

# Matrix

Get Started Guide V1.1



## Overview

**Matrix** is a single board mini computer based on ARM with a wide range of interface, equipped with a powerful i.MX6 Freescale processor, it can run Android, Linux, Ubuntu and other operating systems, a switch between different operating systems can be done within just a few minutes! Matrix also has great support for TBS USB tuners and popular software such as XBMC, VDR, Tvheadend, DVBLast <sup>1</sup>and so on.

## Features

- **TBS Tuner Support**

Equipped with the mini PCIe slot and USB ports, Matrix works perfectly with TBS USB tuners.

The supported USB tuners are:

TBS5220, TBS5280, TBS5281, TBS5880, TBS5881, TBS5922, TBS5925, TBS5680, TBS5980, TBS5990, TBS DVB-C stick

Support for more tuners will be added.

- **Freescale Quad Core**

Based on Freescale i.MX6, Matrix provides a much more powerful ready-to-run platform.

- **Open Source**

It's 100% open source, Matrix runs Linux, Android, Ubuntu, and any other OS you like.

To switch from one OS to another, you just need to burn the new OS into the eMMC on the Matrix board, and then reboot it.

- **XBMC, VDR, Tvheadend Support**

Popular software like XBMC, VDR, Tvheadend are ready for Matrix.

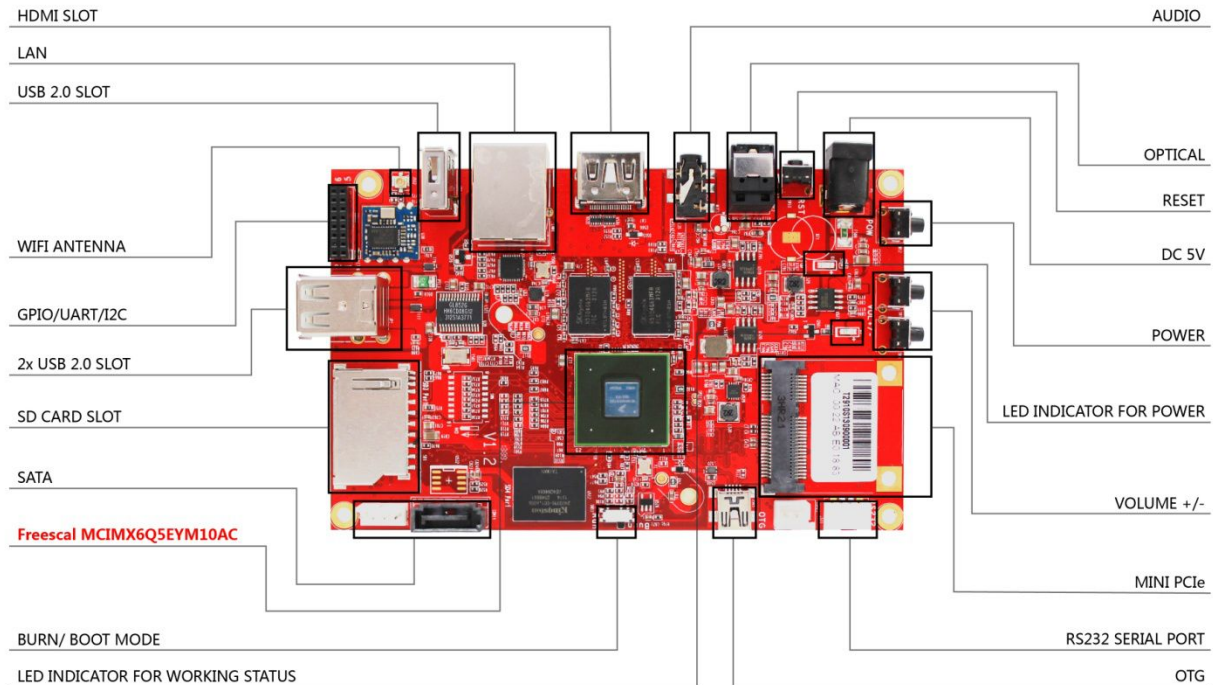
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<sup>1</sup> The DVB software are preinstalled in a customized Linux OS called MatrixTV, the OS image can be found in the download section of [www.tbsdtv.com](http://www.tbsdtv.com)

