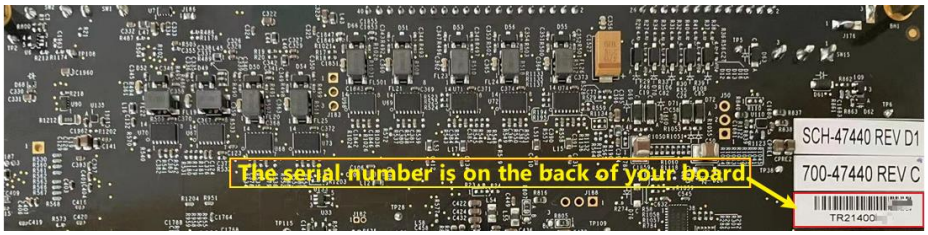
How to activate TJA1153 PHY on RDB2/GoldBox

This guide provides a simple method to activate the TJA1153 on the S32G-VNP-RDB2/GoldBox for enabling CAN communication. After this activation of the TJA1153 by following steps, it will operate as a CAN PHY. *Contact NXP for further details about Secure CAN Transceiver or visit http://www.nxp.com/CAN.*

NOTE:

Only the boards with series number listed in the attached table need this activation. The serial number of your boards can be found on the label on the back of your boards.



Tools needed:

1. Terminal Emulator, such as Tera Term, Putty and other.
2. Download and install the FT232R USB-to-UART driver, if not installed already. FT232R USB-to-UART driver link . [https://www.ftdichip.com/Drivers/D2XX.htm.](https://www.ftdichip.com/Drivers/D2XX.htm)
3. HxD Hex Editor or Win32DiskImage – used to flash image onto an SD card.

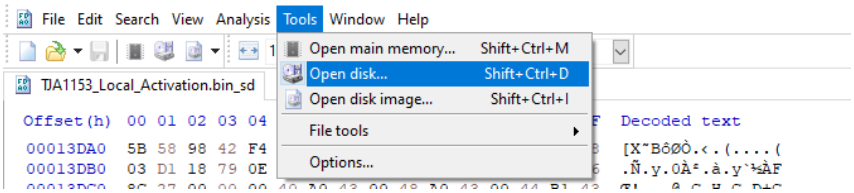
Step1. Extract the file of 'TJA1153_Local_Activation.7z' attached to this document and install 'TJA1153_Local_Activation.exe'.

Step2. Obtain the image file named 'TJA1153_Local_Activation.bin_sd' that needs to be write to the SD card from the installation directory.

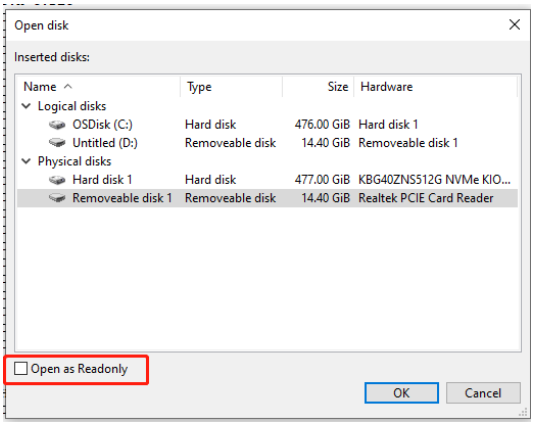
Step3. Flash the image 'TJA1153_Local_Activation.bin_sd' to the SD card.

For windows:

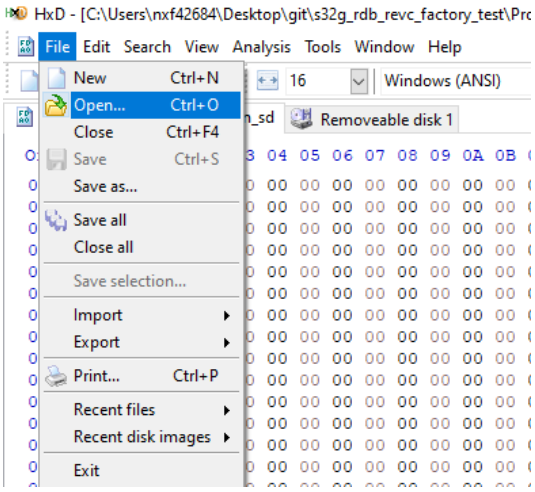
1. Insert SD card to the USB slot via SD card reader.
2. Open HxD Hex Editor.
3. Go to Tools -> Open disk



