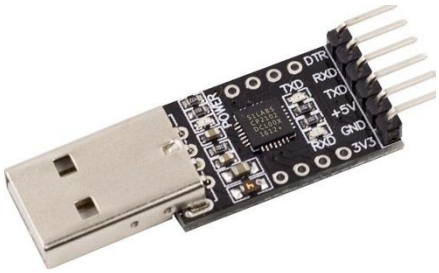
Unlocking the amlogic control board to be able to downgrade the stock firmware date and installing the “VNISH” firmware

AMLOGIC control boards running stock firmware released after September 2025, the ability to downgrade firmware via SD card has been disabled. This tutorial describes a method to re-enable that capability. Before starting, make sure you have the following:

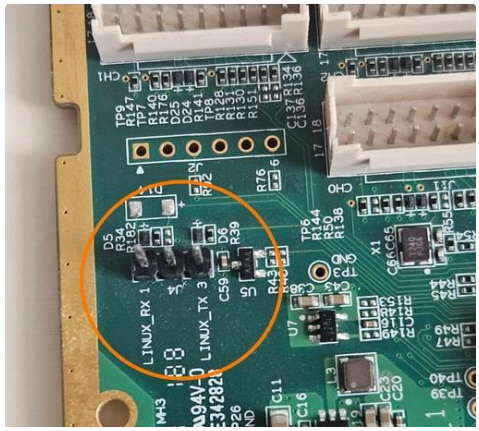
- AML control board and a 12V power supply
- A computer or laptop with Windows installed
- Any USB-to-UART adapter with drivers installed (in our case, Silicon Labs CP2102)
- A terminal program (in our case, PuTTY) to connect to the control board and send commands



Perform the following steps:

Connect the adapter to the computer. Identify the assigned COM port number (in our case, COM7)

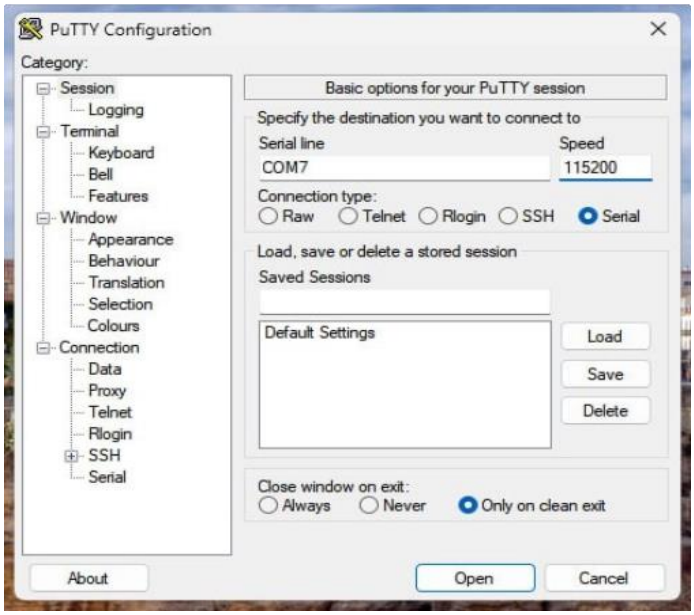
Identify the UART pins on the control board. Connect the USB-to-UART adapter to the control board according to the following wiring scheme: GND → GND, RXD → LINUX_TX, TXD → LINUX_RX



Open the PuTTY terminal window:

