

OpenRD Ultimate - Quick Start Guide

Thanks you for purchasing the OpenRD-Ultimate. The OpenRD-Ultimate uses a Marvell® 88F6281 SoC, which is based on an embedded Sheeva™ CPU running at 1.2GHz speed.

A. OpenRD-Ultimate vs. OpenRD-BS and OpenRD-CS

OpenRD is the combination of OpenRD-BS and OpenRD-CS, please see the table below for the differences of these 3 versions.

	OpenRD-BS	OpenRD-CS	OpenRD-Ultimate
VGA output	No	Yes	Yes
PCIe slot	Yes- note1	No	Yes- note2, note3
Audio In/out	No	Yes	Yes- note4
TDM slot	Yes	No	Yes- note4
RS-485	No	Yes	Yes
USB 2.0 port	1	7	7
RJ45- Gb	1	2	2

- Note1:** Although OpenRD-CS has PCIe x1 interface slot but it is in the middle of the PCB, so user has to open the enclosure to use it.
- Note2:** OpenRD-Ultimate has PCIe x 1 slot moved to the front end of PCB, so user can insert their add-on board without opening the enclosure.
- Note3:** OpenRD-Ultimate has a switch to select either VGA port or PCIe slot before powering on.
- Note4:** OpenRD-Ultimate can select either to use audio interface or TDM slot by two wiring jumpers. These jumpers are located in middle of the PCB, so enclosure must be opened to make the selection.

B. Product appearance



C. Front and back panel



D. VGA and PCIe port

There exists both VGA port and PCIe slot on OpenRD-Ultimate but you can use only one of them at a time and must do the selection before powering on.

Please refer to the picture below for the procedure of selection.

1. Power off.
2. Switch it to the left for PCIe slot and right for VGA output.
3. Power on.

Noet: To prevent from switching mistakenly during normal operation, the switch is designed not to be easily operated by fingers. Suggest to switch by using the ball pen tip.



