CELIA Engineering Kit

Quick Start Guide

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Kit Contents

CELIA-E Engineering Kit

- CELIA-E Development board
- 2 LTE/GPS antennas
- 2 SMA to u.FL antenna cables
- AC Power Adapter
- microSD Card with Linux
- Velocity IoT SIM Card
- Ethernet Cable
- Serial Cable for Linux console
- Software and Documentation
- Modem sold separately

Hardware Setup

Diagrams of the CELIA-E board showing all relevant ports and components can be found in Appendix A.

1. Check that the micro-SD card is properly inserted into the micro-SD holder on the board. If it is not fully inserted, gently push into the holder until the card clicks into place.

2. Plug the ethernet cable into Ethernet port on the right side of the CELIA-E board. When the device is powered, the yellow LED on Ethernet port will indicate successful connection. Plug the other end of the ethernet cable into the computer or router.

3. Plug in the UART end of UART-USB cable to the UART pins near the bottom right of the board. The three right most pins of the UART on the board should be used. From right to left, the order of UART cables is green, white, then black.

4. Plug in USB end of USB-UART cable to computer.

5. Plug in power supply cable to the board´s 4-pin power connector located on the top right corner of board. The CELIA-E board can be powered by connecting the power supply cable to a standard power supply outlet. The board can operate between 8V and 30V. Green LED will flash to indicate device is being powered successfully.

Software Setup

Micro-IDE is a Windows-based Integrated Development Environment for micro-controller application development. Micro-IDE has a built-in terminal window to interact with CELIA-E boards through a PC COM port. This software is free to download.
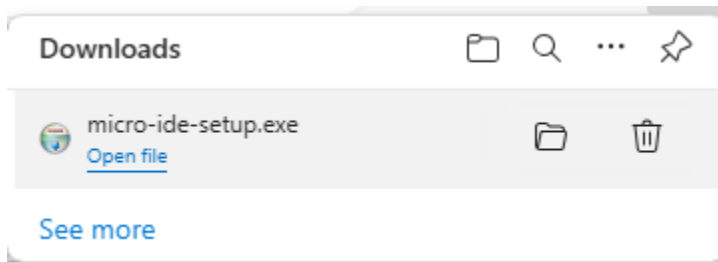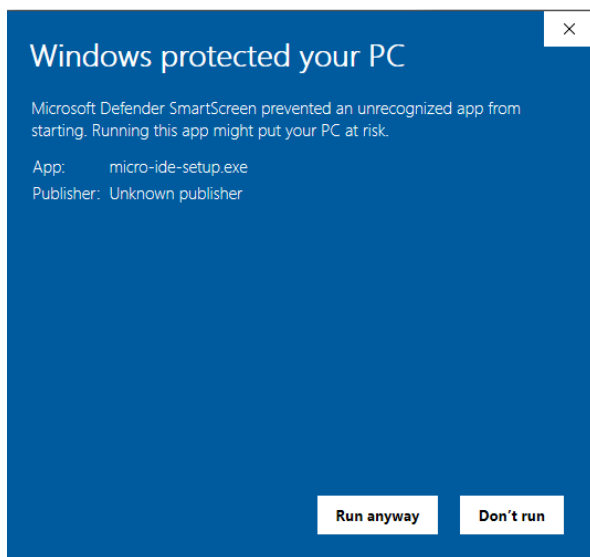
Follow this link to download and install Micro-IDE:

https://www.bipom.com/microide.php

Click the link at the top of the page to access the installation software for Micro-IDE:
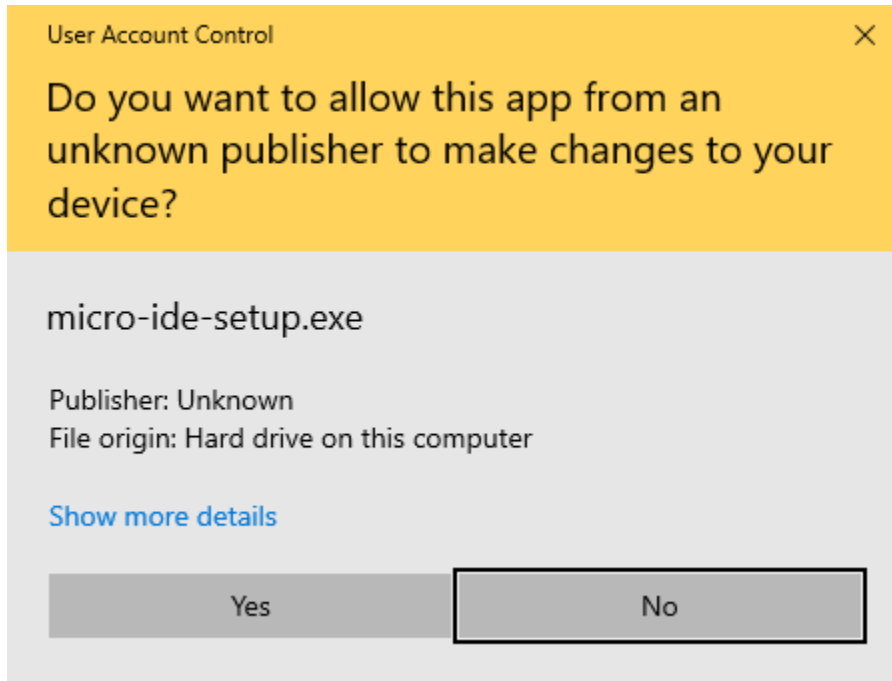