## Specification

<b>System-on-a-chip (SoC)</b>	Freescall MCIMX6Q5EYM10AC
<b>CPU</b>	Quad ARM Cortex-A9 at 1.0GHz
<b>GPU</b>	Vivante GC2000, Quad core GPU, Quad IPU
<b>RAM</b>	2GB DDR
<b>USB 2.0 ports</b>	3x USB 2.0
<b>Other Interface</b>	HDMI port
	3.5 mm jack
	Optical port
	S/PDIF
	SATA 3.0
<b>Storage</b>	eMMC 16GB
	1x SD card slot
	1x TF card slot
<b>Network</b>	10/100/1000 wired Ethernet
	WIFI IEEE 802.11n/b/g
<b>Power input</b>	5 V, 3A
<b>Size</b>	board:130*83 mm
	case: 135*90*45 mm
<b>Package contents</b>	1x Matrix ARM mini PC
	1x power adapter
	1x SATA power cable
	1x RS232 adapter board (optional)

## Interface Introduction



- **HDMI SLOT:**

For connection to a digital TV or display with HDMI input.

- **LAN:**

For connection with network cable.

- **USB 2.0 SLOT:**

For connection with keyboard, mouse or other USB device.

- **WIFI ANTENNA:**

For WIFI signal reception.

- **GPIO/UART/I2C:**

For connection with peripheral device.

- **SD CARD SLOT:**

For SD card insertion.

- **SATA:**

For connection with hard disk.

- **Main Chip:**

Freescale MCIMX6Q5EYM10AC

- **BURN/ BOOT MODE:**

A switcher for the two modes:

a- **BURN:** move the switcher to this side, you can burn the OS into the eMMC.

b- **RUN:** move the switcher to this side, you can run Matrix with the OS in eMMC.



- **LED INDICATOR FOR WORKING STATUS:**

The blue LED light is flashing when Matrix is working.

- **AUDIO:**

For connection with standard stereo 3.5 mm audio cable.

- **Optical**

For optical fiber connection with optical audio cable.

- **RESET:**

For bringing Matrix back to the initial state.

- **DC 5V:**

For connection with a power supply of 5V, 3A.

- **POWER:**

Button for “sleep mode” on Android system.

- **LED INDICATOR FOR POWER.**

The yellow LED light is on when Matrix is connected with the power adapter.

- **VOLUME +/-:**

Buttons for volume control.

- **MINI PCIe:**

Mini PCIe slot for connection with mini PCIe device.

- **RS232 SERIAL PORT:**

For connection with RS232 serial cable.

