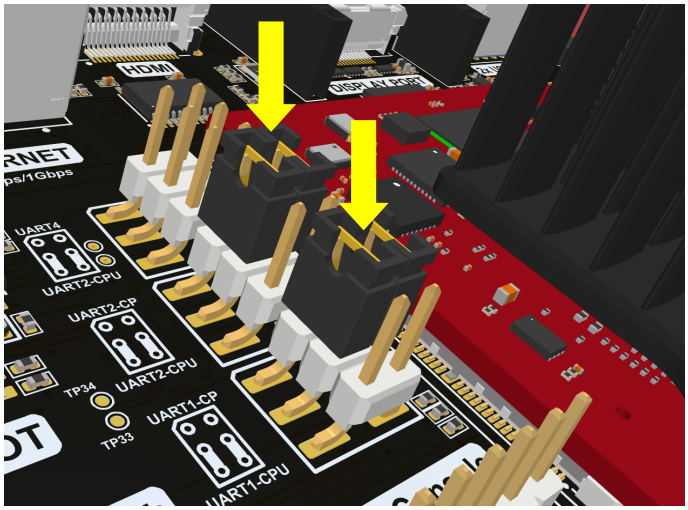
Store released Image + Bootloader to the same folder as uuu mfgtools was saved (**C:\uuu**).

5. Flashing Procedure

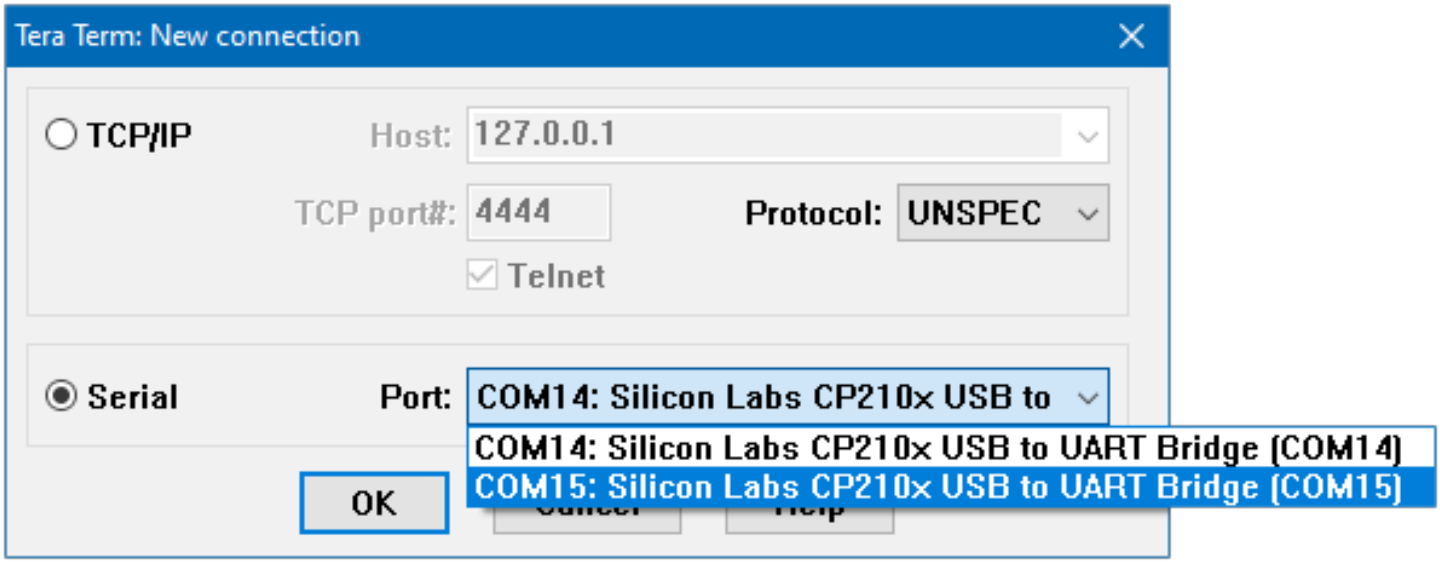
- Set serial downloader mode by sliding DIP switch **S1 BOOT** positions to: **1-OFF, 2-ON**



- Plug USB Micro-B cable to baseboard CONSOLE connector and PC
- Plug USB-C cable to baseboard USB-C connector and PC
  Note: *Powering of the development kit is not required during the flashing procedure.*
- Make sure that UART1 and UART2 jumpers are in CP2105 positions (USB/UART bridge) as shown at the picture below:



