**CBM Tape Pi Rev. 3**

**Module Description**

# Introduction

This is the PCB hardware for RhinoDevel’s CBM Tape Pi project. It is a slight enhancement of the schematic that can be found in his github repository <http://github.com/RhinoDevel/>

The PCB is suitable to hold a Raspberry Pi \*A, \*B and zero (three mounting holes on the baseboard).

The Reset button SW1 is connected to J5, a pin header/solder pad for being connected to the RUN connector (pin 1/square pad) on the Raspberry Pi. Since the position is not fix on every model, this can be accomplished with a cable/dupont connector. Alternatively, the Reset button connects to BCM4 (close solder bridge JP1).

The extras are the barrel connector J2 for a Raspberry Pi power supply (it can be used instead of the fragile USB micro-B connector on the Raspberry Pi itself). Alternatively, a pin header or KF2510/Molex kk 2.54 connector can be installed.

For future developments a rotary encoder and an I²C display (+3.3V supply voltage) can be installed. As of September 2021, both are not yet supported. Refer to RhinoDevel’s repository.

# Connectors

## J1 – CBM Cassette Port

2x6 edge connector (3.96mm pitch)

|  |  |  |  |
| --- | --- | --- | --- |
| **Pin** | **Signal** | **Pin** | **Signal** |
| 1 | GND | A | GND |
| 2 | n.c. | B | n.c. |
| 3 | n.c. | C | Motor |
| 4 | n.c. | D | Read |
| 5 | n.c. | E | Write |
| 6 | n.c. | F | Sense |

n.c.: not connected

## J2 – Raspberry Pi Power Supply

2.1/5.5mm barrel connector

|  |  |
| --- | --- |
| **Pin** | **Signal** |
| inner | +5V |
| outer | GND |

## J3 – I²C Display

KF2510/Molex KK 2.54mm, 4 pins

|  |  |
| --- | --- |
| **Pin** | **Signal** |
| 1 | +3.3V |
| 2 | GND |
| 3 | SCL |
| 4 | SDA |

## J4 – Rotary Encode

KF2510/Molex KK 2.54mm, 5 pins

The pin out is according to the wide spread rotary encoder module KY-040, which can be found on ebay, AliExpress and several online shops.

|  |  |
| --- | --- |
| **Pin** | **Signal** |
| 1 | GND |
| 2 | +3.3V |
| 3 | Switch |
| 4 | Data |
| 5 | Clock |

## J5 – Reset Switch

Pin header, 1 pin

|  |  |
| --- | --- |
| **Pin** | **Signal** |
| 1 | /RESET |

To be connected to the RUN header on the Raspberry Pi.

## J6 – Alternative Power Supply

KF2510/Molex KK 2.54mm, 2 pins

|  |  |
| --- | --- |
| **Pin** | **Signal** |
| 1 | +5V |
| 2 | GND |

## M1 -Raspberry Pi Connector

A 2x20 Pin receptible, assembled on the solder side of the PCB.

| Pin | GPIO | Signal | Comment |
| --- | --- | --- | --- |
| 1 | - | +3.3V | Supply voltage (output) |
| 2 | - | +5V | Supply voltage (input) |
| 3 | SDA | SDA (I²C) | I²C-Bus (display) |
| 4 | - | +5V | Supply voltage (input) |
| 5 | SCL | SCL (I²C) | I²C-Bus (display) |
| 6 | - | GND | Ground |
| 7 | 4 | BCM4 | /Reset , Optional (close JP1) |
| 8 | - | n.c. | - |
| 9 | - | GND | Ground |
| 10 | - | n.c. | - |
| 11 | 17 | BCM17 | Status LED (active HIGH) |
| 12 | 18 | n.c. | - |
| 13 | 27 | ROT\_SW | Rotary Encoder Switch |
| 14 | - | GND | Ground |
| 15 | 22 | BCM22 | Motor (input) |
| 16 | 23 | ROT\_DATA | Rotary Encoder Data |
| 17 | - | +3.3V | Supply voltage (output) |
| 18 | 24 | ROT\_CLK | Rotary Encoder Clock |
| 19 | 10 | BCM10 | Read (output, active HIGH) |
| 20 | - | GND | Ground |
| 21 | 9 | BCM9 | Sense (ouput, inverted) |
| 22 | - | n.c. | - |
| 23 | 11 | BCM11 | Write (input, active LOW) |
| 24 | - | n.c. | - |
| 25 | - | GND | Ground |
| 26 | - | n.c. | - |
| 27 | - | n.c. | - |
| 28 | - | n.c. | - |
| 29 | - | n.c. | - |
| 30 | - | GND | Ground |
| 31 | - | n.c. | - |
| 32 | - | n.c. | - |
| 33 | - | n.c. | - |
| 34 | - | GND | Ground |
| 35 | - | n.c. | - |
| 36 | - | n.c. | - |
| 37 | - | n.c. | - |
| 38 | - | n.c. | - |
| 39 | - | GND | Ground |
| 40 | - | n.c. | - |

# Revision History

## Rev. 2

* Prototype with one botch wire

## Rev. 3

* Botch wire for BCM11 fixed
* The Raspberry Pi has been moved 4mm away from the edge connector (collision on a VIC-20)
* One mounting hole for Raspberry Pi zero added
* J6 added