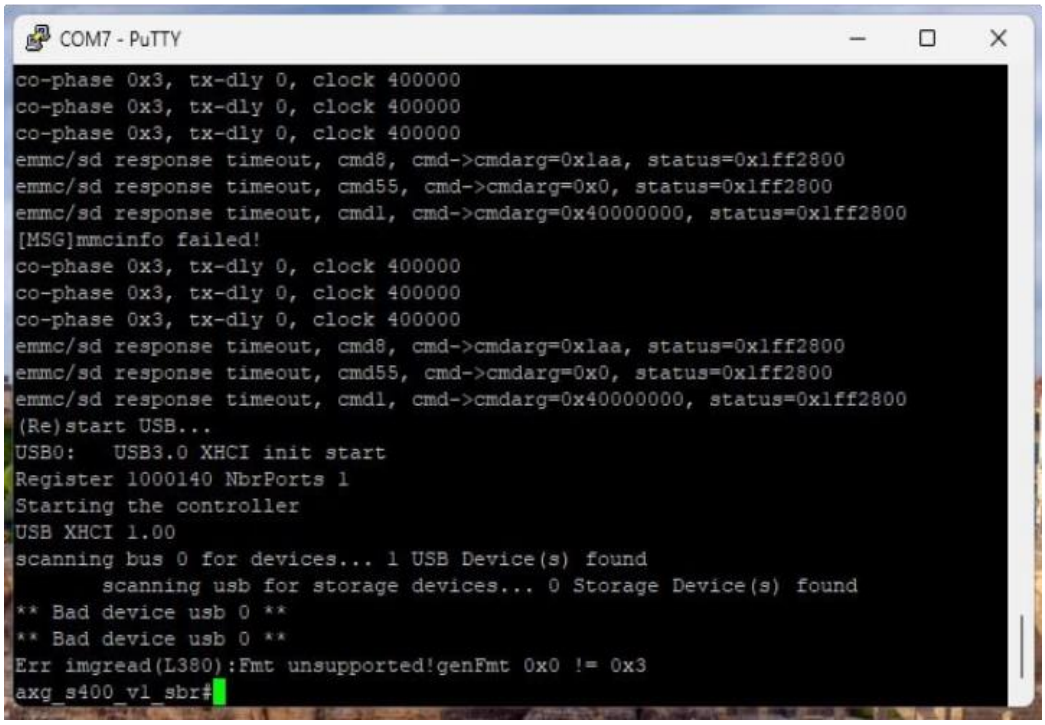
Set the correct COM port number and configure the baud rate to 115200.

Leave all other parameters at their default setting

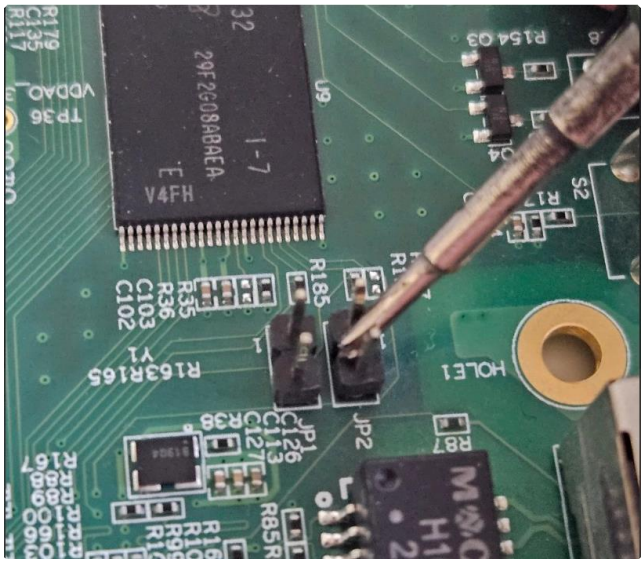


At this stage, you can verify that the connections are correct.

When power is applied to the control board, the device boot log should appear in the terminal window.



Power off the control board and short the JP2 jumper using tweezers or a screwdriver.



Make sure the terminal window is active.

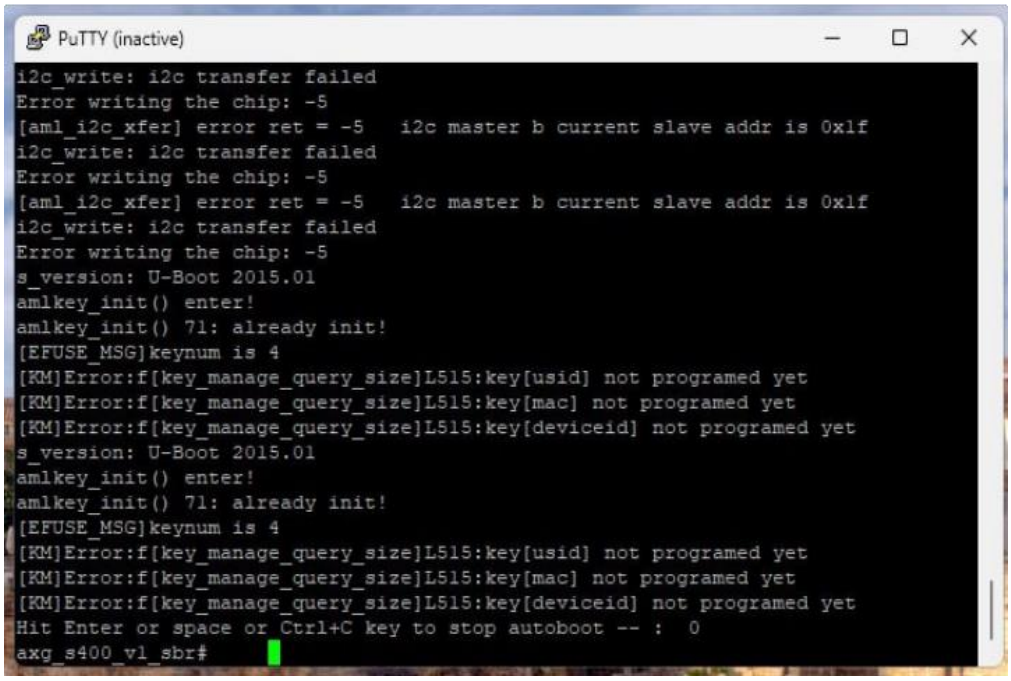
Apply power to the control board. As soon as the first boot line appears in the terminal, quickly release the **JP2** jumper and press the space bar a few times in the active terminal window.

