



7.0 Inch 1024*600 HDMI Touch Screen
for the Raspberry Pi
BeagleBone Black, Banana pi/pro
User Guide

Document Date: 30th Aug 2015
Document Revision: 1.1

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1. Overreview

The 7.0 inch HDMI input capacitive touch screen with USB touch specifically designed for Raspberry pi, Beaglebone Black, Banana pi/pro. It provides much better touch response, larger viewing angle, faster response time, and steady performance and low power consumption.

2. Guide Overview

This guide was designed to assist you with setting up the Eleduino 7 inch capacitive touch screen HDMI Touchscreen Display and configure the hardware.

3. Features

- 7.0-inch TFT screen display, 1024x600 Resolution
- capacitive touch screen
- USB touch and power supply
- HDMI input
- Powered by USB, 5V@1A
- Supports Raspberry Pi, BB Black, Banana Pi / Banana Pro
- Not only for mini-PCs, it can work as a computer monitor just like any other general HDMI screen (touch function is unavailable in this case)
- Lcd driver IC: ILI9486L
- Refresh rate: 60HZ

4. Support Operating System

The Eleduino 7 Inch HDMI Touchscreen was designed to work with the following distributions. Each of these distributions will require the installation of some special software packages and the modification of system files. We do maintain a number of pre-built operating system images for the Raspberry Pi which are included in a later section of this guide.

Display only	Display+touchscreen
●Pidora	●Pidora

<ul style="list-style-type: none"> ●Raspbian ●AtchLinux ●XBMC for Raspberry Pi (based on Raspbian) 	<ul style="list-style-type: none"> ●Raspbian
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5. Package Contents:

Your Eleduino 7 Inch HDMI Touchscreen was shipped with the following accessories:

- Eleduino 7 Inch HDMI Touchscreen
- Display Stand Kit
- Micro USB Cable
- Acrylic shell (need to assembly by yourself)
- Standard Hdmi Cable

The Display Stand was designed to accommodate the Eleduino “Rainbow Case” / “Multi-color Case” which is available for purchase on our Eleduino online website.

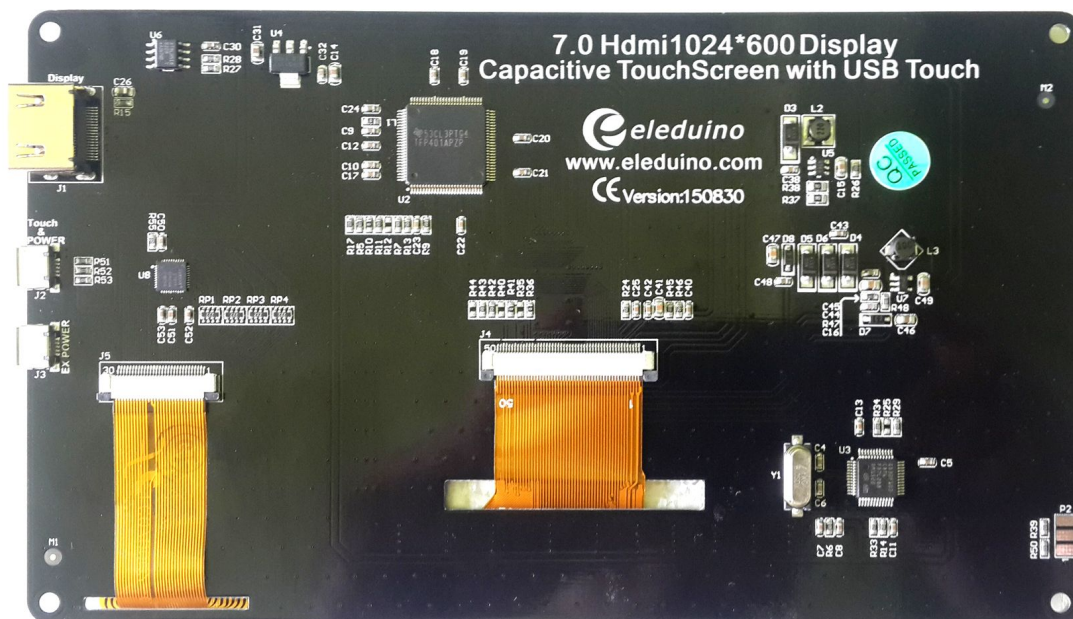
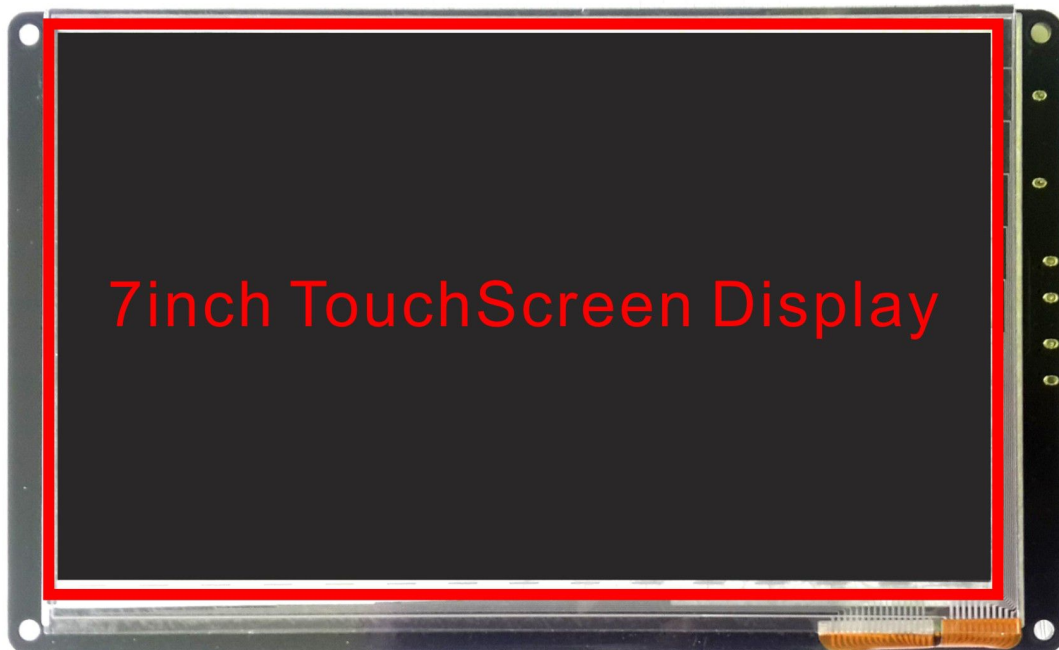
6. Copyright Notification:

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7. Lcd Module Main Parameter

7" Inch Lcd Module parameter			
Driver element :	a-si TFT active matrix	Resolution definition:	1024x600
Display Color:	16.7M	Interface	Digital, parallel 8bit RGB
Visual area (mm):	154.08 (W) X85.92(H)mm	Dot pitch (mm):	0.0642 (W) x0.1790 (H)
Visual angle (U/D/L/R):	50/70/70/70	Brightness (cd/m2):	400
Contrast:	500:1	Response time (ms):	White→ Black: 10, Black→ White: 15
Operating temperature:	-20~70	Pannel power consumption:	0.226W

8. The Product Picture



9. Configuring your Raspberry Pi :

9.1 PRE-COMPILED LINUX DISTRIBUTIONNS

Eleduino provides several Linux Distributions that are pre-configured to use the Eleduino 7 Inch HDMI Touch Screen with a Raspberry Pi 2. Please refer to the instructions on the Raspberry Pi website for instructions on flashing the images to a MicroSD card.

All the images you can download there :

https://www.dropbox.com/sh/nz2u7pkyu13029z/AAA03B_AtIQlwZHhu1GCoS-7a?dl=0

If you use on of the distributions above, please move onto the next chapter for instructions on connecting your Eleduino to your Raspberry Pi

9.2 .1 EXISTING DISTRIBUTIONS

If you choose to use a distribution from the Raspberry Pi Website in place of our pre-compiled distributions, you will need to make several changes to your Raspberry Pi in order to allow the display to work and configure the touch screen.

It is strongly recommended that you use a pre-built image as the instructions below are for advanced users only. You may need to experiment with the configuration items below due to changes in distributions. It is also strongly recommended that you backup important files and enable a SSH server on the Raspberry Pi prior to proceeding. You will be asked to edit several configuration files as part of this guide, it is important that you use a Text Editor that respects Unix style line endings. By following the instructions below, you will at least be able to get the display working on most of the distributions on the Raspberry Pi Website however the touchscreen may not work.

Installing the Base Image

1) Download and install the image of your choice from the Raspberry Pi website and flash it to the MicroSD card by following the instructions included with your download.

2) Boot the image on your Raspberry Pi once to confirm that the image was successfully installed. You may want to also go through the Raspberry Pi configuration to expand the file system at this point and perform system updates. As a best practice, you should enable SSH in the event that you need to perform troubleshooting.