Note: *After connecting 2 development board cables, 2 serial ports named* ***Silicon Labs Dual CP2105 USB to UART Bridge*** *should appear in the controlling PC.*



- Make sure that the downloaded imx-boot and **`*.wic`** files are located in the **C:\uuu** directory
- Choose one of the following commands to start the flashing process:

5.1. eMMC Flash Memory *(DEFAULT)*

OS Windows

```
uuu.exe -b emmc_all imx-boot voipac-image-imx8mq-voipac.wic
```

OS Linux

```
sudo ./uuu -b emmc_all imx-boot voipac-image-imx8mq-voipac.wic
```

5.2. SD Card

OS Windows

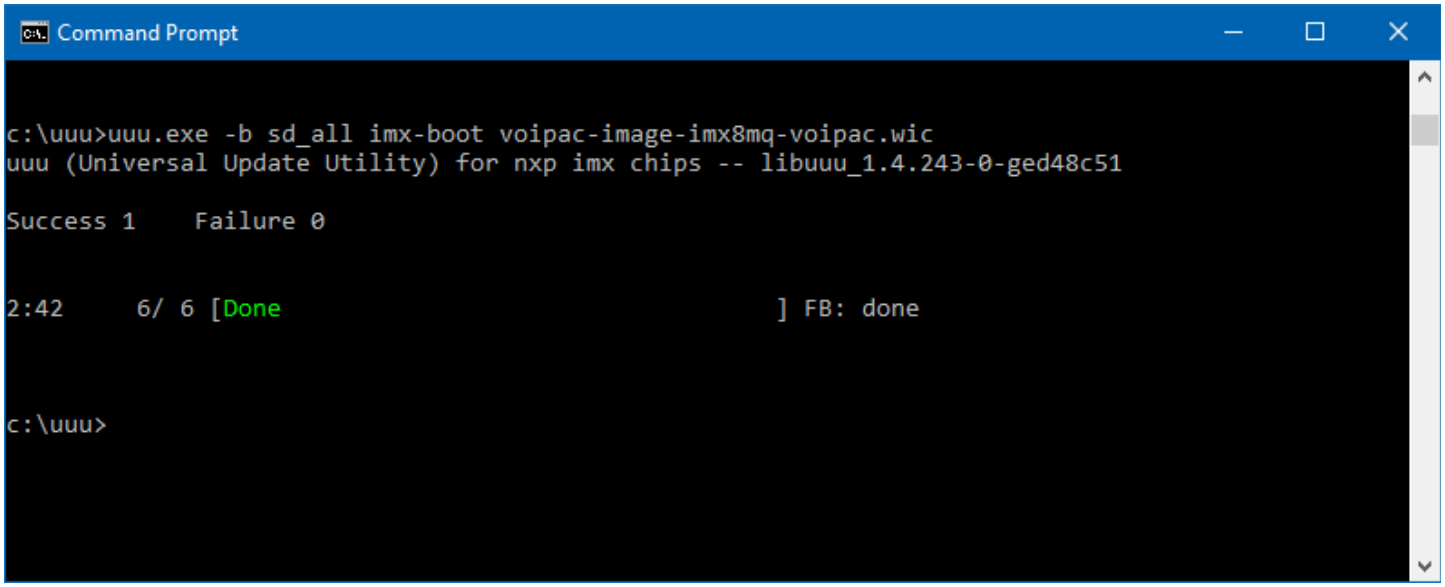
```
uuu.exe -b sd_all imx-boot voipac-image-imx8mq-voipac.wic
```

