

CELIA Engineering Kit Quick Start Guide

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Kit Contents





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:

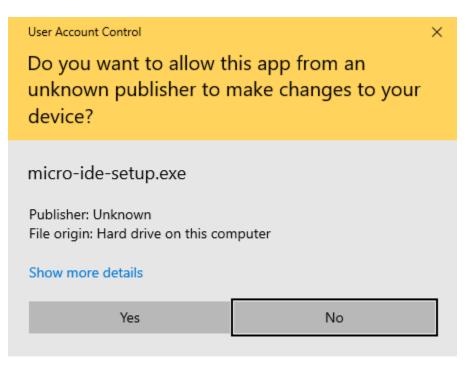
Downloads	◘ < … ☆
micro-ide-setup.exe Open file	ē
See more	

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

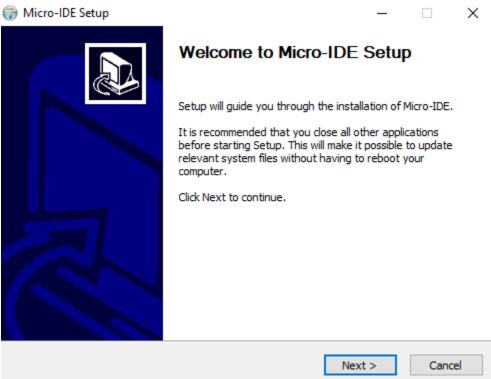




This window will appear. Click "Yes":



This window will appear. Click "Next":





This window will appear. Select a destination for install or use the default location and click "Next":

🌍 Micro-IDE Setup	_		\times
Choose Install Location Choose the folder in which to install Micro-IDE.			
Setup will install Micro-IDE in the following folder. To install in a differen and select another folder. Click Next to continue.	t folder,	click Brov	wse
Destination Folder C:\bipom\devtools	Brov	wse	
Space required: 2.1 MB Space available: 126.1 GB Micro-IDE	t>	Car	ncel

Choose a folder for creating Micro-IDE shortcuts. The default folder "Micro-IDE" can be used. Click "Install" when the folder has been selected:

词 Micro-IDE Setup			_		\times
Choose Start Menu Folder Choose a Start Menu folder for the Micro-IDE s	hortcuts.				
Select the Start Menu folder in which you would can also enter a name to create a new folder.	d like to create t	ne progra	m's shor	tcuts. Yo	JU
Micro-IDE Accessibility Accessories Administrative Tools BiPOM Connection Manager Bitvise SSH Client Chrome Apps Dell Digi					^
D-Link GNU Tools for ARM Embedded Processors 5.4 GNUARM Do not create shortcuts	2016				~
Micro-IDE	< Back	Insta	11	Can	icel

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:

Welcome to Micro-IDE program	Development Environment	×
What do you want to start with:		
C Create a new project		
 Open an existing project 		
C Open an example project		
Micro C 8051-8052		_
Project	Description	^
Varge\dock\ttc Varge\dockttc Varge\docktc Varge\docb1 Varge\eprom\eprom Varge\eprom\24c512 Varge\nello Varge\in51 Varge\in51 Varge\in51		*
Show this dialog at startup.	OK Cancel	

Click on "Tools" button at the top left of the window, then click "Options". Next, click on the "Terminal" tab:

Micro-IDE	
File Edit View Build Project Debug	Tools Window Help
] 🗅 🚅 🖬 🕼 👗 🖬 🛍 🕰 🕰 🧯	👤 Options 🔰 🕅 🕅 🖓 🖓 🐂
	Terminal 🔸 🖓 🔩 號 🔂 🅦 🖀 📃 🎘
Workspace A	ASCII Chart
Project Files	<u>C</u> alculator
	Add Tool

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

BiPOM Electronics,

- c. Parity: None
- d. Stop Bits: 1 Bit
- e. Flow Control/Echo: None/Off





Options			×
General Editor Terminal Communication Com Port	Loader	Data Bits	
Baud Rate	 None Odd Even 	C 7 © 8 Stop Bits © 1 C 2 Echo © Off C On	
Logging			Browse
Font Selection	Aa	aBbCcXxYyZz	
	ОК	Cancel Apply	Help

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:

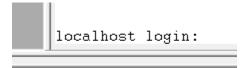




If all cables are properly connected and the Terminal application is running correctly, Linux system will boot, and output should begin to appear in the terminal window of Micro-IDE application (located on the right side of the main window):