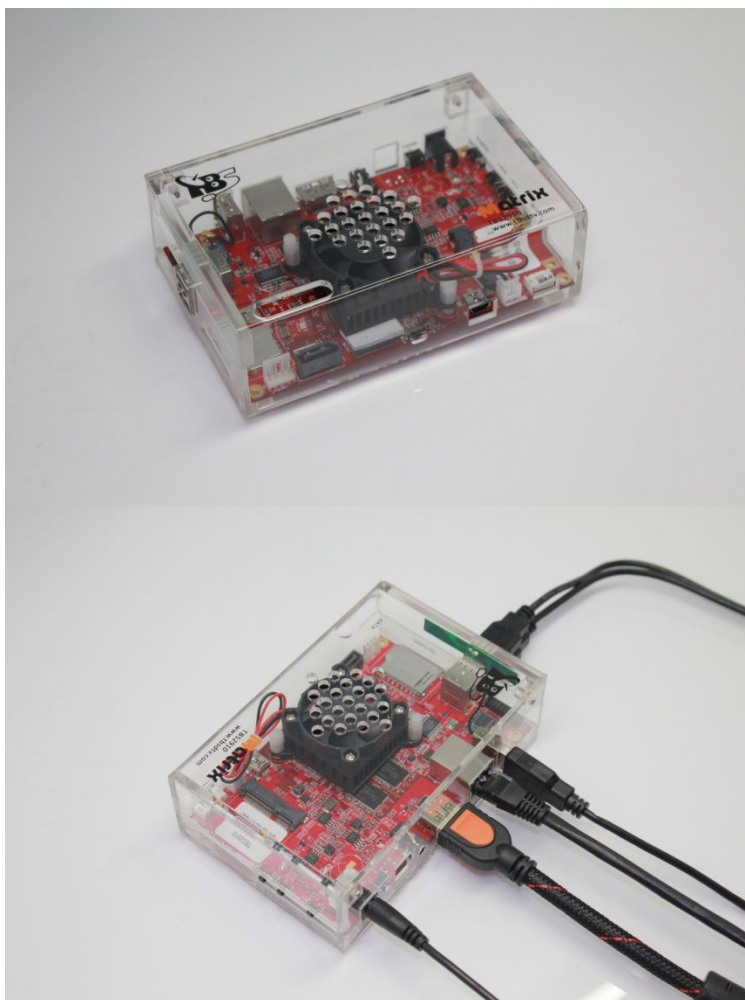
- **OTG:**

A mini USB cable (type: mini B) should be connected to the OTG port, before you burn a new OS into the eMMC.

## Get Started

Matrix is an open source mini PC based on ARM, which can run Android, Linux, Ubuntu and many other operating systems, by default it has MatrixTV system preinstalled inside, it's easy to switch to another system within just a few minutes, by burning a new OS image<sup>2</sup> into the eMMC on the board. Below you can find a brief guide for connection, before you get started, make sure the following things are ready:

- Matrix
- Power adapter (5V. 3A)
- HDMI cable
- Monitor or digital TV with HDMI input
- Network cable
- USB devices (keyboard & mouse)



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<sup>2</sup> OS images and some software can be found in the download section of [www.tbsdtv.com](http://www.tbsdtv.com)

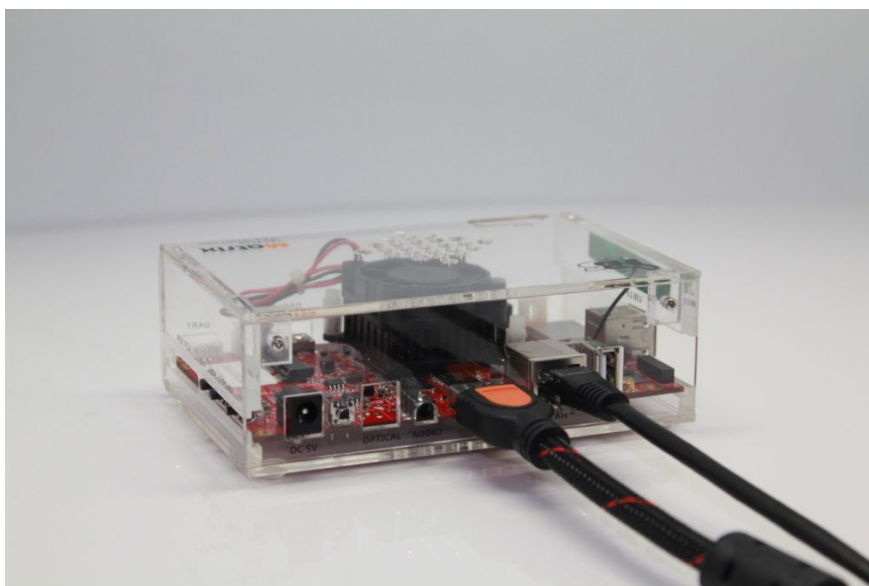
### 01- Connect the HDMI cable

Plug one end of the HDMI cable to the HDMI port on Matrix, and the other end to your monitor or digital TV.



