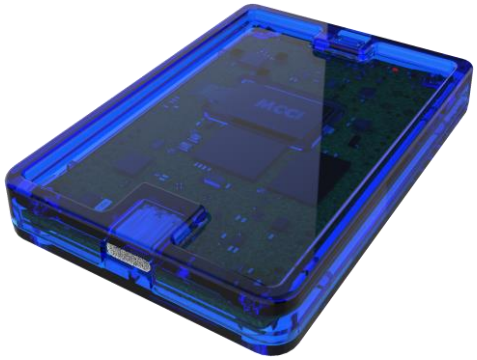
Model 3411 USB 3.2 Gen2 Loopback Device



The MCCI® Model 3411 “Merganser” is a complete single-board USB 3.2 gen2 (10 Gbps) device capable of sustained bidirectional throughput of 8 Gbps. Because it runs effectively at the speed of the bus, it can be used for system data throughput performance testing, manufacturing testing, benchmark testing, and USB host stack and class driver regression testing. It can also be used to test USB 3.2 hub throughput, and test the performance of USB 3.2 transport over Thunderbolt or USB4® fabrics.

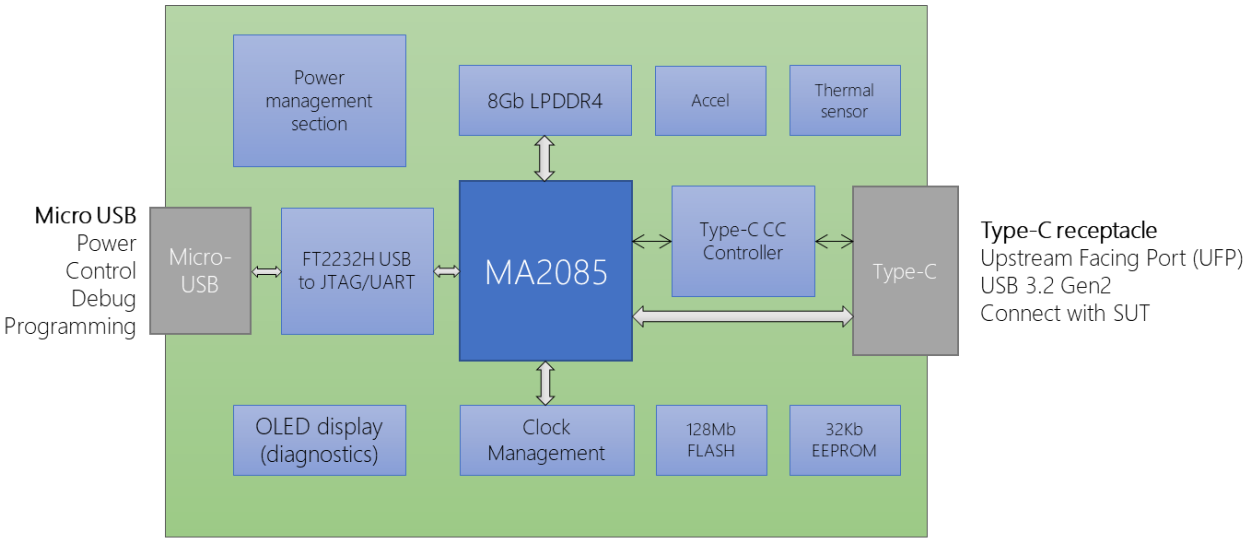
Based on the Movidius MA2085, and driven by the MCCI TrueTask® USB device stack, the Model 3411 allows exercising USB 3.2 gen2 hosts and hubs at their full rated speed, and in all USB 3.2 gen 2 modes: bulk, 96k isochronous and high-bandwidth interrupt pipes. In addition, the 3411 operates at gen1 (5 Gbps signaling), high speed (480 Mbps), and full speed (12 Mbps).

The Model 3411 has two USB ports. It connects to the host under test via a USB-C® port with support for one lane of USB 3.2 gen2. In the simplest configuration, the Model 3411 presents a loopback device to the host and is powered from the host. It connects to a control PC via a micro-B port, presenting a virtual COM port and a JTAG port to the control computer via high-speed USB. The Model 3411 also will preferentially get power from the micro-B port, allowing the Model 3411 to operate without depending on the host power supply.

The 3411 also incorporates sensors and diagnostic features to make it more useful in test and diagnostic applications.

Rugged, lightweight and small, the Model 3411 comes in a tough polycarbonate plastic case.

