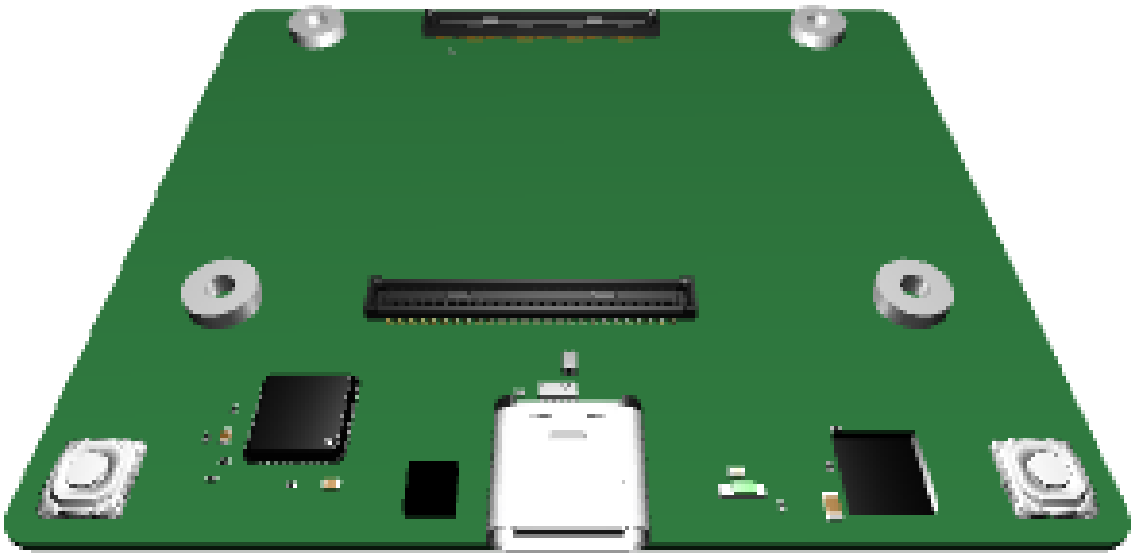
Gumstix Raspberry Pi CM4 FastFlash



This board was designed and built by Geppetto

Free automated documentation anytime.
Design for free @ https://geppetto.gumstix.com/

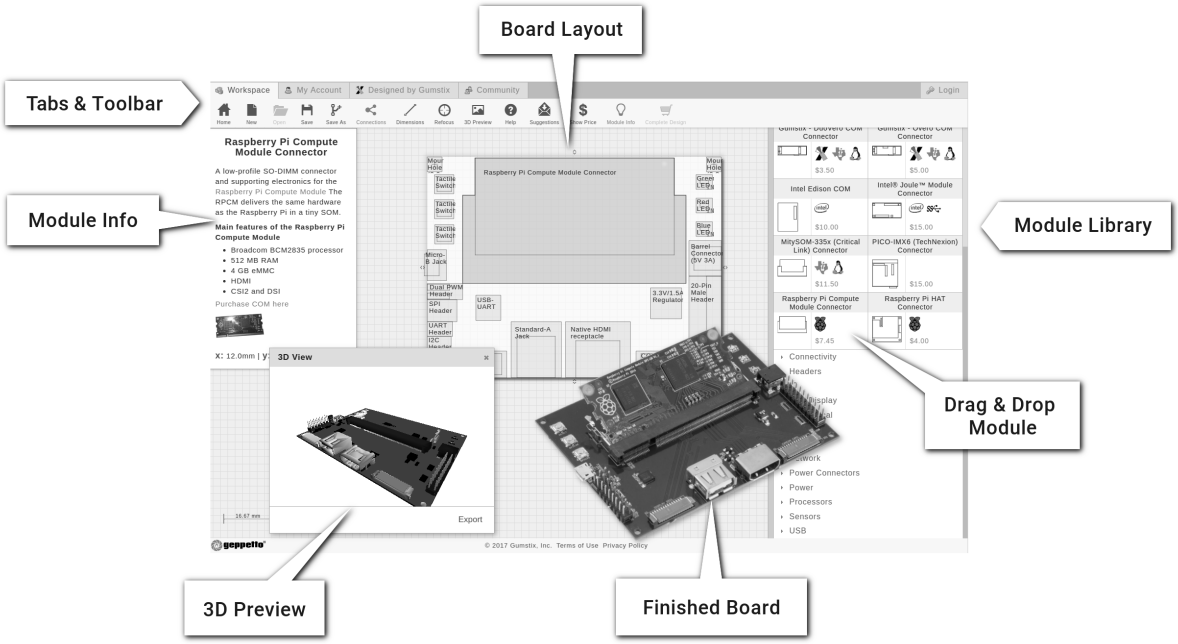
No Minimum Order **Automated Supply Chain** **Reduce Cost and Errors**