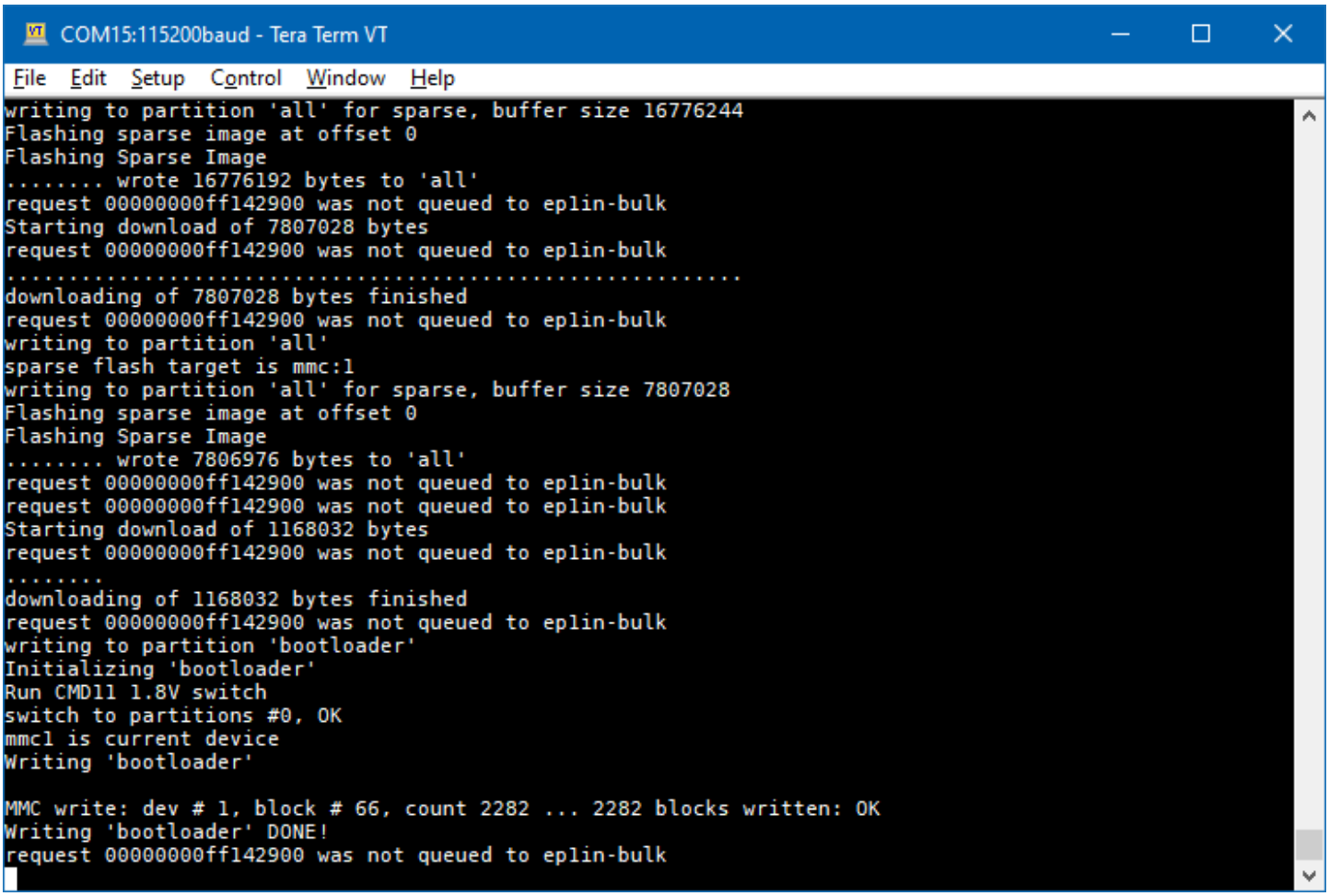
OS Linux

```
sudo ./uuu -b sd_all imx-boot voipac-image-imx8mq-voipac.wic
```

