

phyCORE[®]-i.MX 8M Plus phyBOARD[®]-Pollux/SBC Kit

Get your phyCORE-i.MX 8M Plus powered up and connected in just a few simple steps.

1 | PREPARING THE HARDWARE

1. Have the included connection cables at hand: You need a USB-A to USB-B micro cable, a standard Ethernet cable and the power adapter (+24 V / 1 A).
2. Connect the USB cable to your host PC and the Debug FTDI (X1).
3. Set the Boot Mode DIP Switch (S3) to SD Card (Figure 1).
4. Insert the USB drive into the host PC.
5. Power up the **phyCORE-i.MX 8M Plus**.
Connect the power adapter (+24 V DC) to the power supply connector (X23).
6. Turn your power supply on.

Kit Contents

phyBOARD-Pollux with phyCORE-i.MX 8M Plus Power Adapter +24 V RS-232 Cable SD Card
PB-03123-001.Ax



Ethernet Cable

USB flash drive with Virtual Machine

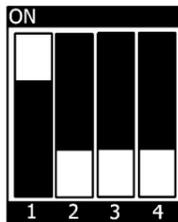
USB-A to USB-B Micro Cable



Optional Accessories

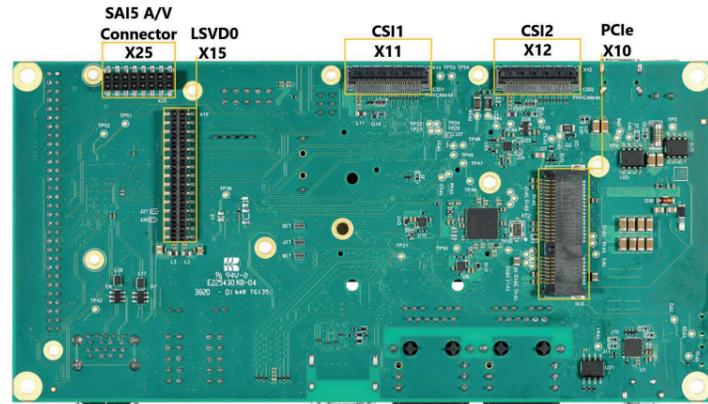
- Display Kit 10" LVDS Direct Connection
- KLCD-AC168.A0
- Display Kit 7" LVDS A/V Adapter Connection
- KPEB-AV-10
- Sterling WIFI-Bluetooth Expansion Board (2.4GHz/5GHz)
- PEB-WLBT-05
- Heatspreader XK048
- Heatsink XK049

