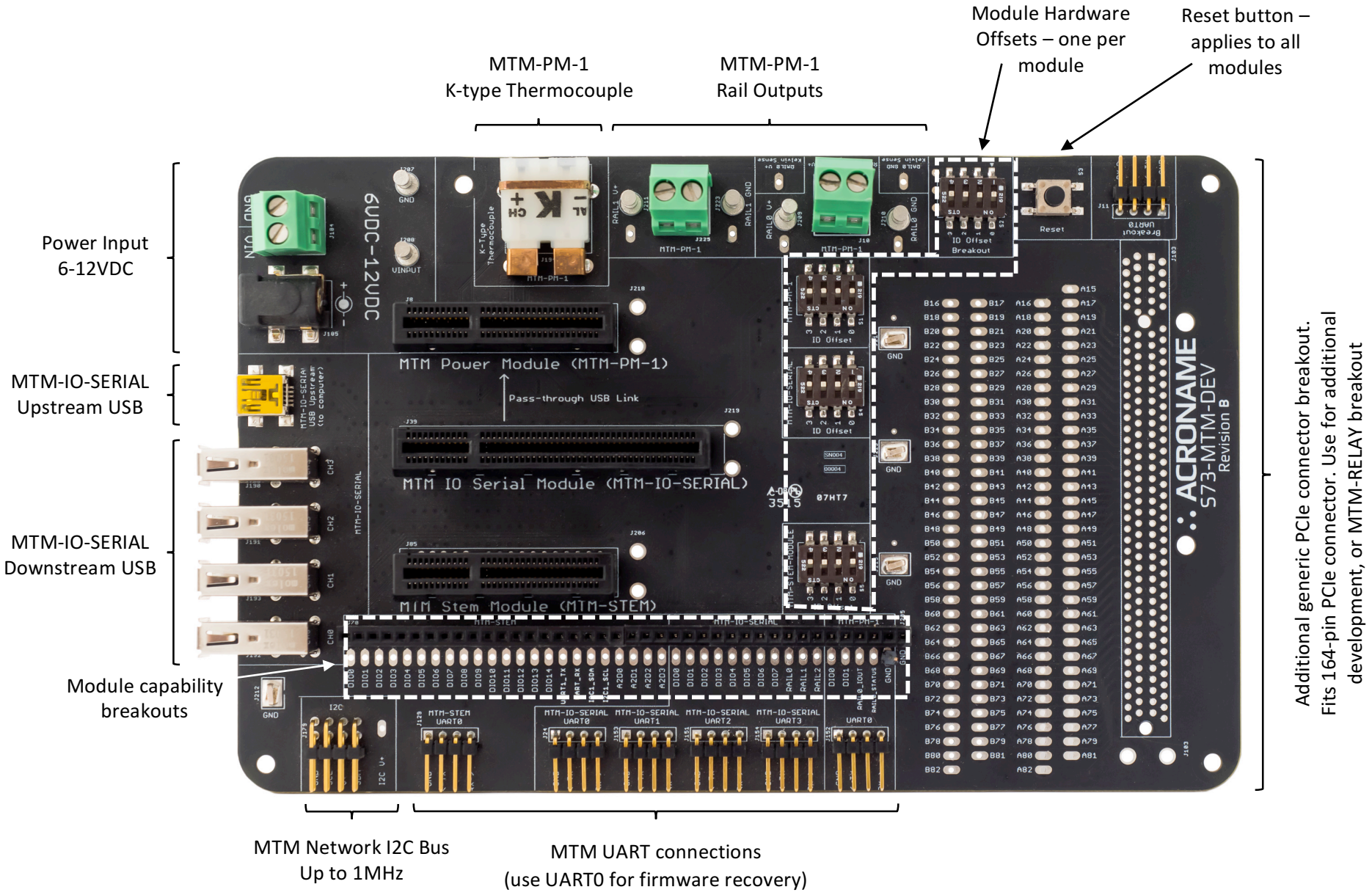


**S73-MTM-DEV: MTM Development Board**

## Overview

The Acroname MTM Development Board (MTM-DEV) is designed to allow development using MTM modules. All standard features are exposed for the MTM-PM-1, MTM-IO-SERIAL, MTM-USBSTEM and MTM-ETHERSTEM modules. A generic 164-pin PCIe connector breakout is also provided, with basics such as a UART0 4-pin header (for firmware recovery) and a module hardware offset DIP switch.

