

## ANNEX I – Permissive change on iLine F PRO under FCC ID *2AXQY-I3TFMICG02A*: mPCIe RS-232 extension board

#### Document

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#### Document History

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## Introduction

The iLine F PRO with hardware revision 2.1 presents an issue where the device touchscreen would turn off after a random delay spanning from some hours to several days. The issue root cause has been identified by the computer board manufacturer and located around the Chrontel chip driving the LVDS connected screen, which is not robust enough to interference created by the nearby located RS-232 communication controller which is used to communicate between the device main board and the embedded computer.

The solution that Ovizio opted to implement is to add an mPCIe extension board supplying additional RS232 communication ports and establish the communication between the main board and the embedded computer through this extension board rather than through the RS232 port provided by the computer board. This solution completely bypasses the faulty controller on the embedded computer board and allows to solve the issue in a robust manner. The mPCIe extension board is made by the same manufacturer than the computer board, thus reducing the incompatibility risk.

## Change description

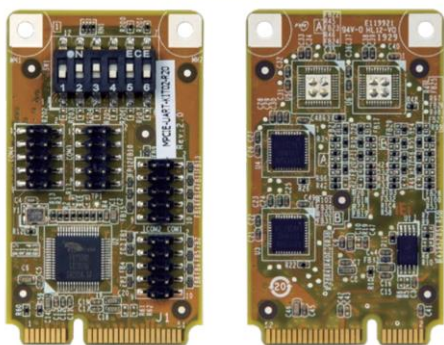
The change consists in adding an extension board to embedded computer empty mPCIe slot, and cabling the device main board to this extension board.

### Hardware change

1. Connect MPCIE-UART-KIT02-R20 extension board to PCIe Mini Slot (MINI\_PCIE1)
2. Connect the device main board (CBB) to one of the RS-232 port on the extension board. This implies replacing the communication cable (PC\_RS232) from the main board (CBB - connector CN11T) to the computer by a new one from the main board to the extension board (same connector on main board side, different connector on computer side, same number of sub-cables and same length).

# MPCIE-UART-KIT02-R20

PCI Express Mini Card Supports  
Dual-port RS-232/422/485, 16-bit  
GPIO, Full Size, RoHS



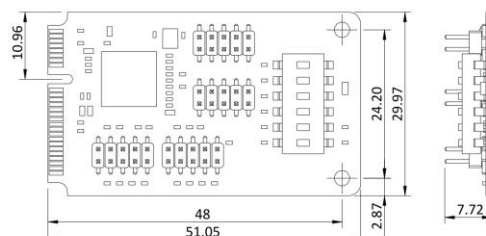
## Specifications

- ◆ Form Factor: PCI Express Mini card
- ◆ PCI Express Bridge to Quad Serial Port: Fintek F81504
- ◆ Buffer/Transceiver Series: F81439
- ◆ IO
  - 2 x RS-232/422/485 (2x5-pin header)
  - 2 x 8 bit GPIO (2x5-pin header)
- ◆ Operating Temperature: 0°C ~ 60°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW): 51 mm x 30 mm
- ◆ Weight: GW: 100g / NW: 50g
- ◆ CE/FCC compliant

## Features

- PCI Express Mini supports dual RS-232/422/485 and 16-bit GPIO ports
- 128 bytes transmit/receive FIFO
- High-speed 16C550/16C650/16C750/16C850 compatible UARTs
- Baud rate supports 115.2K, max. up to 1.5M
- All GPIO supports digit IO for input/output control, output data control, input status
- Support High/Low Level/Pulse, Open Drain/Push Pull function selection

## Dimensions (mm)



## Packing List

1 x MPCIE-UART-KIT02 module	
2 x D-SUB 9 male cable	1 x QIG

## Ordering Information

Part No.	Description
MPCIE-UART-KIT02-R20	PCI Express Mini card supports dual-port RS-232/422/485, 16-bit GPIO, full size, RoHS
E-MPCIE-UART-KIT02-R20	PCI Express Mini supports dual RS-232/422/485, 16 bit GPIO module, full size, for E-Window, RoHS