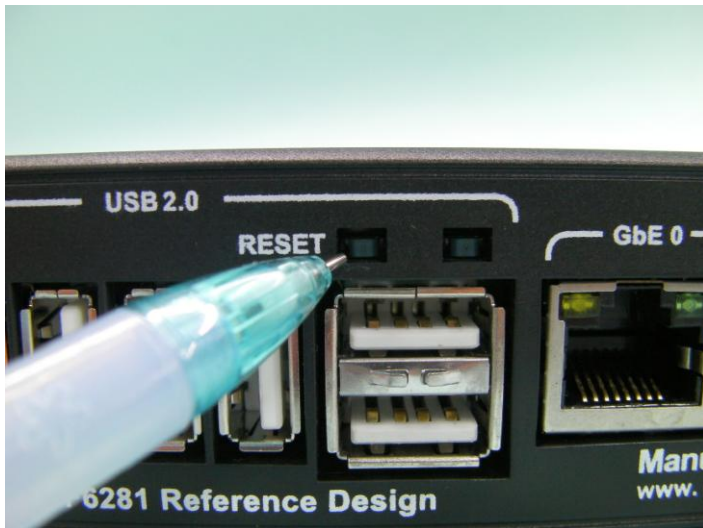
Example of inserting the VGA card



E. Reset SW

Right-SW3-System reset

Left -SW2- System reset plus DC-DC power reset



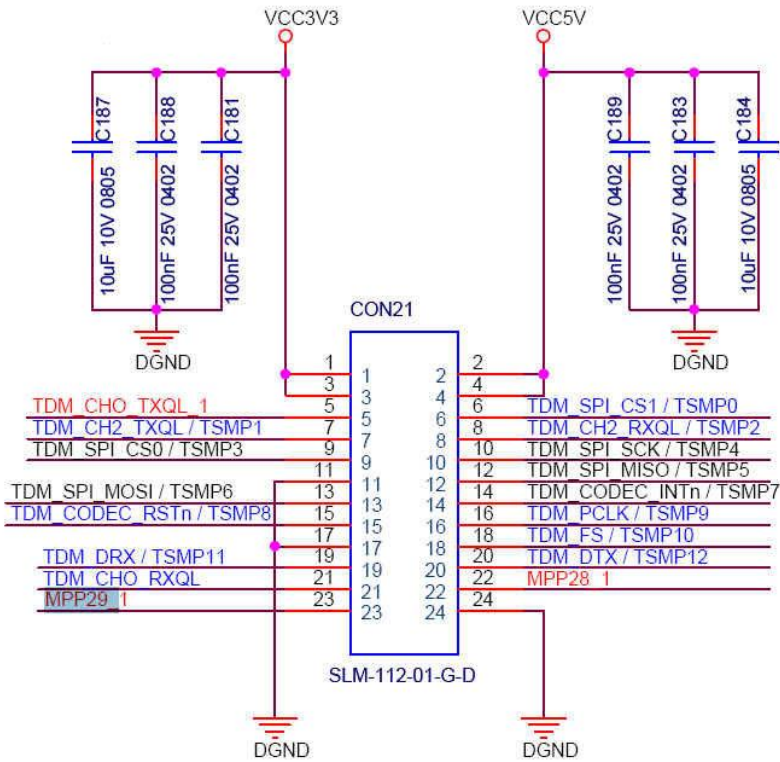
F. Audio in/out and TDM slot

There is an audio codec chip on board supplies analog stereo audio output and microphone input interfaces. Since I2S signals are multiplexed with these two I/Os, two jumper wires are used for the selection but user must open the enclosure to reach these wire jumpers, please see description below:

1. Five multiplexed signals

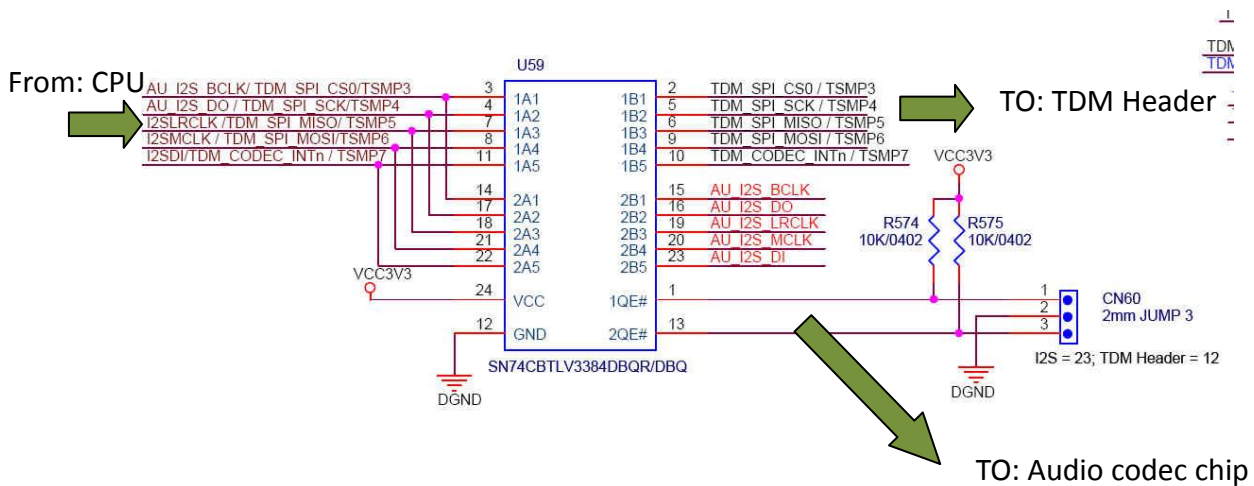
- a. AU_I2S_BCLK / TDM_SPI_CS0
- b. AU_I2S_DO / TDM_SPI_SCK
- c. I2SLRCLK / TDM_SPI_MISO
- d. I2SMCLK / TDM_SPI_MOSI
- e. I2SDI / TDM_CODEC_INTn