3) Power down your Raspberry Pi and eject the MicroSD card

4) Mount the MicroSD card on your computer using a card reader

5) Locate the “config.txt” file located on the base of the MicroSD card and create a backup of this file called config.txt.backup. Open the config.txt it up on a text editor. a. Make the following changes

```
# uncomment if hdmi display is not detected and composite is being output  
  
hdmi_force_hotplug=1
```

```
# uncomment to force a specific HDMI mode (here we are forcing 800x480!)

hdmi_group=2

hdmi_mode=1

hdmi_mode=87

hdmi_cvt 800 480 60 6 0 0 0

# uncomment to force a HDMI mode rather than DVI. This can make audio work in

# DMT (computer monitor) modes

#hdmi_drive=2

# uncomment to increase signal to HDMI, if you have interference, blanking, or

# no display

#config_hdmi_boost=4

# uncomment for composite PAL

#sdtv_mode=2

#uncomment to overclock the arm. 700 MHz is the default.

#arm_freq=800

# for more options see http://elinux.org/RPi\_config.txt

start_x=1

gpu_mem=128
```

- 6) Save the file and unmount the MicroSD card.
- 7) Insert the MicroSD card back into your Raspberry Pi

Connecting Your Eleduino 7 Inch HDMI Touchscreen to Your Raspberry Pi

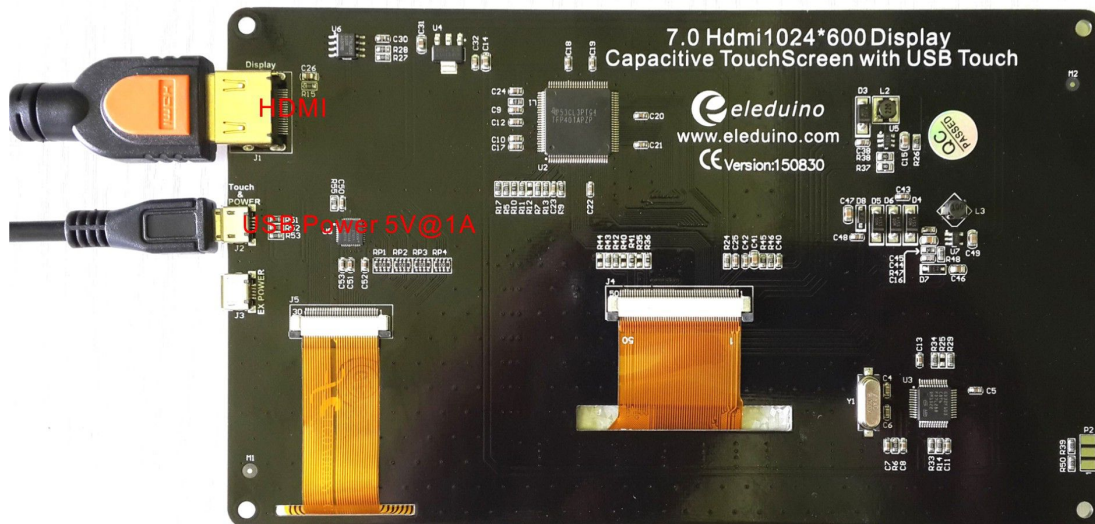
RASPBERRY PI CONNECTION The following steps will guide you through the process of connecting your Raspberry Pi to the Eleduino 7 Inch HDMI screen.

- 1) Connect the power cable to the Raspberry Pi
- 2) Connect an HDMI cable to the HDMI port on the Raspberry Pi
- 3) Connect the included USB cable into an open USB port on the Raspberry Pi, Please refer to the picture below.



ELEDUINO 7 INCH HDMI CONNECTION Now that your Raspberry Pi is setup, this next section will guide you through connecting it to your Eleduino Display.

- 1) Connect the Micro USB cable into the top Micro USB port on the display screen.
 - 2) Connect the HDMI cable to the Display
- Please refer to the picture below.



Remarks: the below mirco usb port of the LCD is only used when the LCD is under power shortage

POWERING ON YOUR RASPBERRY PI

Now that you have setup your Raspberry Pi and successfully connected the Raspberry Pi to the Eleduino 7 Inch HDMI Display, you may power on the unit.

Configuring Touch Input

If you wish to use the Touch Panel, you will need to calibrate the panel. If you are not using one of our precompiled system images, you will also need to install several packages manually. You will need to have a keyboard and mouse connected to your raspberry pi for the steps below.