Flashing logs

UUU

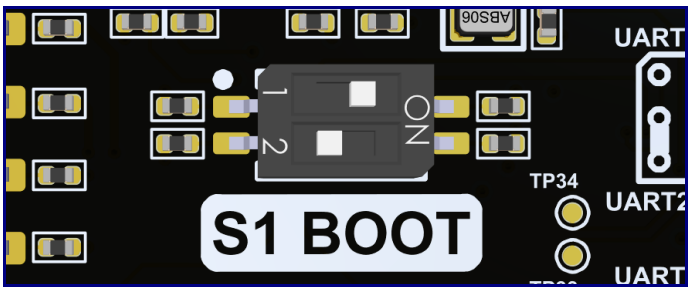




6. Running the Newly Flashed Binaries

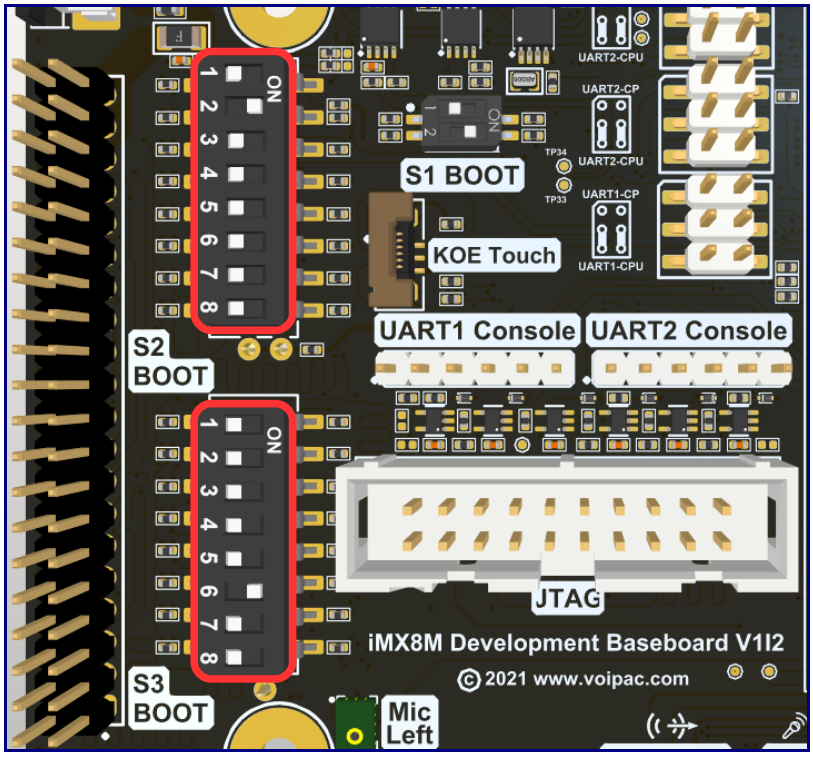
After completing the above steps, eMMC Flash memory or SD Card is flashed and the following steps are to be performed to boot the new image:

- Unplug USB-C cable from PC
- Set Boot mode by sliding DIP switch **S1 BOOT** positions to: **1-ON, 2-OFF**

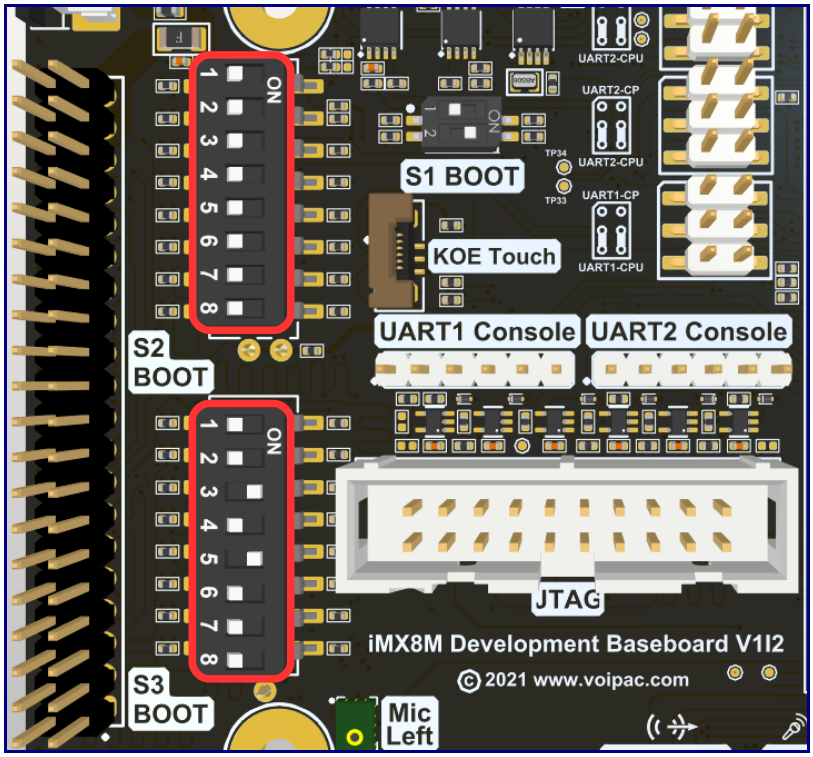


- Make sure that **S2 BOOT** and **S3 BOOT** DIP switches are in correct positions in order to boot from the selected storage media (eMMC Flash memory or SD Card):