Open the downloaded file once it is finished:

This window may appear. If it does, click "Run Anyway"

This window will appear. Click "Yes":

User Account Control   ×

Do you want to allow this app from an
unknown publisher to make changes to your
device?

micro-ide-setup.exe

Publisher: Unknown
File origin: Hard drive on this computer

Show more details

| Yes | No |

This window will appear. Click "Next":

Micro-IDE Setup   —   □   ×

Welcome to Micro-IDE Setup

Setup will guide you through the installation of Micro-IDE.

It is recommended that you close all other applications
before starting Setup. This will make it possible to update
relevant system files without having to reboot your
computer.

Click Next to continue.

Next >   Cancel

This window will appear. Select a destination for install or use the default location and click "Next":
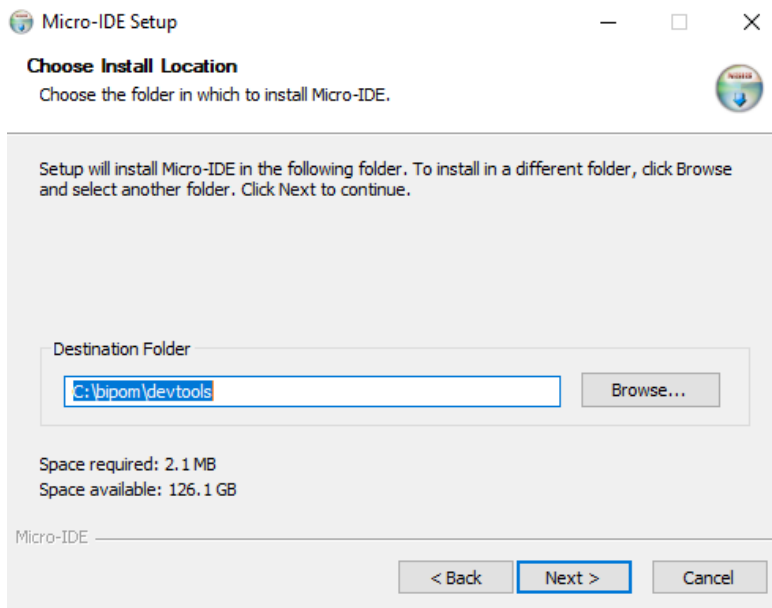
Choose a folder for creating Micro-IDE shortcuts. The default folder "Micro-IDE" can be used. Click "Install" when the folder has been selected:
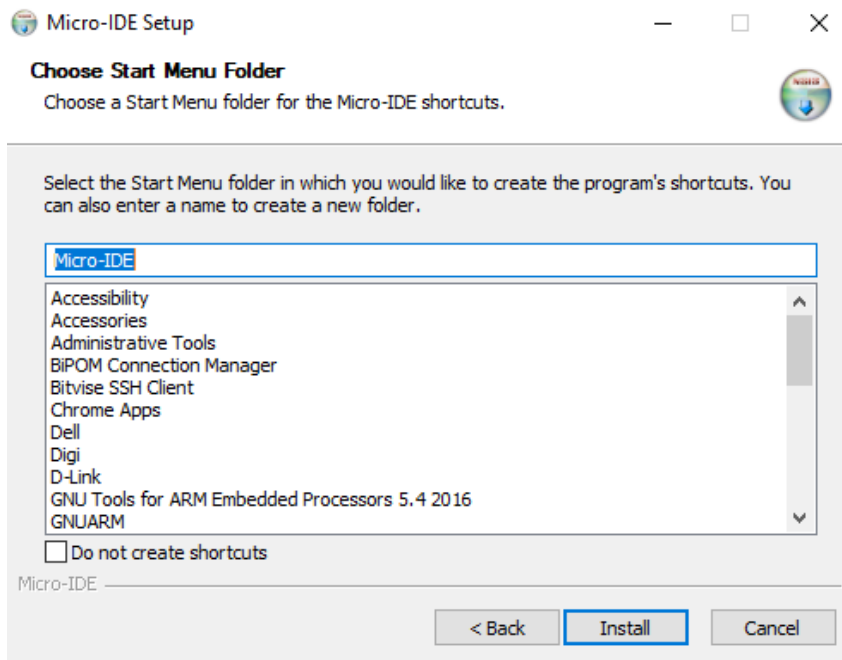
Once Micro-IDE is finished installing, this window will appear. Uncheck the box "Run Micro-IDE" if you are not ready to use the app. Click "Finish". Micro-IDE is now installed and ready to use.

