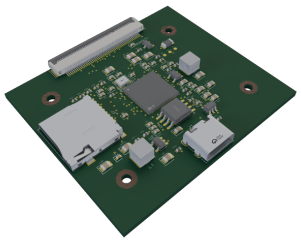
3.5-inch microSD Video Player Board

1.1 Description

A microSD-backed controller designed for local video playback on the 3.5-inch ER-TFT035IPS-6 panel.



Assembly view

1.2 Device specifications

Parameter	Specification
Compatible panel	3.5-inch BuyDisplay ER-TFT035IPS-6, 320 × 480 pixels
Media	microSD, four-bit SD bus
Display interface	16-bit i80 parallel, RGB565
Playback target	30 full frames/s; firmware and hardware playback validation pending
PCB dimensions	56 × 48 mm
Mounting holes	4 × Ø2.2 mm for M2 screws; 40 × 30 mm center spacing

1.3 Using the board

Fit the bare panel and a microSD card, leaving access to the socket on the left edge of the component side. The design targets 30 full frames per second. Playback at that rate still needs firmware and an end-to-end measurement on hardware.

Device guide

2 Protocol reference

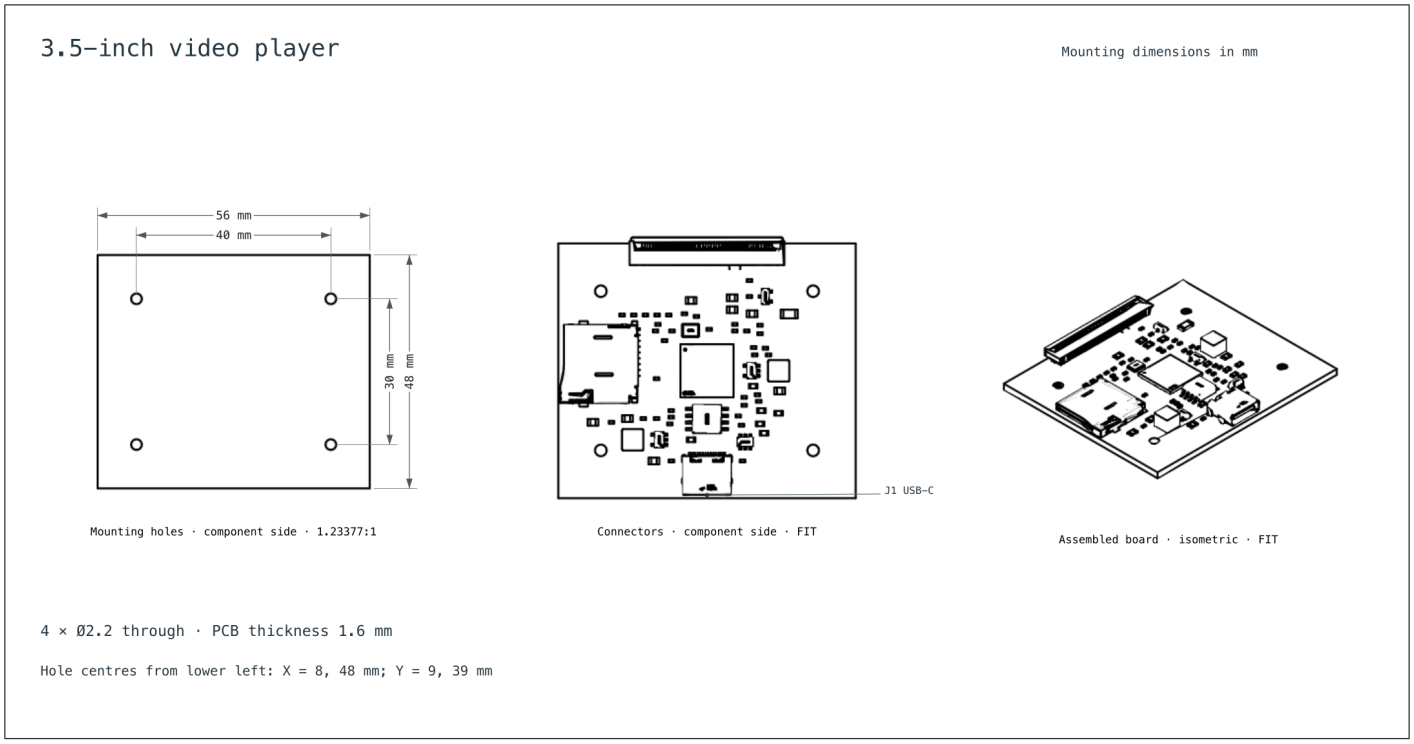
Four-bit SD and 16-bit i80 display bus. This prototype has no published USB command set. The table describes the interface on the PCB.

Operation	Request or signal	Result
Read media	Transfer data from microSD over the four-bit SD bus.	Supplies local video data to the controller.
Select panel operation	Set D/C to command mode and strobe the write line.	Sends a panel command.
Write pixels	Use data mode and clock one RGB565 pixel per write strobe.	A 320 × 480 frame consumes 307200 bytes.

The 30 fps design target requires 9.216 MB/s of pixel data. The USB frame commands documented for the flex display apply to that board’s firmware.

3 Mechanical information

3.1 Assembly and mounting



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

3.2 Installation dimensions

The PCB measures **56 × 48 mm**, with **4 × Ø2.2 mm** clearance holes for M2 screws. The centre-to-centre spacing is **40 × 30 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 = 8, 48 mm and Y = 9, 39 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**