After these steps, the ENV loading process should start.

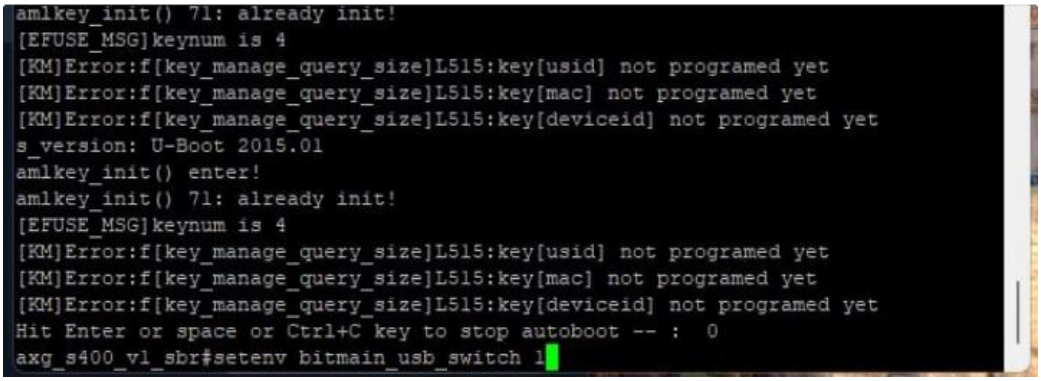
If this does not happen, which is acceptable, perform the following:

Power off the control board and power it on again. While doing so, briefly short the JP1 or **JP2** jumpers a couple of times. This should force the board into **U-Boot** boot mode.

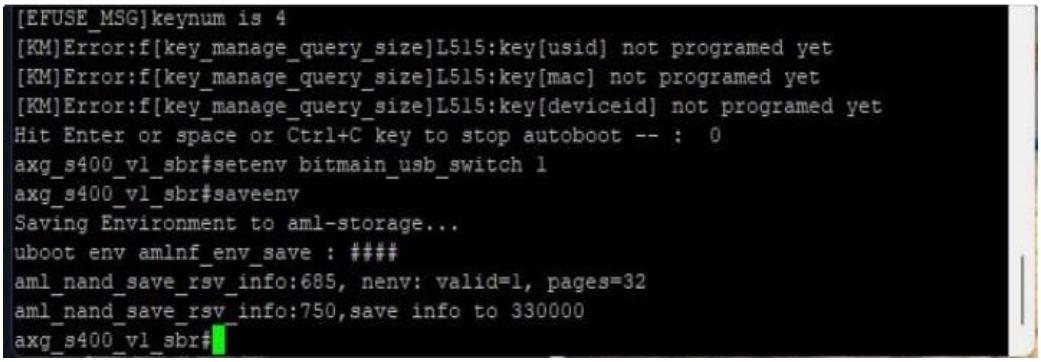
As a result, the following messages should appear in the terminal window:



Enter the command: setenv bitmain_usb_switch 1 This command enables the USB port



Then enter: saveenv This command saves the configuration.



Reboot the control board. After that, the current stock firmware version can be downgraded, which will subsequently allow the installation of Vnish firmware.

If you are unable to unlock the port and see this window, enter the commands in this order:

- saveenv
- setenv bitmain_usb_switch 1
- saveenv