Open Micro-IDE. A window will appear in the middle of the screen, click the "X" at the top right corner to remove this window:
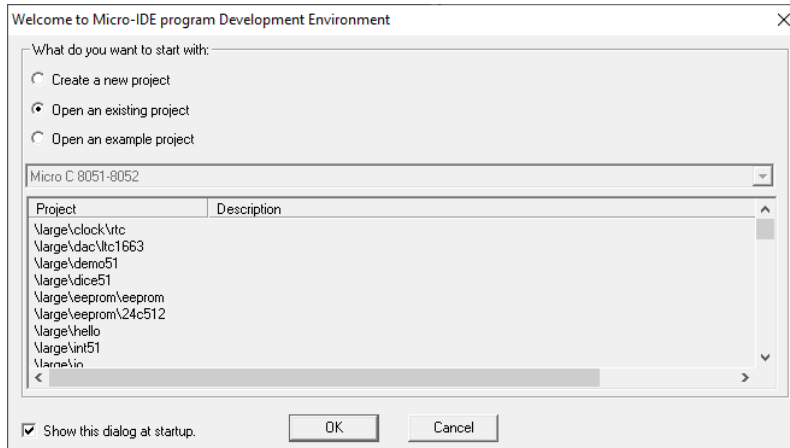
Click on "Tools" button at the top left of the window, then click "Options". Next, click on the "Terminal" tab:
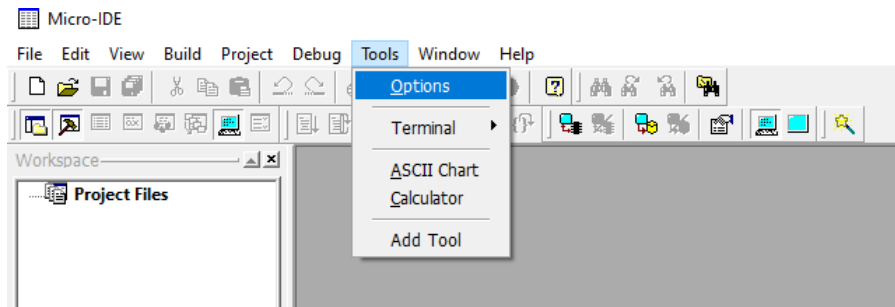
This will open a window with several settings options. Select the correct COM port depending on where the USB-UART cable is connected to the computer. Make sure to select the correct serial port settings as detailed below:

      a.   Baud Rate: 115200
      b.   Data Bits: 8 Bits
      c.   Parity: None
      d.   Stop Bits: 1 Bit
      e.   Flow Control/Echo: None/Off
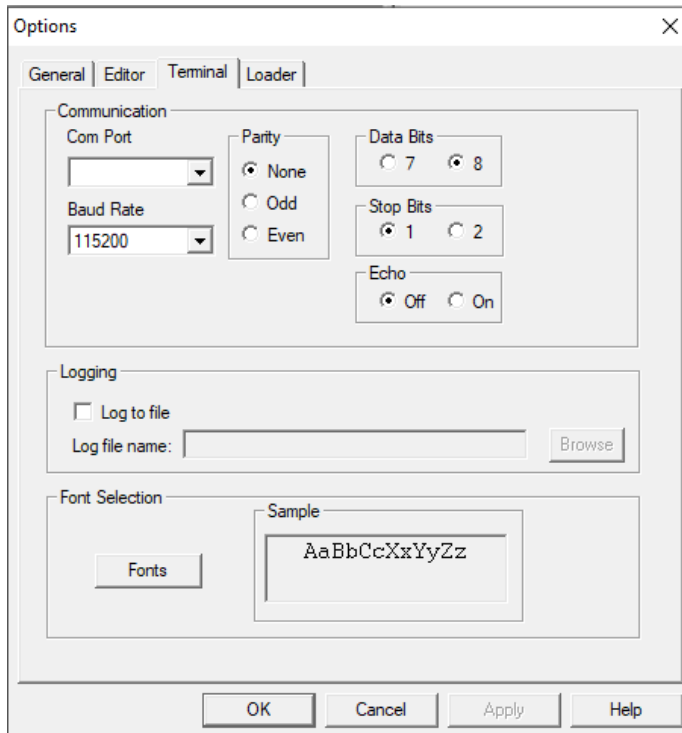
Once all correct settings have been selected, click "OK."