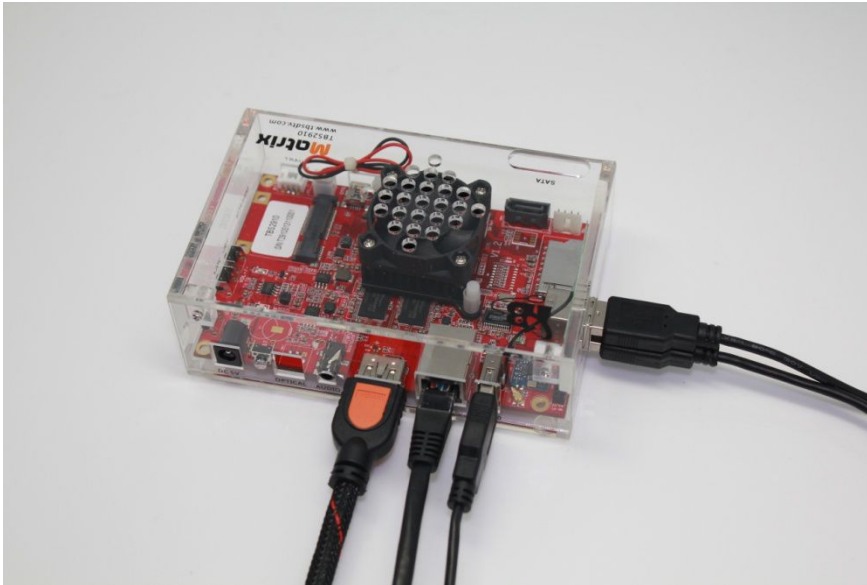
### 02- Connect the network cable

Connect the network cable to the LAN slot on Matrix.



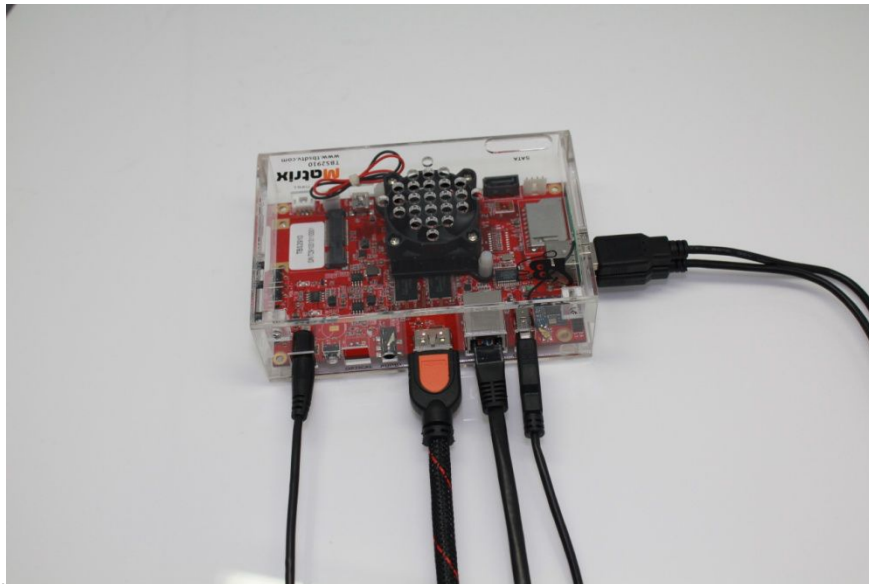
### 03- Connect keyboard & mouse

There are 3 USB2.0 ports on Matrix, two of which can be used to connect with a keyboard and a mouse.



### 04- Power on Matrix

Matrix starts to boot the moment you plug the power supply to the “DC 5V”



slot.

Now Matrix is ready for you to explore more!

## Switch to another operating system





Matrix runs MatrixTV system by default, if you want to switch to another operating system, you need to burn a new OS<sup>3</sup> into the eMMC on the board.

In order to burn the new OS into eMMC, you are going to need:

- 1x PC
- 1x USB mini cable (Type: mini B)

Download the OS image files from the download section of our website to your PC, and then follow a few steps below:

1. Move the “Burn/Run” switcher on the board to the “Burn” side.
2. Connect one end of the USB mini cable to the OTG port on Matrix, the other end to the USB port of the PC.
3. Open the software “MfgTool2” in the folder, where the OS image files are inside, click “Start”, and wait a few minutes until it’s completed.
4. Power off Matrix.
5. Move the “Burn/Run” switcher on the board back to the “Run” side.
6. Power on to let Matrix restart, now it can run the new OS you have just burnt into eMMC.

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<sup>3</sup> The OS images can be found in the download section of [www.tbsdtv.com](http://www.tbsdtv.com)