2. CN21-TDM slot signals

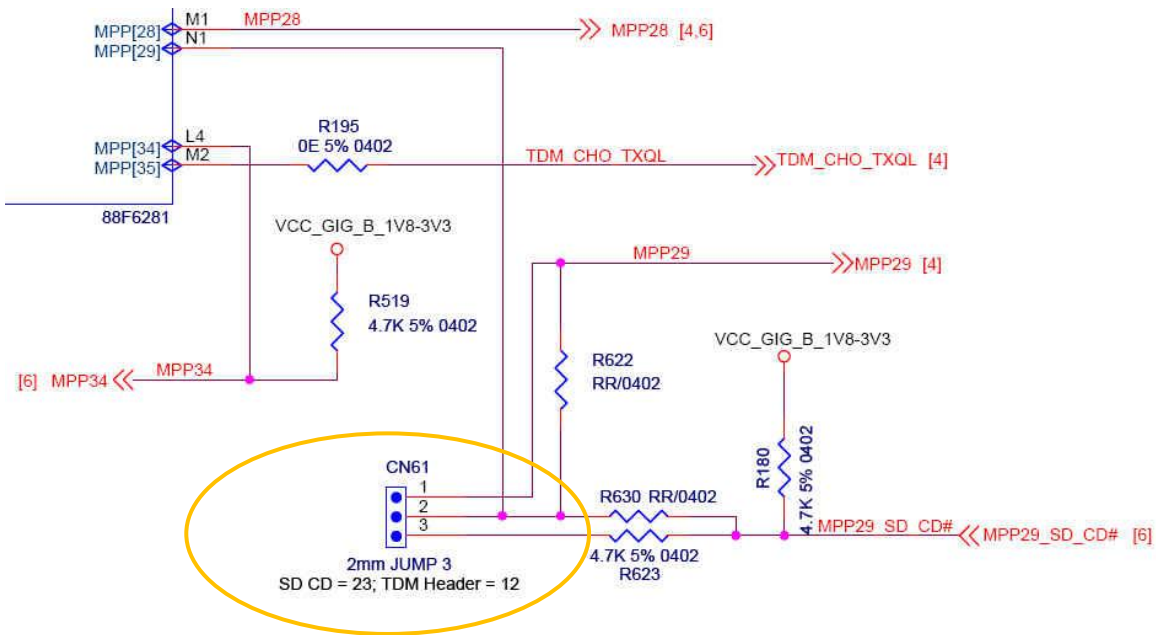


3. CN60- wire jumper

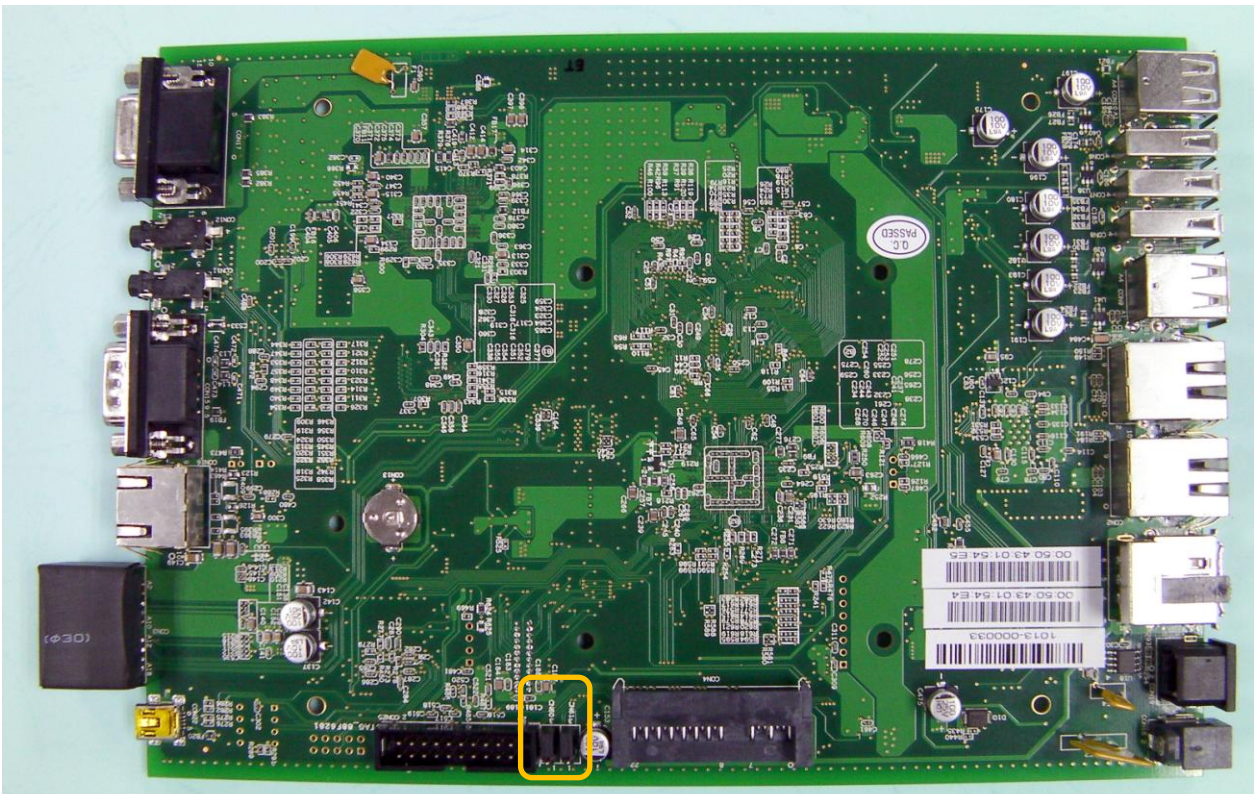
1-2 : TDM header , 2-3: I2S audio



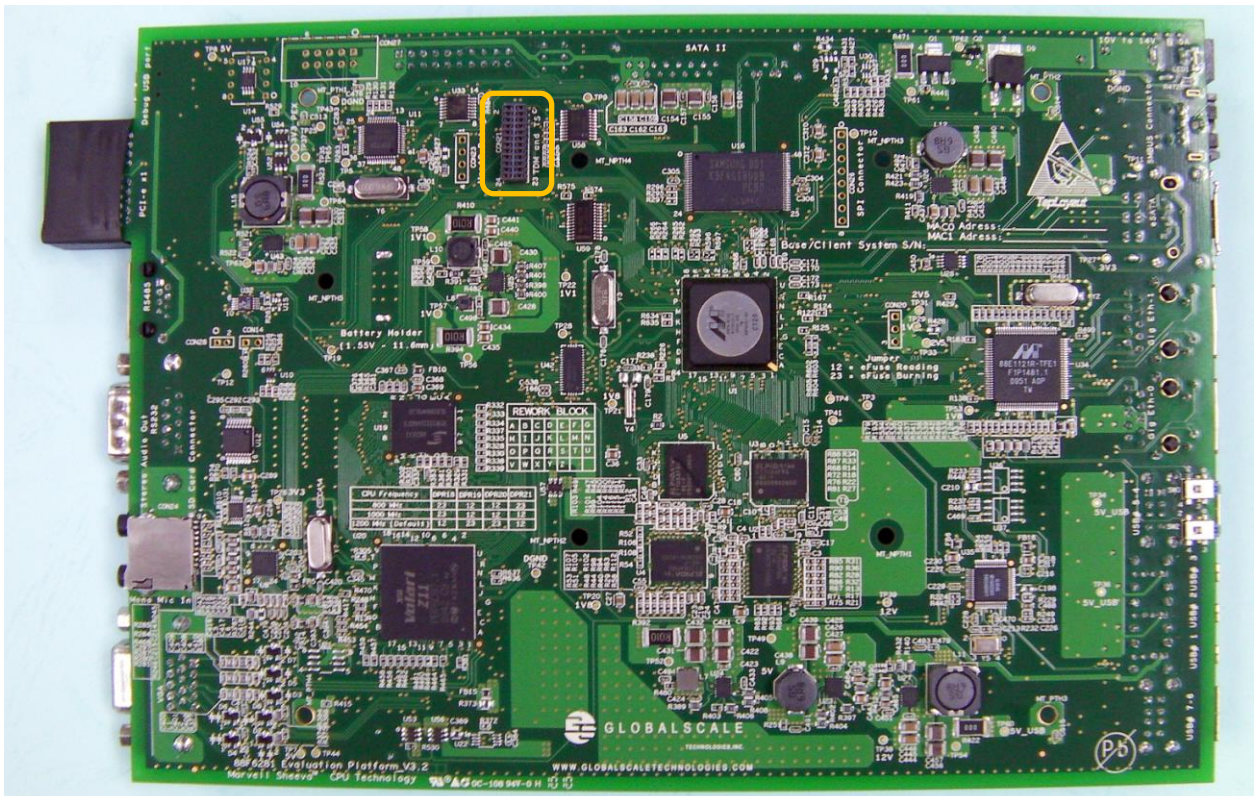
- 4. CN61- wire jumper
1-2 : TDM header , 2-3: SD card



- 5. CN60, CN61 position on PCB



6. CN21 position on PCB



G. Operation procedure

Please go to the following web link for downloading all the information you need for development. We strongly recommended user to download and review these 4 documents below to know more about OpenRD-Ultimate.

1. [openrd-base_user_guide.pdf](#)
2. [openrd-base-quick_start_guide.pdf](#)
3. [openrd-client_user_guide.pdf](#)
4. [openrd-client-quick_start_guide.pdf](#)

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