geppetto by gumstix

Thanks for using Geppetto to design this board!

One Stop Design-to-Order

Simply place displays, sensors, processors, and Geppetto connects it all.
No routing needed.



Board Description

Uses Raspberry Pi CM4 COM Connector as its COM/processor.

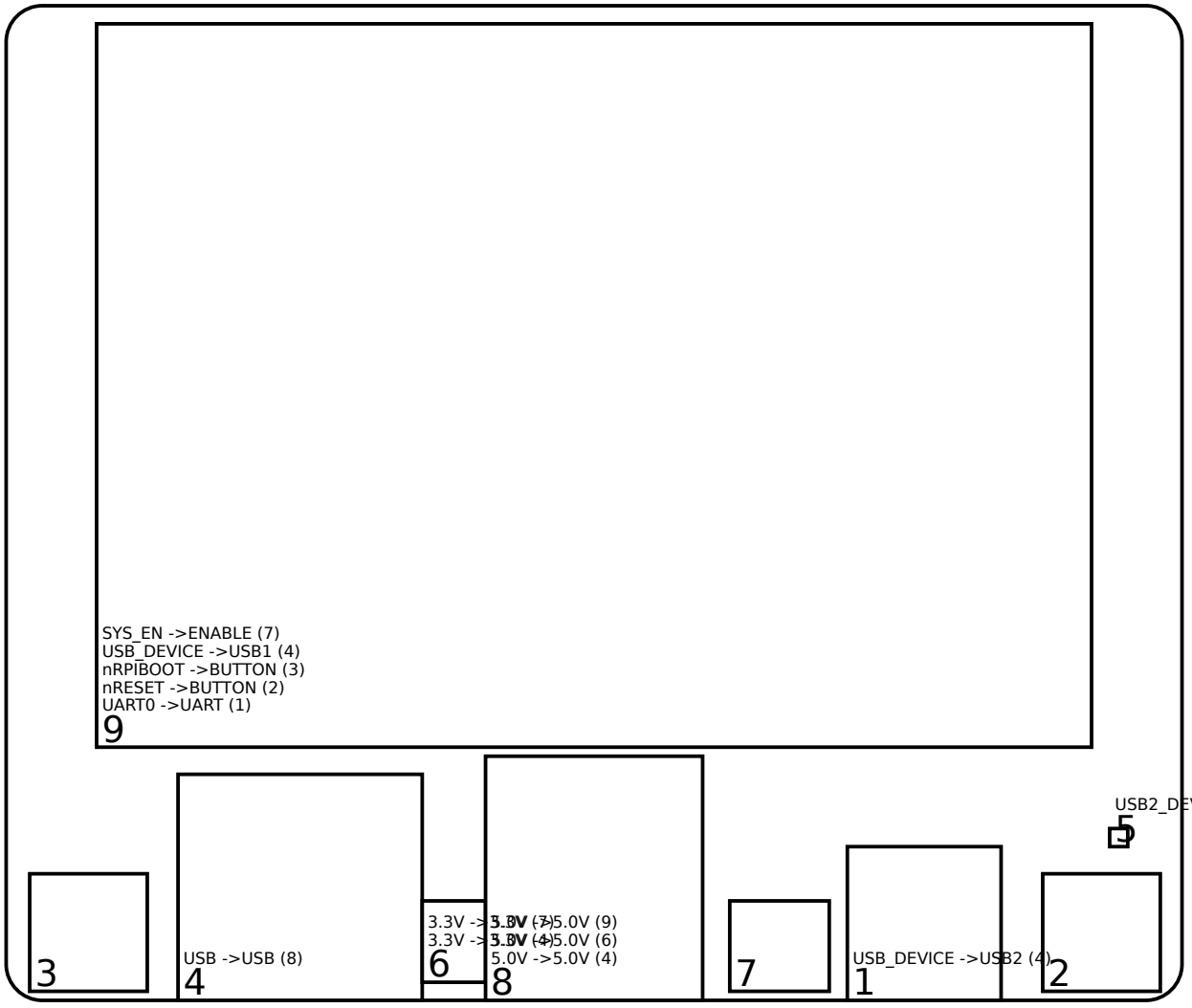
Functional modules include:
USB-UART

Board Dimensions

6.5cm x 5.5cm

Contents

1 Modules on Board



1.1 Converters

1.1.1 USB-UART (v21) (1)

Also known as an FTDI, this USB to UART converter allows a USB connection to the board to behave as a virtual RS232 serial connection. It offers direct and complete access to the system from a development machine by way of the FTDI FT232RQ USB – UART IC.

Technical documentation for the FT232RQ is available at:

`http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT232R.pdf`

This USB to UART converter connects a host machine from 3-Port USB Client Hub (4) to UART0 on Raspberry Pi CM4 Connector (9).

1.2 Lights and Switches

1.2.1 Tactile Switch (v22) (2)

This 4.9 sq. mm pull-down touch switch provides a user input for the signal nRESET on Raspberry Pi CM4 Connector (9).

1.2.2 Tactile Switch (v22) (3)

This 4.9 sq. mm pull-down touch switch provides a user input for the signal nRPIBOOT on Raspberry Pi CM4 Connector (9).

1.2.3 Top-side LED (v12) (7)

The top-side LED module contains a 1608 standard size LED of a user-selected color, mounted on the top side of a Geppetto board.

The LED is active-high on SYS_EN from Raspberry Pi CM4 Connector (9).

1.3 USB