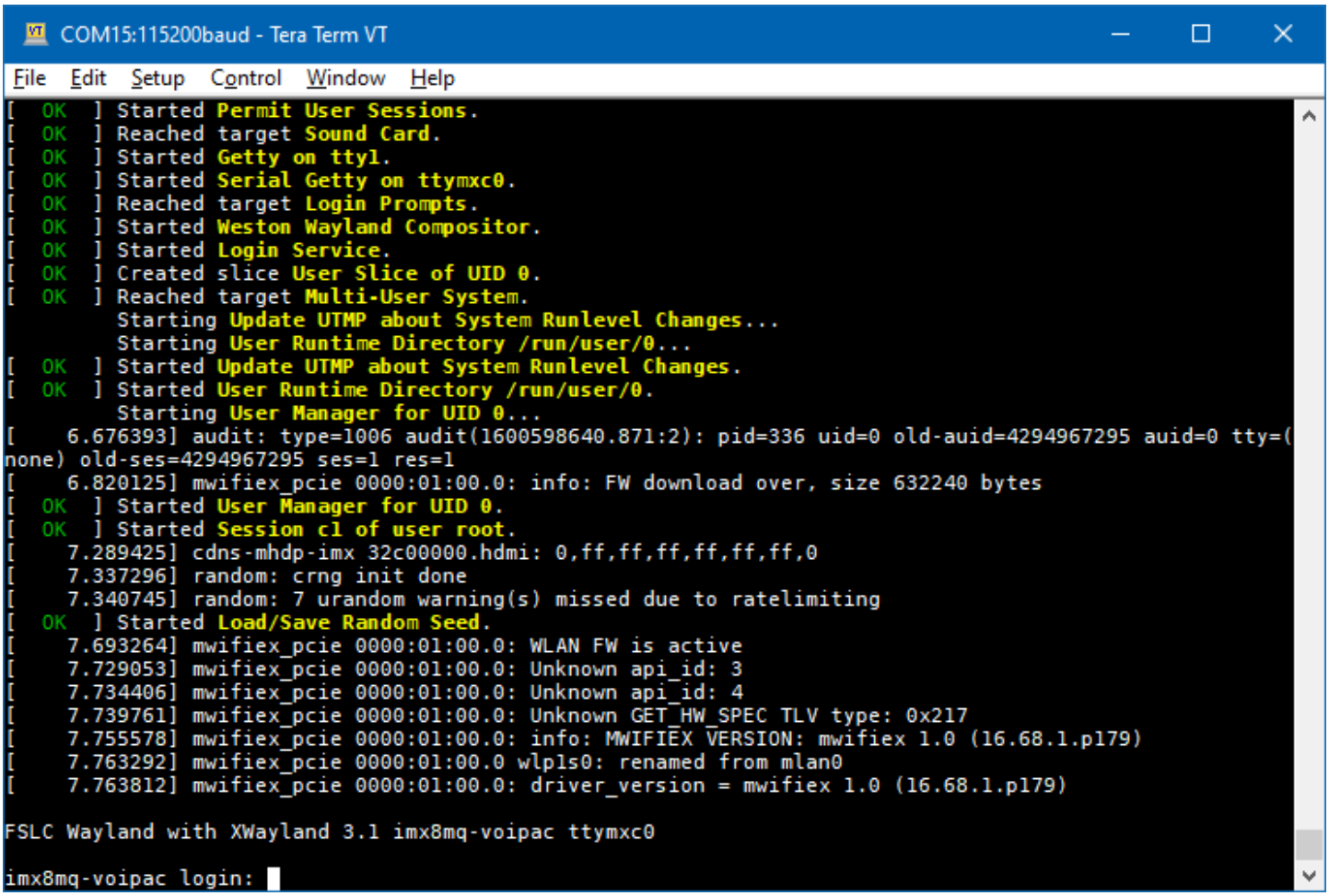
eMMC FLASH MEMORY BOOT (default)



SD CARD BOOT



- Connect USB Micro-B debug cable, switch on the power and the development kit starts booting with the new binaries:



7. Useful Information

7.1. Development Kit Downloads

Module Flyer	Module Datasheet

Note: *The **iMX8M Industrial Module Confidential Schematic** is available for download from the kit downloads section of the commercial web site after the development kit purchase.*

Baseboard Datasheet	Voipac Downloads
Voipac Wiki	Voipac GitHub

7.2. Additional Information

COMs and SBCs Feature Overview	Price List
Latest Version of the Quick Guide	

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