Click the "Connect" button.

This will establish the connection between Micro-IDE and the CELIA board. When terminal is connected, the buttons will appear as shown:
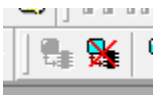
If all cables are properly connected and the Terminal application is running correctly, Linux system will boot, and output should begin to appear in the terminal window of Micro-IDE application (located on the right side of the main window):

Once the Linux system finishes booting, press Enter key. The login prompt should appear. Type user "debian" then press enter:

Next, the password prompt will appear. Type password "tmppwd" then press Enter:

Command prompt should now appear. User is now logged in and can access the CELIA-E's Linux:
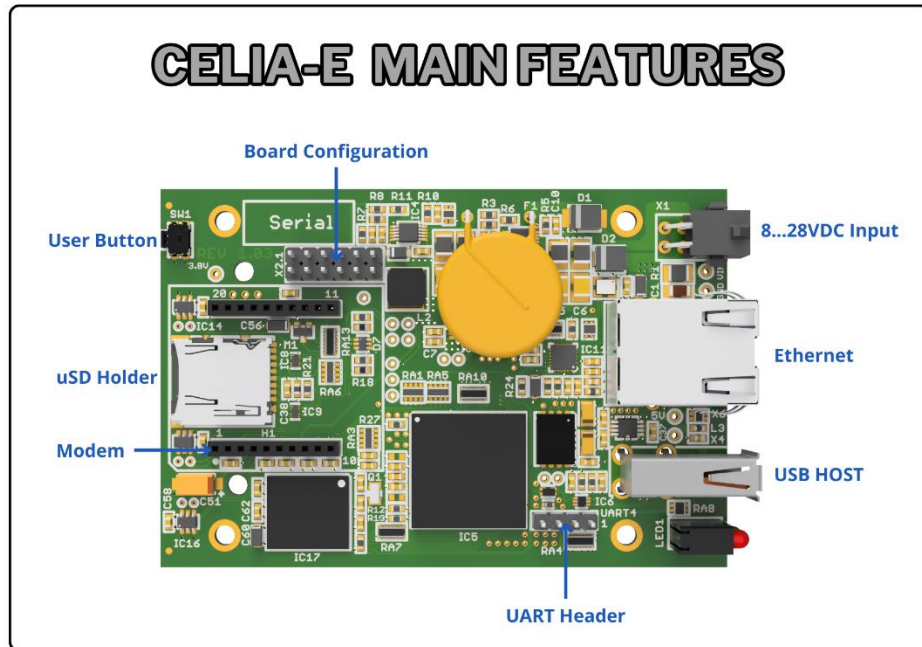
Appendix A: CELIA-E Board Hardware

Figure 1: Diagram of CELIA-E board key features and connections.