1.3.1 3-Port USB Client Hub (v5) (4)

The 3-port USB client hub module offers three interfaces for on-board USB client devices to a single USB device port using the Microchip USB2513 USB 2.0 Hi-speed Hub Controller.

The datasheet for the USB2513 IC is available at:

`http://ww1.microchip.com/downloads/en/DeviceDoc/00001692C.pdf`

The USB client hub links: USB on USB Type-C PD (5V) (8);
to the following USB device ports:

- USB_DEVICE on USB-UART (1)
- USB2_DEVICE_NC on NC (5)
- USB_DEVICE on Raspberry Pi CM4 Connector (9)

1.3.2 USB Type-C PD (5V) (v1) (8)

A USB Type-C port allows your design to connect as a USB 2.0 and provides up to 3A @ 5.0V.

This port is connected to USB on 3-Port USB Client Hub (4).

1.4 Headers

1.4.1 NC (v18) (5)

No connection

1.5 Power

1.5.1 3.3V/0.15A LDO (v7) (6)

This efficient and precise low-voltage low-dropout DC regulator is optimized for ultra-low noise applications. The module's Micrel MIC5255-3.3YM5-TR provides power to noise-sensitive modules that require a 3.3V input.

The datasheet for the Micrel MIC5255-3.3YM5-TR is available at:

`http://media.digikey.com/pdf/Data%20Sheets/Microchip%20PDFs/MIC5255.pdf`

This LDO regulator recieves 5.0V from USB Type-C PD (5V) (8) and provides 3.3V DC to:

- 3-Port USB Client Hub (4)
- Top-side LED (7)

1.6 COM Connectors

1.6.1 Raspberry Pi CM4 Connector (v1) (9)

The **R**aspberry **P**i **C**ompute **M**odule 4 (RPCM4) module contains two connectors to interface with the RPCM4 device. The RPCM4 COM connector is ONLY compatible with the RPCM4.