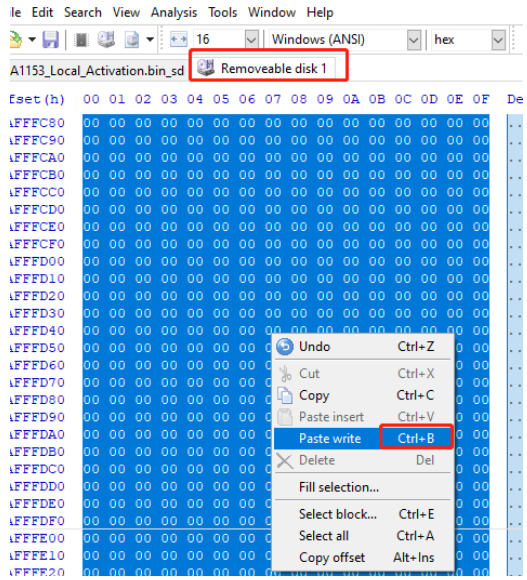
4. Select the SD disk and untick the "Open as Readonly" checkbox as highlighted below.



5. Warning message pops up, click on OK.
6. Go to File -> Open- > ‘TJA1153_Local_Activation.bin_sd’.



7. Do Ctrl+A and Ctrl+C to copy all of the ‘TJA1153_Local_Activation.bin_sd’.
8. Open this SD card window do Ctrl+A and Ctrl+B paste write the image to the SD card.



9. Do Ctrl+S.
10. Warning message pops up, click on Yes.

For Linux distribution:

1. Insert the SD card to the Linux machine (eg: ubuntu) via SD card reader.
2. Identify the device node assigned to the SD card, enter the command:

```
ls /dev/sd*
/dev/sda   /dev/sda1   /dev/sdb   /dev/sdb1   /dev/sdb2
```

In this example it is assumed that the device assigned is /dev/sdb.

NOTE

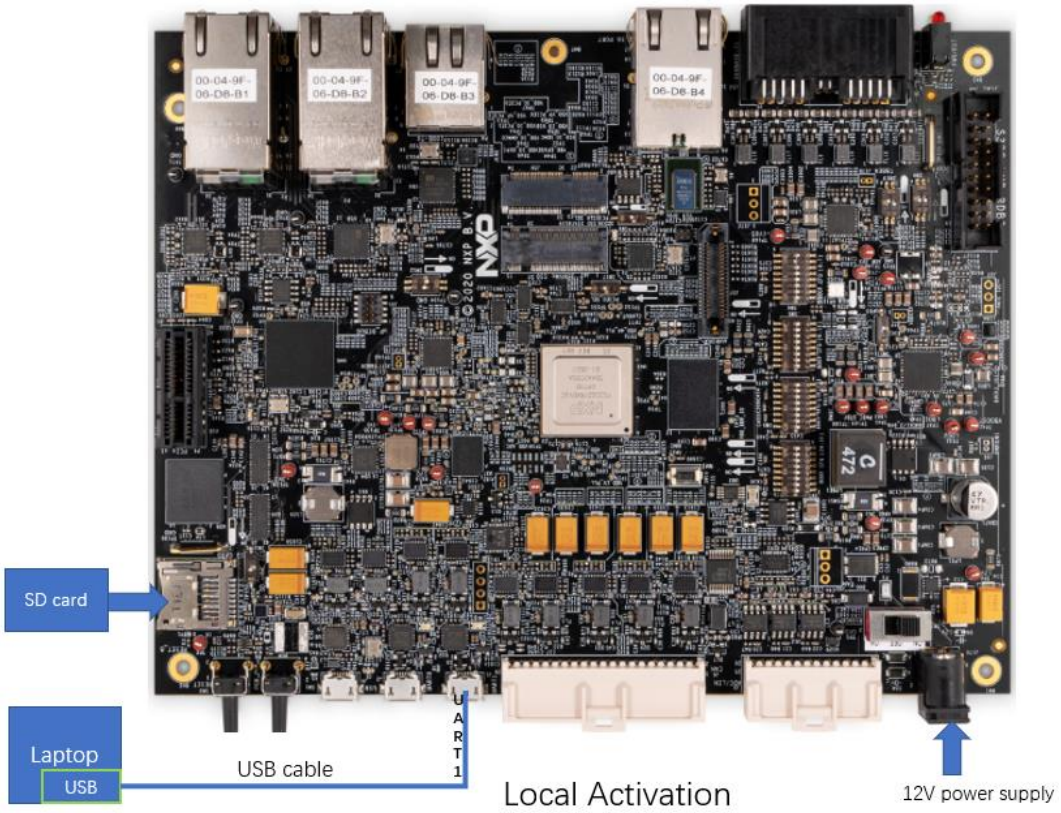
Make sure the device node is correct for the SD card! Otherwise, it may damage your operating system or data or your PC.

