

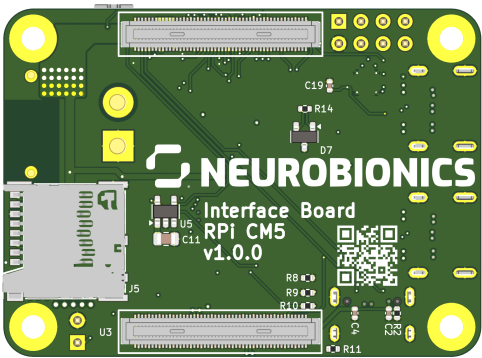
# RPi CM5 Interface Board

Breakout board for the Raspberry Pi Compute Module 5

Board Version 1.0.0

## Features

- Safe RPi Shutdown
- Status LEDs
- Programmable RGB LED
- IMU (Bosch BHI260AP)
- SD Card Slot
- Real-Time Clock
- Test Points



## 1 Overview

The **RPi CM5 Interface Board** is an add-on module for the Raspberry Pi Compute Module 5 (RPi CM5) that is designed to provide plug and play functionality for sensors and actuators across a wide variety of robotics applications. It is built and tested by researchers at the University of Michigan’s Neurobionics Lab.

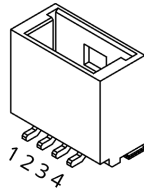
## 2 Technical Specifications

Category	Specification
Module Support	Raspberry Pi Compute Module 5 (CM5) / CM5 Lite
Input Voltage	15V – 60V (XT-30 Connector)   5V (USB-C)
Power Output	5V @ 5A (SMPS)   3.3V @ 1A (LDO)
USB Interface	2x USB-C 3.0 (High-Speed Communication)
CAN Bus	1x CAN Bus (MCP2515 Controller + MCP2562 Transceiver)
Sensors	Bosch BHI260AP (6-Axis IMU) on SPI0 chip select 2
Storage	MicroSD Card Slot (for CM5 Lite boot/storage)
Cooling	4-Pin Fan Connector (PWM Control + Tachometer)
Dimensions	55.00 mm × 40.00 mm × 14.09 mm

### 3 Pinout & Interfaces

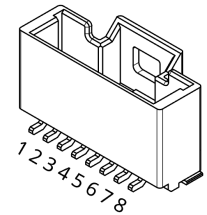
#### UART-1 (Molex PicoClasp, 4-Pin)

Pin	Function
1	+3.3V
2	UART1_TX
3	UART1_RX
4	GND



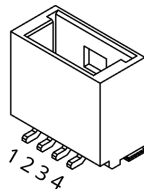
#### SPI-1 (Molex PicoClasp, 8-Pin)

Pin	Function
1	+3.3V
2	SPI1_CSn2
3	SPI1_CSn1
4	SPI1_CSn0
5	SPI1_SCLK
6	SPI1_MISO
7	SPI1_MOSI
8	GND



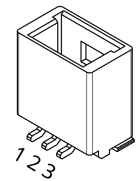
#### UART-2 (Molex PicoClasp, 4-Pin)

Pin	Function
1	+3.3V
2	UART2_TX
3	UART2_RX
4	GND



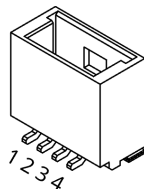
#### CAN Bus (Molex PicoClasp, 3-Pin)

Pin	Function
1	GND
2	CAN_P
3	CAN_N



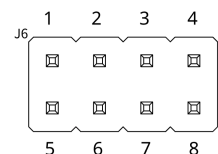
#### I2C-2 (Molex PicoClasp, 4-Pin)

Pin	Function
1	+3.3V
2	I2C2_SDA
3	I2C2_SCL
4	GND



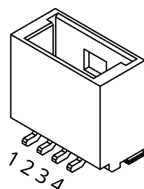
#### GPIO HEADERS

Pin	Function
1	GPIO_25
2	GPIO_23
3	GPIO_7
4	+3.3V
5	GPIO_27
6	GPIO_24
7	GPIO_22
8	GND



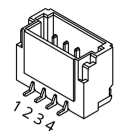
#### I2C-3 (Molex PicoClasp, 4-Pin)

Pin	Function
1	+3.3V
2	I2C3_SDA
3	I2C3_SCL
4	GND



#### Fan Port, JST 4-Pin Connector

Pin	Function
1	Tachometer
2	GND
3	PWM
4	+5V



## 4 Mechanical Details

- **PCB Dimensions:** 55 mm × 40 mm
- **Mounting Holes:** 4 × 2.7 mm (Standard M2.5)
- **Max Height:** 14.09 mm (Top of USB-C connector to bottom pins)

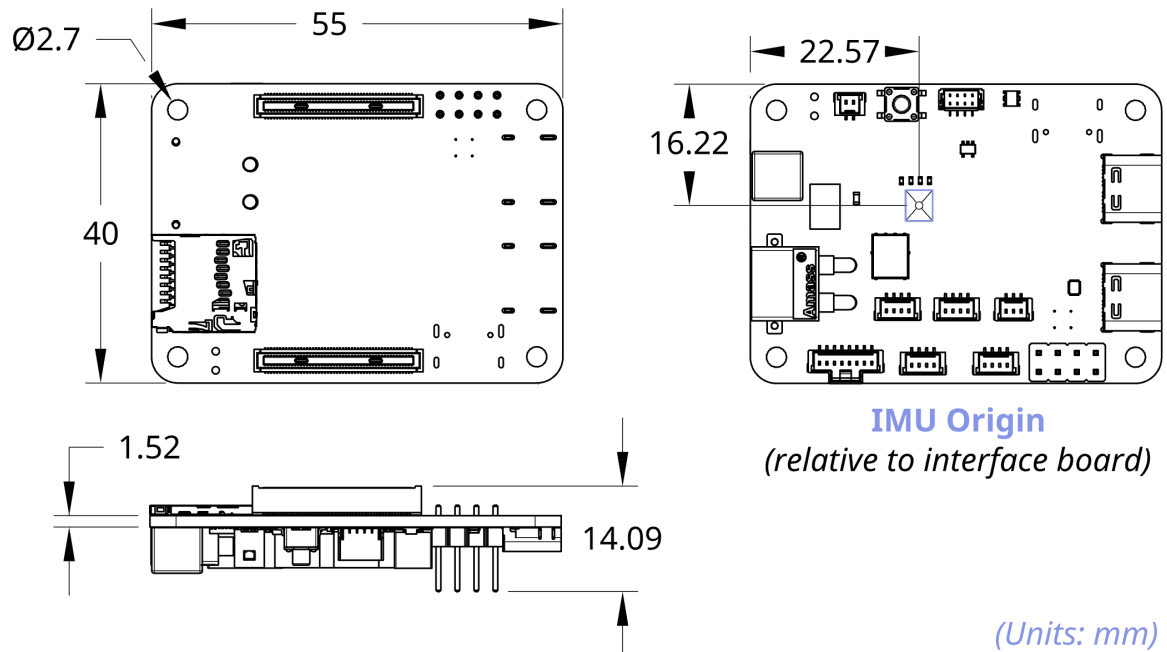


Figure 1: Mechanical Drawing & Sensor Origin