Technical details for the RPCM modules can be found at:

https://www.raspberrypi.org/documentation/hardware/computemodule/datasheet.md

It requires:

- 5.0V from USB Type-C PD (5V) (8)

The Geppetto Pi Compute 4 connector provides the following outputs:

- UART0 to USB-UART (1)
- nRESET to Tactile Switch (2)
- nRPIBOOT to Tactile Switch (3)
- USB_DEVICE to 3-Port USB Client Hub (4)
- SYS_EN to Top-side LED (7)

2 Module Connections Graph

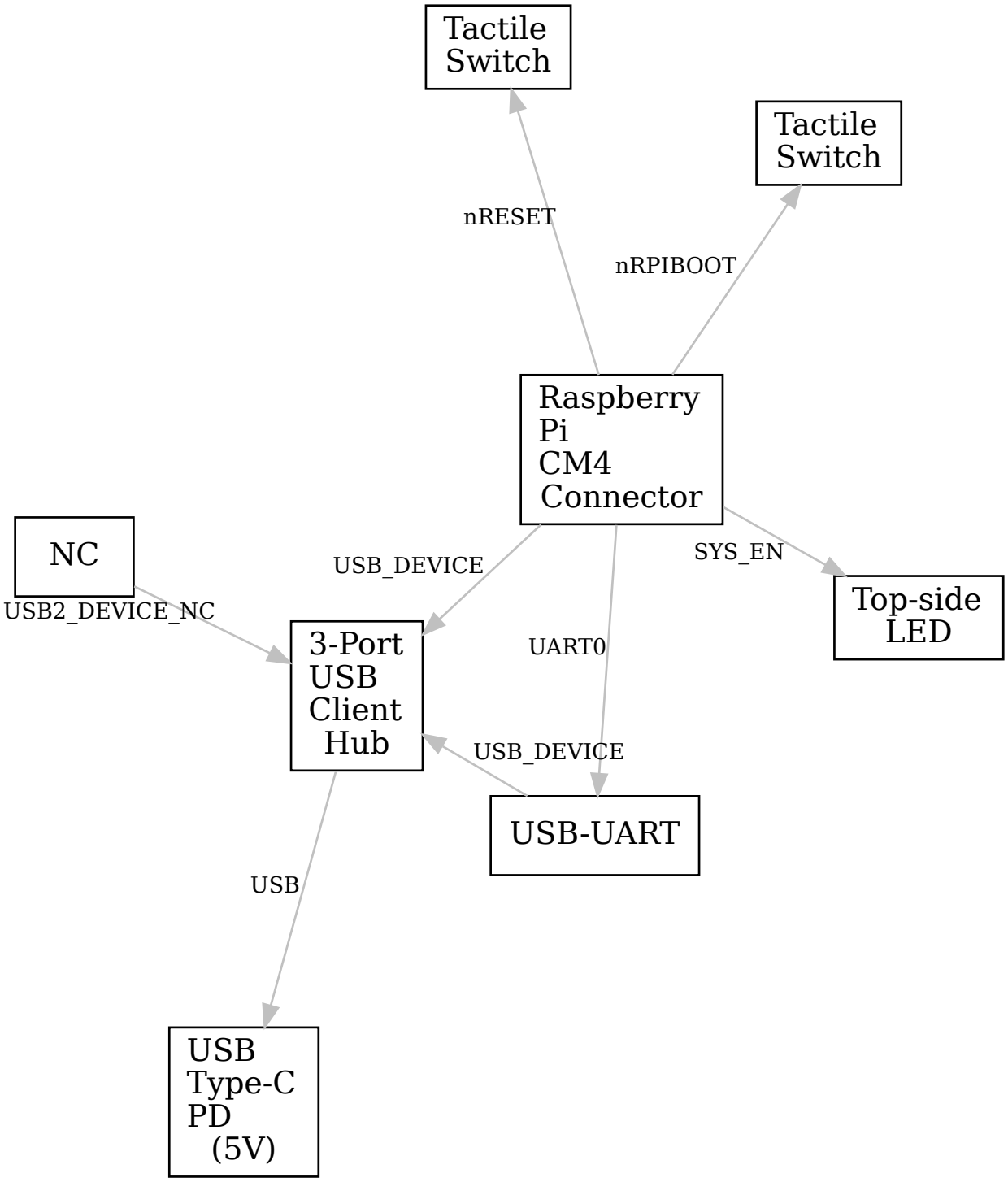


Figure 1: excludes power modules

3 Module Power Graph