Figure 1: MPCIE-UART-KIT02-R20 extension board data sheet

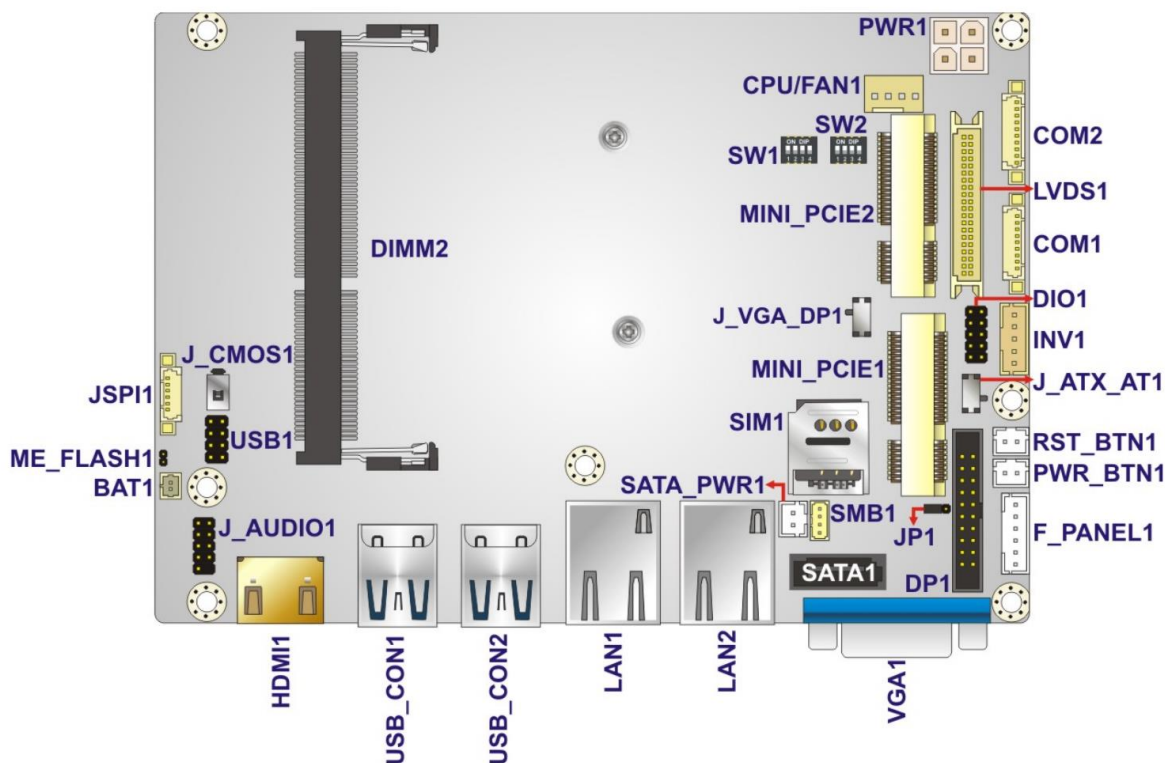


Figure 2: WAFER-ULT4 connectors. The extension board is to be connected to the MINI\_PCIE1 connectors.

## Software change

- Install the Windows driver for the RS-232 extension board.

- Modify the BIOS configuration to disable the internal RS-232 ports (COM1-2), and enable only the ports located on the extension board.

## Implementation

Here below can be found pictures of the implementation.