CALIBRATING A PRE-COMPILED IMAG

1) From the desktop,, use your mouse to select “Preferences” followed by “Calibrate Touchscreen”



2) Follow the On Screen instructions and select the 4 points with the included stylus



3) Once the calibration has been completed, you will be given a screen containing the calibration data. Follow the onscreen instructions to edit /etc/X11/xorg.conf.d/99-calibration.conf

9.2.1 SETTING UP A CUSTOM IMAGE

9.2.1.1 Download the RPI_2B_USB_TOUCH_CAP_RASPBIAN-3.18.16-v7-7.0-1024x600-20150910.tar.gz file
 URL: https://www.dropbox.com/s/2jltwcmnpsij56m/RPI_2B_USB_TOUCH_CAP_RASPBIAN-3.18.16-v7-7.0-1024x600-20150910.tar.gz?dl=0

9.2.1.2 Copy the file

RPI_2B_USB_TOUCH_CAP_RASPBIAN-3.18.16-v7-7.0-1024x600-20150910.tar.gz. into the Raspbian system, and unzip it. That is, enter the terminal and input the following command:

```
sudo tar xzvf RPI_2B_USB_TOUCH_CAP_RASPBIAN-3.18.16-v7-7.0-1024x600-20150910.tar.gz.
```

9.2.1.3 Run the script USB_TOUCH_CAP_7.0_RASPBIAN located at the folder RPI_2B_USB_TOUCH_CAP_RASPBIAN by the following command:

```
Cd RPI_2B_USB_TOUCH_CAP_RASPBIAN
sudo ./USB_TOUCH_CAP_7.0_RASPBIAN
```

9.2.1.4 When finished, the system will reboot automatically. And the LCD module can work properly, including display and touch functions, after the system rebooted.

9.3 use with the Ubuntu system

Program the image file RPI_2B_7.0_1024x600_cap_usb_touch_ubuntu_mate_15.04_desktop-eng_20150914.img to the board. This image file supports Raspberry Pi 2B.

User Name: linaro

Password: linaro

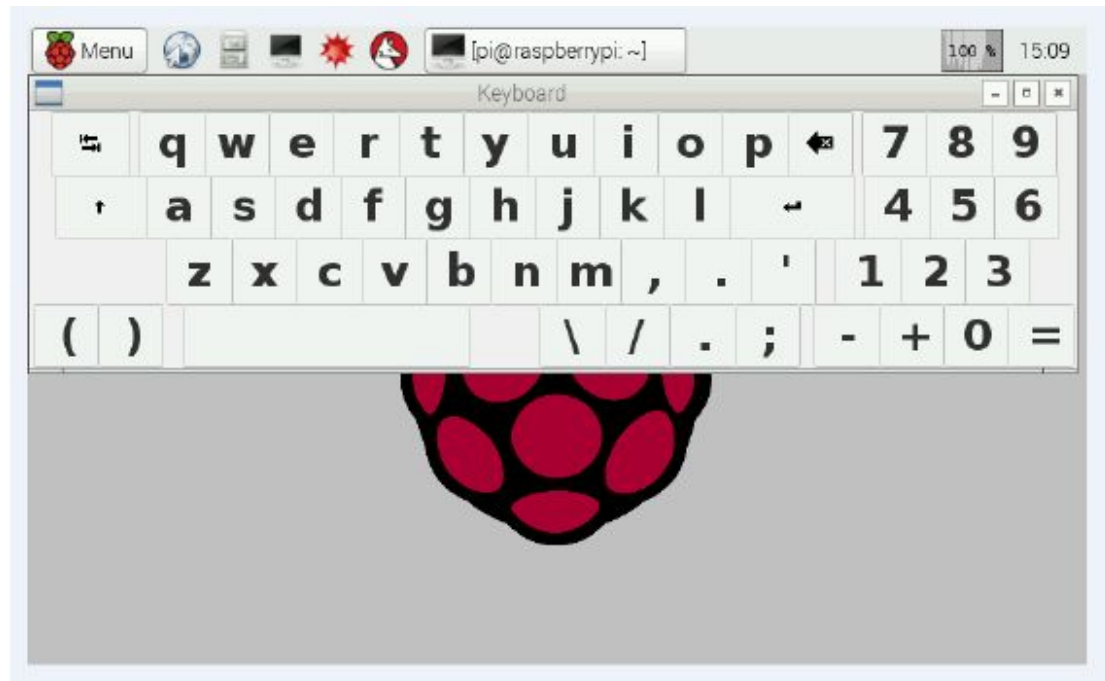
9.4 Virtual keyboard of Raspberry Pi

The Virtual keyboard of Raspbian system enables you to save the USB resource,

providing easy system operations. After the LCD is working properly, this function can be invoked by the following command:

```
DISPLAY=:0.0 matchbox-keyboard -s 100 extended
```

Now, the virtual keyboard is ready to use, as Figure 2 shows.