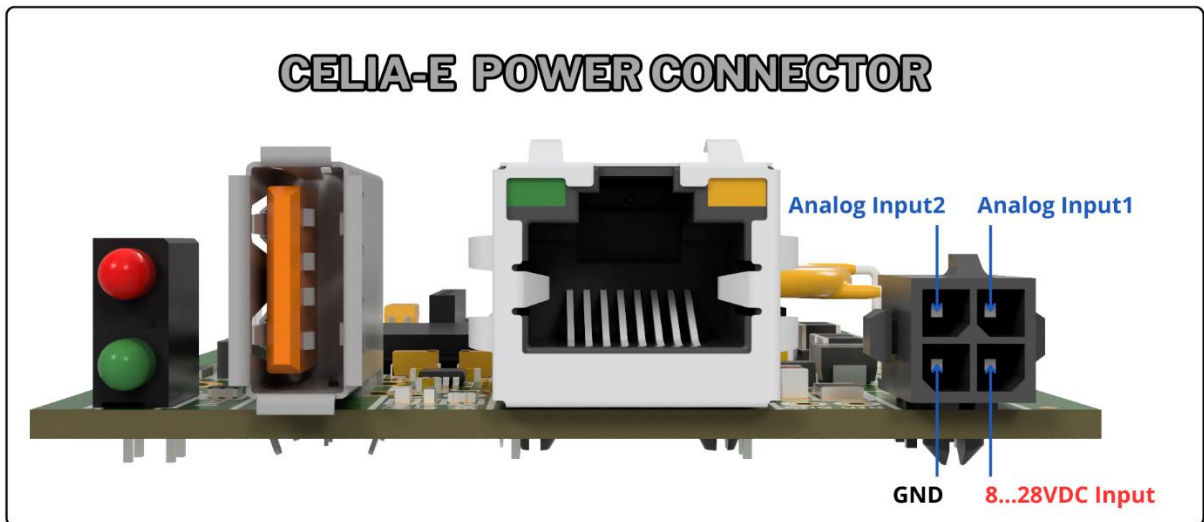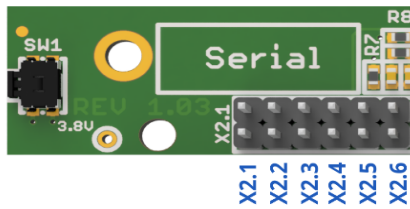**Figure 2:** Diagram of connections for power supply cable connector.

CELIA-E BOARD CONFIGURATION

BOOT Source	X2.3	X2.4	X2.5
eMMC			
UART/USB		✓	
Serial NOR flash	✓	✓	
microSD	✓	✓	✓
Engineering BOOT		✓	✓

X2.1 VREF Configuration:
NOT INSTALL - INTERNAL VREF
INSTALL - VREF = VDDA

X2.6 Modem Power:
NOT INSTALL - 3.8 Volts
INSTALL - 3.3 Volts

X2.2 EEPROM Configuration:
NOT INSTALL - WRITE PROTECT
INSTALL - PROGRAM

Figure 3: Configuration of CELIA-E board pins

CELIA-E UART CONNECTION

Ground
CELIA-E Receive
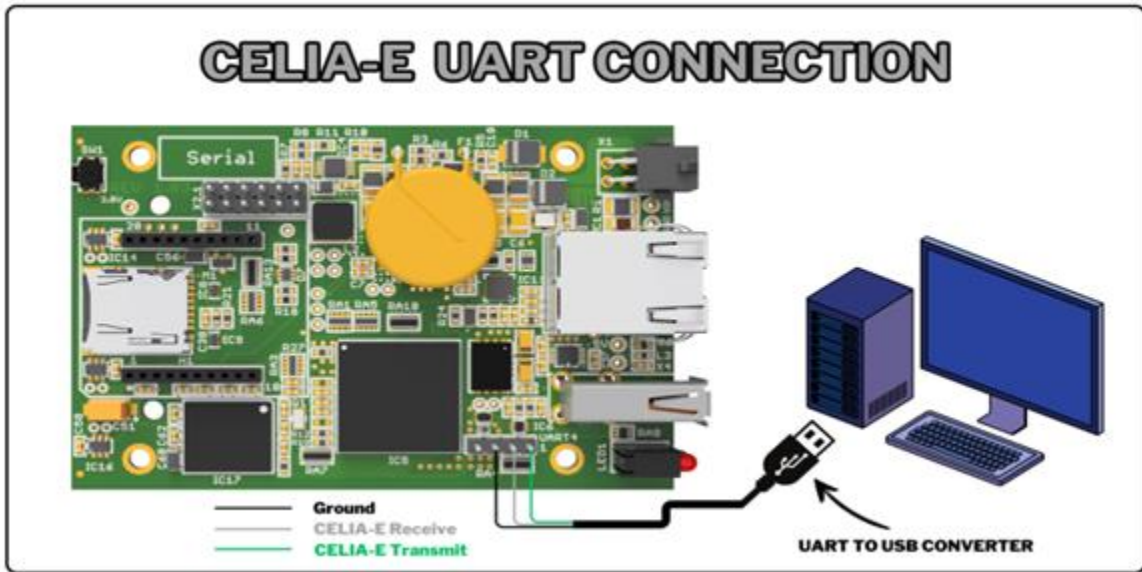**CELIA-E Transmit**

UART TO USB CONVERTER

Figure 4: UART connections

Figure 5: Skywire Modem Orientation

"Incorrect orientation of modem may cause permanent damage to modem and CELIA board !!!"