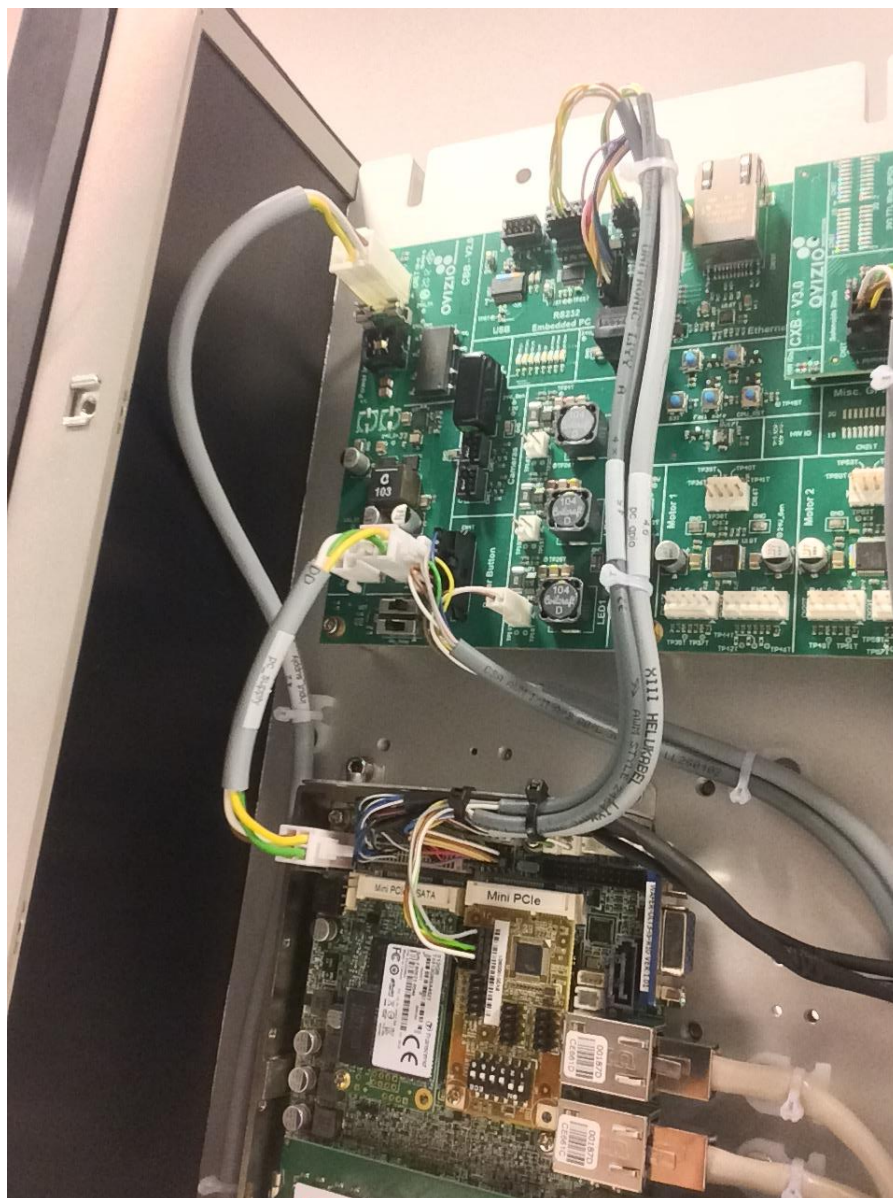


Figure 3: Integration of the PCIe extension board. Global view from the electronics side.



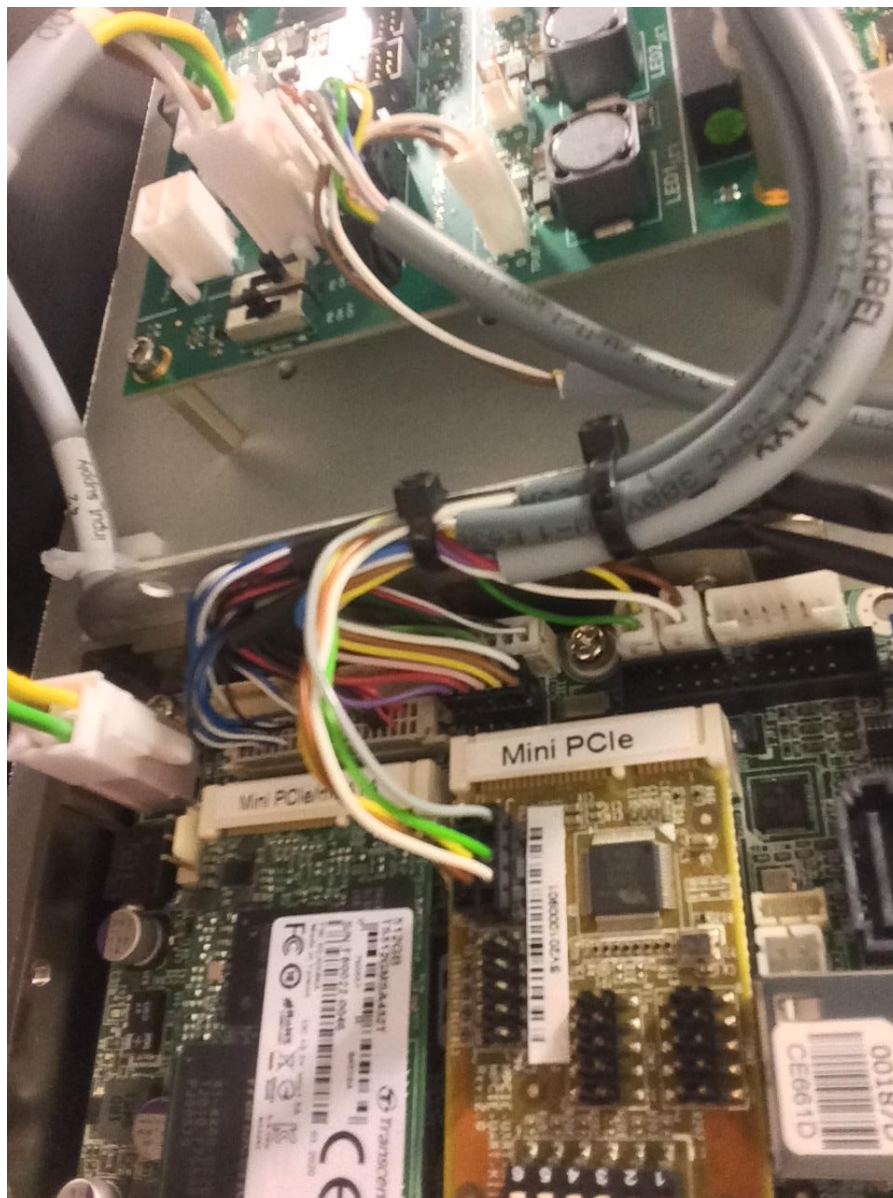


Figure 4: Integration of the PCIe extension board. Detailed view on the computer board.

## Validation Strategy

Ovizio Imaging Systems S.A. will ensure that the iLine F product meets its requirements after the described change by using the following strategy:

- Re-testing that the device is still compatible with FCC Title 47 Part 15 for emission
- Extensive testing that the screen turning off issue is solved
- System testing to validate the functionality of the product.