Block diagram



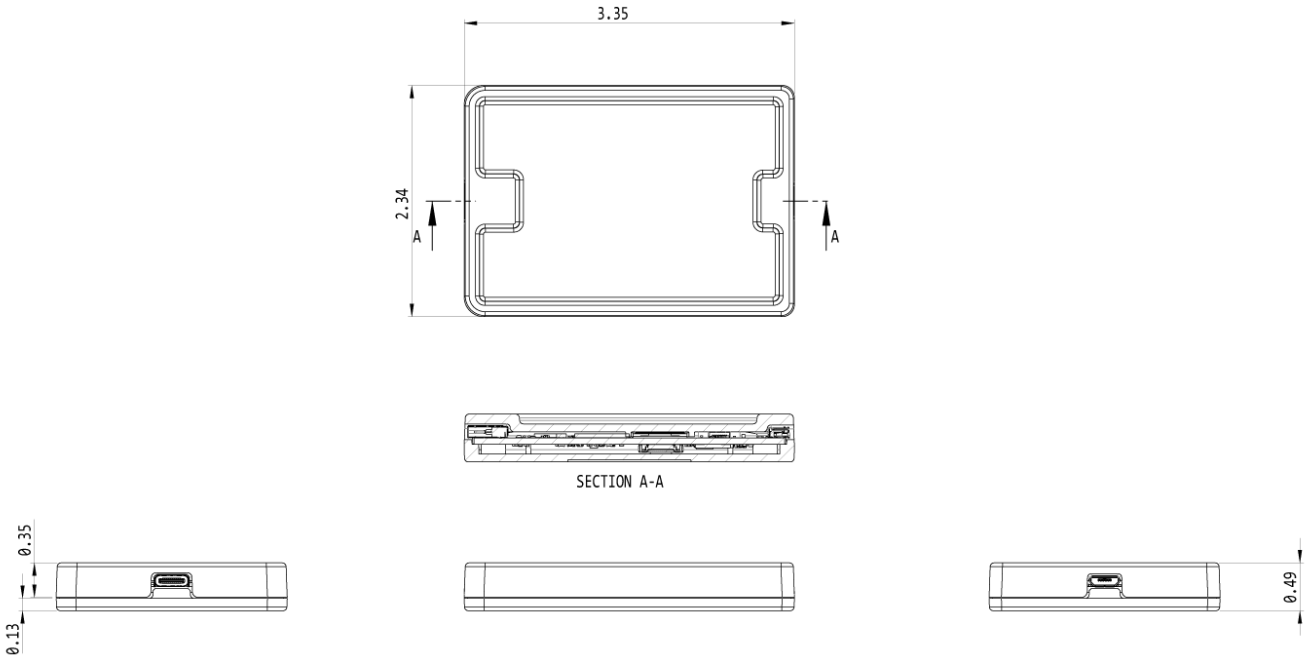
Model 3411 USB 3.2 Gen2 Device

Specifications

CPU	Movidius MV2085 at 800 MHz
RAM	1 gigabyte LPDDR4 DRAM

Flash	16 megabyte SPI flash
EEPROM	4 Kbytes
USB-C port	Upstream facing, bus powered or self-powered device. 10 Gbps signaling. Backward compatible for testing USB 3.2 gen1, high speed and full speed host ports. Default pipe plus up to 4 endpoints in each direction.
Firmware	MCCI loopback firmware and USB-IF XHCI compliance device, selectable via serial port. Optional device class emulation (mass storage, audio 1.0 and 2.0, UVC 1, 1.1, 1.5, CDC ACM and NCM, HID.
Loopback Throughput	Over 8×10^9 bytes IN and OUT concurrently over a pair of bulk pipes, when tested with suitably capable host stack and host controller with one-megabyte transfers.
System Control Software	Running on a separate control PC, a Python-based test suite allows remote control of optional features of 3411.
Micro-B port	Multi-function debug control port, bus powered, high-speed USB. No drivers required on Windows 10 or Linux. Serial port interfaces to MCCI firmware to control personality of Model 3411 and drive test scenarios.
On-board Sensors	Accelerometer for controlling screen organization, thermal sensor for monitoring device temperature. High-side power monitor reports Vbus voltage and power consumption of device.
OLED display	64x48 0.71” OLED display for user feedback.
JTAG interface	Compatible with Movidius MDK tools, allows field software update and debugging.
Case	3.35” x 2.34” x 0.49”, passive cooling
Power	5V, 1.5W typical

Case Dimensions



Price and Availability

The Model 3411 starts at $1,119 qty 1. Price varies based on options and quantity ordered. Firmware variants for special testing requirements are available. For more information, please contact MCCI at sales@mcci.com, Twitter @MCCI, https://mcci.com.