Terminal
[[0;32m OK [Om] Started [0:1;39mDaily apt upgrade and clean activities[Om.
[[0;32m OK [Om] Started [0:1:39mPeriodic ext4 Onli†ata Check for All Filesystems[Om.
[[0;32m OK [Om] Started [0;1;39mDaily exim4-base housekeeping[Om.
[[0;32m OK [Om] Started [0;1;39mDiscard unused blocks once a week[Om.
[[0;32m OK [Om] Started [0;1;39mDaily rotation of log files[Om.
[[0;32m OK [Om] Reached target [0;1;39mTimers[Om.
[[0;32m OK [Om] Listening on [0:1:39mD-Bus System Message Bus Socket[Om.
[[0;32m OK [Om] Listening on [0;1;39mPC/SC Smart Card Daemon Activation Socket[Om. [[0;32m OK [Om] Listening on [0;1;39mUUID daemon activation socket[Om.
[[0:32m] OK [Um] Fistering on [0:1:35moorb demon activation socket[um.]
[[0;32m] OK [Om] Reached target [0;1:3mBasic System[Om.
[[0,32m] OK [Om] Started [0];1;39mRequiar background program processing daemon[Om.
[[0;32m OK [Om] Started [[0;1:39mD-Bus System Messade Bus[Om.
Starting [0:1:39mRemove Stale Onliče: t4 Metadata Check Snapshots[0m
Starting [0;1:39mLSB: exim Mail Transport Agent[Om
Starting [0:1:39mLSB: Load kernel & t d to enable cpufreq scaling[0m
Starting [0;1;39mOpenVPN service[0m
Starting [0;1;39m/etc/rc.local Compatibility[0m
Starting [0:1:39mSystem Logging Service [0m
Starting [0;1;39mOpenBSD Secure Shell server[0m
Starting [0;1;39mUser Login Management[Om
Starting [0:1:39mPermit User Sessions[0m
Starting [0;1;39mEnable USB Ethernet gadget[0m
[[0;32m OK [Om] Started [0;1:39m/iPOM Service[Om.
[18.170379] stm32-dwmac 5800a000.ethernet eth0: Link is Up - 100Mbps/Full - flow control rx/tx [18.177660] IPv6: ADDRCONF(NETDEV_CHANGE): eth0: link becomes ready
[[0:32m OK [Om] Started [0:1:39mSystem Logging Service[Om.
[[0;32m] OK [0m] Finished [0;1;39mRemove Stale Onliå@!ext4 Metadata Check Snapshots[0m.
[[0;32m] OK [Om] Finished [0;1;39mOenDev State Onlarge, et Metadata check Shapshots[om.
[[0;32m OK [Om] Finished [0;1;33m]Permit User Sessions[Om.
[[0;32m OK [Om] Finished [0;1;39mEnable USB Ethernet gadget[Om.
[[0;32m OK [Om] Started [0;1;39mOpenBSD Secure Shell server[Om.
jj0;32m OK jOmj Started j0;1;39mUser Login Management[Om.
[[0;32m OK [Om] Started [0;1;39mLSB: Load kernel mathed to enable cpufreq scaling[Om.
Starting [0;1;39mLSB: set CPUFreq kernel parameters[0m
[[0;32m OK [Om] Started [0;1;39mLSB: set CPUFreq kernel parameters[Om.
[[0;32m OK [Om] Started [0;1;39mLSB: exim Mail Transport Agent[Om.
[23.125410] rc.local[741]: /home/debian/tools/mac_address: EEPROM is empty
[27.442198] rc.local[826]: /home/debian/tools/eeprom_info: EEPROM is empty
29.853710] rc.local[1037]: /home/debian/tools/bipom_cert: EEPPROM is empty
[33.768873] usb33: supplied by vdd_usb [33.771385] v3v3_eth: disabling
[33.//1303] V3V3_BCh: disabiling

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:

```
Password:
```

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

```
[?20041
[?2004hdebian@localhost:~$ |
```



Appendix A: CELIA-E Board Hardware

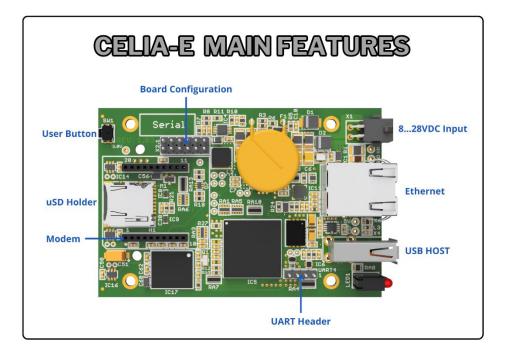


Figure 1: Diagram of CELIA-E board key features and connections.



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



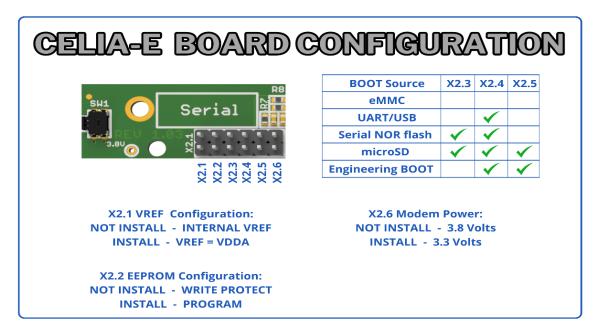


Figure 3: Configuration of CELIA-E board pins

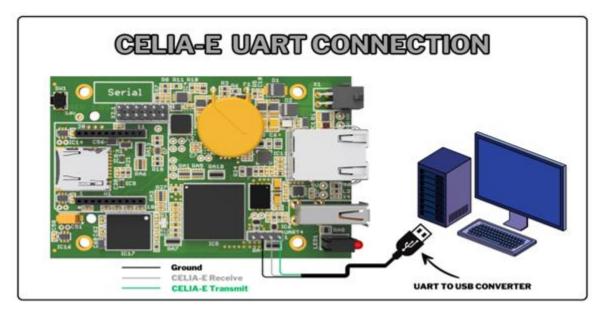


Figure 4: UART connections





Figure 5: Skywire Modem Orientation

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