## General Features (applicable to all modules)

- Power Input: Power sufficient for each present module as well as entities in use, at 6-12VDC, must be supplied here. Refer to each module's datasheet for base power consumption. Three options are provided: barrel connector, screw terminal connector, and posts, all of which are tied directly together.
- Reset: The reset button is tied to the reset pin of all module breakouts and can be used to reset all present modules (single press and release), or to put all present modules into "bootstrap" mode (hold Reset for 4+ seconds and release).
- UART0: Use UART0 for firmware recovery only (MTM-IO-SERIAL is an exception). The module must be powered and in "bootstrap" mode (see "Reset").
- I2C: This header provides external access to the MTM BrainStem SMBus Network. Access from each module is provided by the I2C0 entity. The BrainStem network operates at 1MHz, but I2C0 is software-programmable to 100kHz, 400kHz (FM), or 1Mhz (FM+).
- Module Hardware Offsets: Each MTM module, including the non-populated 164-pin PCIe Breakout, has a 4-pin DIP switch provided that connects directly to the Module Hardware Offset pins 0-3 on the module's edge connector. (NOTE: on Revision B, pins 0-1 on the MTM-PM-1 DIP switch are non-functional – DO NOT use these offset pins).
- GND test points: Ground for all MTM modules, rails, etc., are connected to a single GND plane. Use these test points for access.

## MTM-PM-1 Features

- Pass-through USB Link: Upstream USB connection. This connection routes directly from the edge connector downstream USB connection for port 4 of the MTM-IO-SERIAL module to the edge connector upstream USB connection.
- DIO0-1: Both Digital entity pins are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- RAIL0_STATUS and RAIL0_IOUT: The Status pin (RAIL0_STATUS) and current-mirror pin (RAIL0_IOUT) are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- RAIL1: The pass-through power rail output is provided as posts, screw terminal connector, and through-hole solder pads. All outputs route directly from the edge connector pins for RAIL1.

- RAIL0: The programmable power rail output is provided as posts, screw terminal connector, and through-hole solder pads. All outputs route directly from the edge connector pins for RAIL0. Additionally, through-hole solder pads are provided for the RAIL0 Kelvin Sense connections. These pads connect directly to the edge connector pins and should be connected as close to the load as possible.

## MTM-IO-SERIAL Features

- Upstream USB (mini-B): Optional upstream USB connection. This connector routes directly to the edge connector upstream USB connection.
- Downstream USB (Type-A x4): Downstream USB connections. These connectors route directly from the edge connector downstream USB connections for ports 0-3.
- Pass-through USB Link: Downstream USB connection. This connection routes directly from the edge connector downstream USB connection for port 4 to the edge connector upstream USB connection for the MTM-PM-1 module.
- DIO0-7: All 8 Digital entity pins are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- RAIL0-2: All 3 Rail entity pins are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- UART0-3: All 4 UART entities are broken out to 4-pin male headers. Located along the edge of the board next to the digitals breakout.

## MTM-STEM Features

*(MTM-STEM is designed to work for both MTM-USBSTEM and MTM-ETHERSTEM)*

- DIO0-14: All 15 Digital entity pins are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- A2D0-3: All 4 Analog entity pins (0-2 are A2D, 3 is DAC) are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.
- I2C1: Both SCL and SDA for the I2C1 entity are broken out to both a through-hole solder pad and a female header located between the MTM-STEM connector and the UART headers.