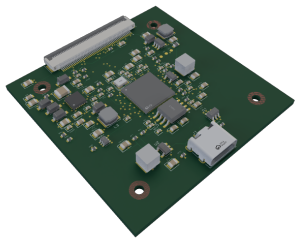
7-inch RGB Display Controller

1.1 Description

A controller for the 7-inch ER-TFT070-2 bare 800 × 480 RGB panel.



Assembly view

1.2 Device specifications

Parameter	Specification
Compatible panel	7-inch BuyDisplay ER-TFT070-2
Display interface	800 × 480 pixels; RGB565 parallel
Carrier	Four copper layers; top-side assembly
PCB dimensions	54 × 54 mm
Mounting holes	4 × Ø2.2 mm for M2 screws; 40 × 40 mm center spacing

1.3 Using the board

Use the PCB as a controller behind a larger desktop instrument or information display. Support the glass separately, check the contact side of the 50-pin flex, and allow clearance for the connector latch.

Device guide

2 Protocol reference

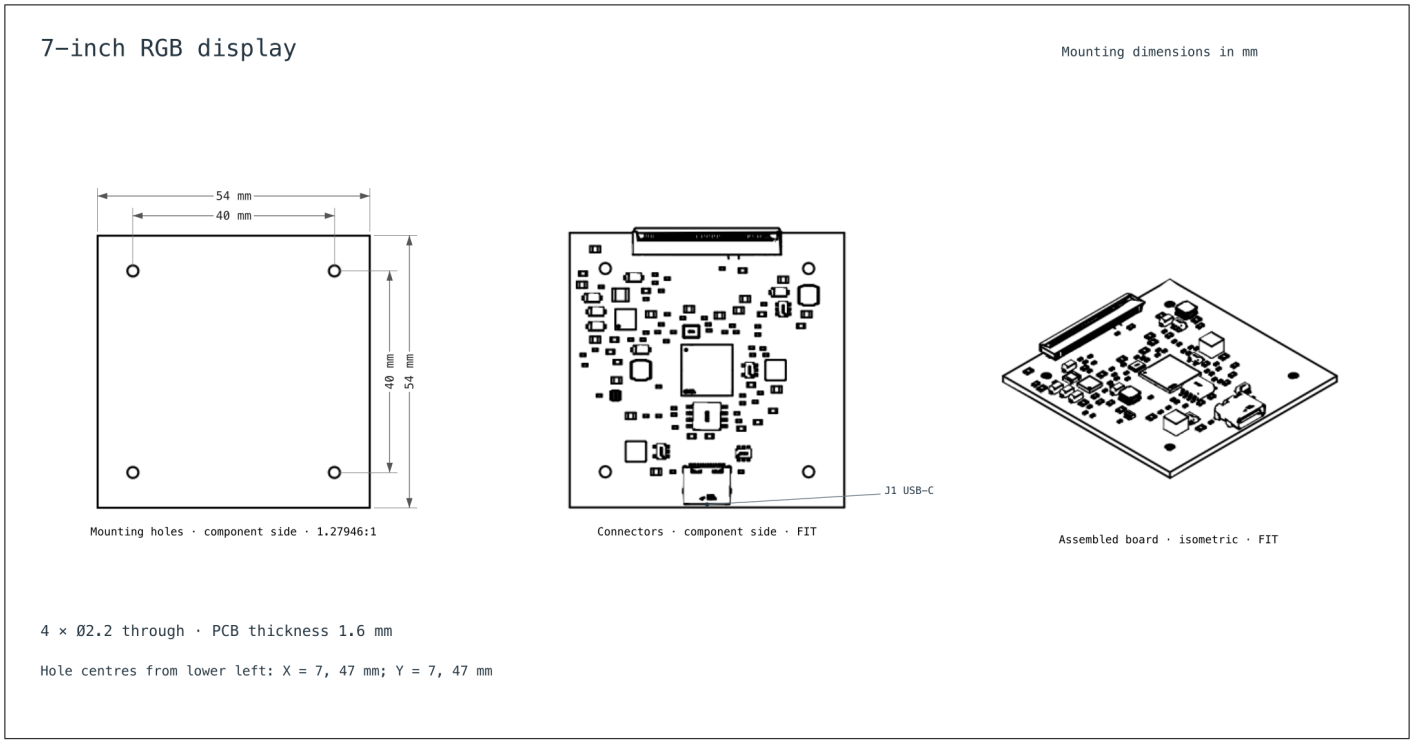
RGB565 parallel scanout · 800 × 480 pixels. This prototype has no published USB command set. The table describes the interface on the PCB.

Operation	Request or signal	Result
Start the panel	Sequence the logic supply, bias supply, reset and backlight.	Brings up the display electronics.
Scan pixels	Drive the most significant RGB inputs and the pixel clock during active video.	Displays pixels from the framebuffer.
Time the scan	Drive DE, HSYNC and VSYNC.	Defines active pixels, line boundaries and frame boundaries.

One full framebuffer occupies 768000 bytes. The controller scans it continuously.

3 Mechanical information

3.1 Assembly and mounting



Component-side plan and isometric assembly. Dimensions in millimeters.

3.2 Installation dimensions

The PCB measures **54 × 54 mm**, with **4 × Ø2.2 mm** clearance holes for M2 screws. The centre-to-centre spacing is **40 × 40 mm**. Orient the component side with the **J1 USB-C port at the bottom**. Measure right and up from the **lower-left corner of the PCB** in the component-side view. The hole centres are at X = 7, 47 mm and Y = 7, 47 mm.

Modeled component height: 3.5 mm above the top PCB surface. All components mount on the top side of the four-layer carrier. The tallest inductors have a ±0.2 mm height tolerance. Allow separate space for the panel and flex cable.

3.3 Design resources

Device guide · **Full-size mounting drawing** · **Drawing TSX** · **PCB source**