10. Configuring your banana pi/banana pro:

Before powering up the Banana Pi, you should connect it to a LCD displayer properly, since the Banana Pi may read the resolution parameters of the LCD displayer on startup. And the connection should be remained till the Banana Pi enters the desktop. In this case, even if you disconnect the LCD displayer and reconnect it again to the Banana Pi, the LCD can still work properly.

10.1 program Raspbian_For_BananaPi image file

10.1.1 Pre-built corresponding image provided for banana pi/pro in the dropbox link:

https://www.dropbox.com/s/bjlhe71kf27pbuw/Raspbian_For_BananaPi_Pro_v1412_7.0_1024x600_cap_usb_touch_20150914.img.zip?dl=0

This image file supports the modules Banana Pro and Banana Pi.

10.1.2 Copy the file with the expansion name .img to your PC;

10.1.3 Connect a TF card to your PC, and format your TF card with the SDFormatter.exe

Notices: The capability of TF card in used here should be more than 4GB. In this operation, a TF card reader is also required, which has to be purchased separately.

10.1.4 Start the Win32DiskImager.exe, and select the system image file copied into your PC, then, click the button Write to program the system image file.

10.2 Connecting Your Eleduino 7 Inch HDMI Touchscreen to Your banana pi/pro

10.2.1 Connect the USB cable into the Micro USB port on the display screen.

10.2.2 Connect the HDMI cable to the Display

Please refer to the raspberry pi connect picture..

Power on and start the mainscreen

10.3 load WiFi driver of BananaPi Pro

Comparing with the Banana Pi, the BananaPi Pro has added an on-board WiFi module. When using the BananaPi Pro, you can use SSH to connect to the Pi and execute the following command to load the WiFi driver:

```
sudo modprobe ap6210
```

10.4 use with the Lubuntu system

10.4.1 Pre-built corresponding image provided for banana pi/pro in the dropbox link:

https://www.dropbox.com/s/gvela2gyq2e3lgd/Lubuntu_For_BananaPi_v1412_7.0_1024x600_cap_usb_touch_20150914.img.zip?dl=0

This image file supports the modules Banana Pro and Banana Pi

User name: banana pi

Password: banana pi

11. Configuring your beaglebone black:

11.1 use Angstrom image file

If this LCD module is used for display only, you can program the latest Angstrom image file to the board directly without any change. The BeagleBone Black will read the display parameters of the 7 inch HDMI displayer and set the resolution to 1024*600 automatically.

11.1.1 Pre-built corresponding image provided for bb black in the dropbox link:

https://www.dropbox.com/s/jdpaukiqvqj7zd/BeagleBone_Black-Angstrom-usb-touch-7.0_1024x600_-cap-20150914.img.zip?dl=0

11.1.2 Copy the file with the expansion name .img to your PC;

11.1.3 Connect a TF card to your PC, and format your TF card with the SDFormatter.exe

Notices: The capability of TF card in used here should be more than 4GB. In this operation, a TF card reader is also required, which has to be purchased separately.

11.1.4 Start the Win32DiskImager.exe, and select the system image file copied into your PC, then, click the button Write to program the system image file.

11.1.5 After programming the image file, please insert the TF card to your board, press the key uBOOT and hold it till power up. Then, you will enter the system located at the TF card. And BeagleBone will take about 40 minutes to copy the system in the TF card into the

on-board eMMC. When finished, the 4 LED indicators on the board will light up at a same time. After the system rebooted, you can enter the graphical desktop directly.

11.2 Connecting Your Eleduino 7 Inch HDMI Touchscreen to Your beaglebone black

11.2.1 Connect the LCD to the HDMI on the BeagleBone board with a HDMI to micro HDMI cable

11.2.2 Connect the USB Touch interface on the LCD to the USB interface on the BeagleBone board with USB type-A male to micro-B cable. (BeagleBone has two USB interfaces, one for host and the other for client. In here, you should connect the LCD module to the USB host interface).

Please refer to the raspberry pi connect picture..

Power on and start the mainscreen

12. Contact Information

For Technical Support: service@eleduino.com

For Sales Support: sales@eleduino.com

Website: www.eleduino.com