3. Writing the 'TJA1153_Local_Activation.bin_sd' to SD card

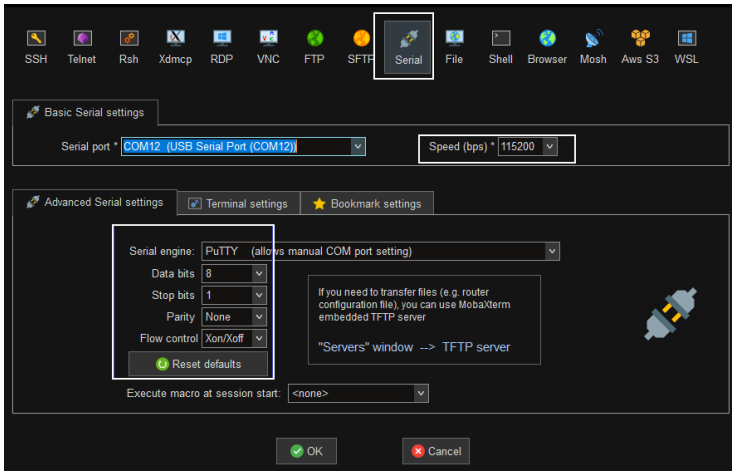
```
sudo dd if= TJA1153_Local_Activation.bin_sd of=/dev/sdb bs=1M && sync
```

Step4. Set the switches to boot from the SD "Boot Mode Configuration".

Step5. Connect the UART1 port of the board to the laptop with a USB cable.



Step6. Open a serial tools such as putty or MobaXterm.



Step7. Perform a power on reset of the board and check the log info from the serial session. The first activation will print the following log information.

```
CAN PHY of TJA1153 Local activation: build time = Nov  5 2021 19:28:18
S32G-VNP-RDB2 CPU: NXP S32G274A rev. 2.1.0

Setup local activation environment for TJA1153...
00:00 [>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>]
TJA1153 4 activated successful
TJA1153 5 activated successful
TJA1153 6 activated successful
TJA1153 7 activated successful

TJA1153 Local activation is finished.
```

Those that have been activated will print the following information.

```
CAN PHY of TJA1153 Local activation: build time = Nov  5 2021 19:28:18
S32G-VNP-RDB2 CPU: NXP S32G274A rev. 2.1.0

Setup local activation environment for TJA1153...
00:00 [>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>]
TJA1153 4 has already been activated.
TJA1153 5 has already been activated.
TJA1153 6 has already been activated.
TJA1153 7 has already been activated.

TJA1153 Local activation is finished.
```

Done.

Table1. The configuration of boot mode. For more information on how to enable RDB2:

https://www.nxp.com/design/designs/s32g-reference-design-2-for-vehicle-network-processing:S32G-VNP-RDB2

Switch	SD Boot Setting (default)	eMMC Boot Setting	NOR Flashing Boot Setting	Serial Boot Setting
SW3	ON	OFF	-	-
SW4	7-ON, REST-OFF	6,7-ON, REST-OFF	ALL-OFF	ALL-OFF
SW5	ALL-OFF	ALL-OFF	ALL-OFF	ALL-OFF
SW6	ALL-OFF	ALL-OFF	ALL-OFF	ALL-OFF
SW7	ALL-OFF	ALL-OFF	ALL-OFF	ALL-OFF
SW9	1-OFF, 2-OFF	1-OFF, 2-OFF	1-OFF, 2-OFF	1-OFF, 2-OFF
SW10	1-ON, 2-OFF	1-ON, 2-OFF	1-ON, 2-OFF	1-OFF, 2-OFF

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