Figure 1: Boot Mode DIP Switch (S3) SD Card Setting

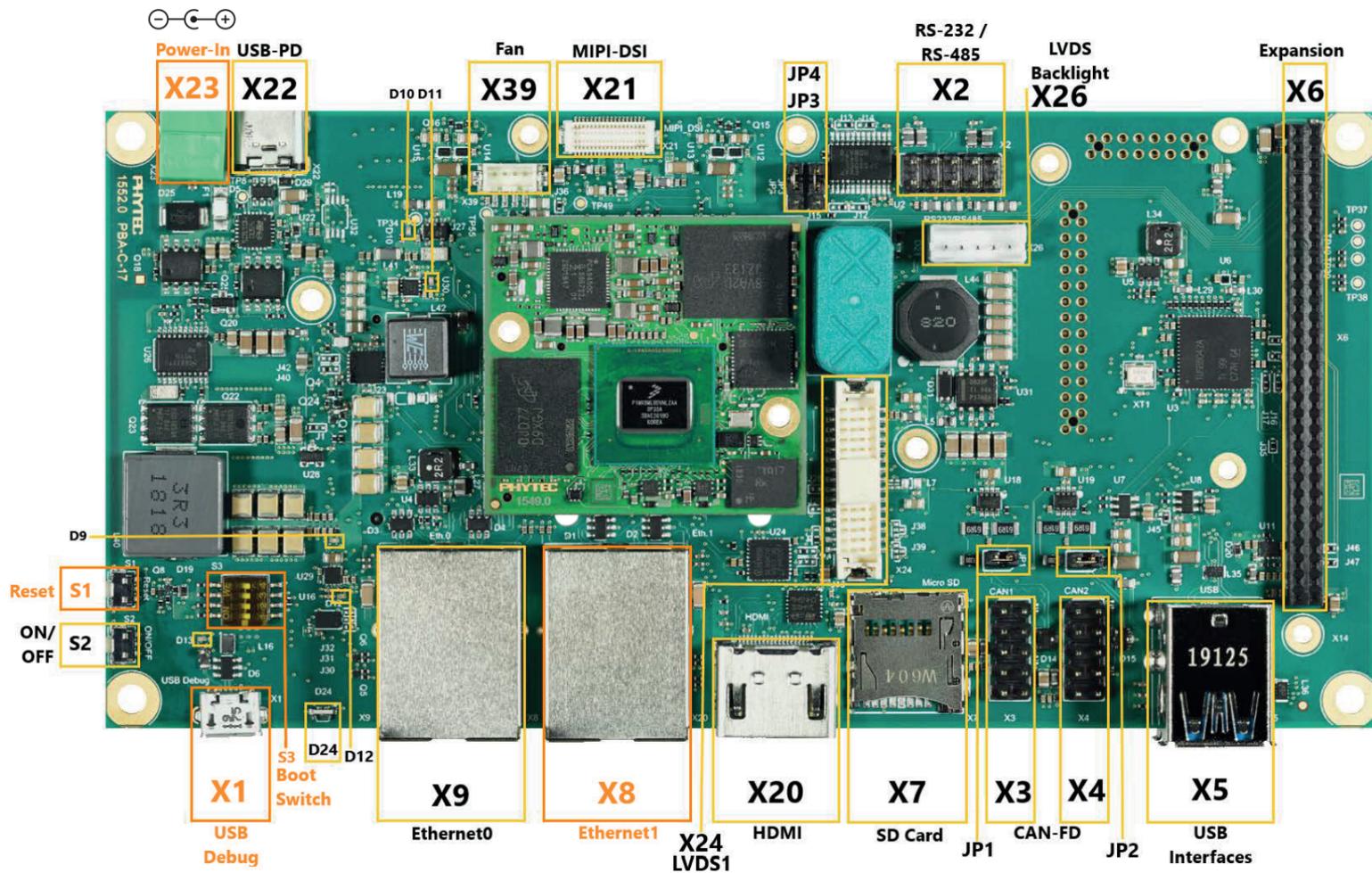


phyBOARD-Pollux
with phyCORE-i.MX 8M Plus

FRONT



BACK



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Quick Start Guide

2 | PREPARING AND STARTING THE VIRTUAL MACHINE

Experienced developers working with native Linux which have experience with Yocto development may skip the VM setup and proceed directly to Section 3 for establishing a direct connection to the Pollux board from their Linux host system.

The virtual machine provides a pre-configured development environment with all necessary tools and configurations (including Toolchain, Eclipse, and Qt Creator) for developing with your phyCORE-i.MX 8M Plus. To get started, you'll need a virtualization software like Virtual-Box or VMware Player.

1. Obtain the virtual machine image (OVA and checksum files) from the provided USB stick or the download section of the Pollux at PHYTEC's website (E).
2. Import the .ova file into your virtualization software.
3. Launch the virtual machine. You'll be presented with a modified Ubuntu desktop.

Username: phym

Password: phytec

Performance Configuration of the Virtual Machine

The virtual machine is configured to use 2 CPU cores and 2 GB of RAM by default. You can adjust these settings in your virtualization tool's configuration to improve performance, which is particularly important when running Yocto builds.

3 | GETTING CONNECTED

SERIAL CONNECTION

If you are using Windows as your host system, you will need to install a UART driver to establish the USB-to-UART connection. The required Silicon Labs CP210x USB-to-UART Bridge driver can be found on the provided USB stick or on the Silicon Labs developer website.

<https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers>

1. Insert the provided SD card into the Pollux board
2. Connect the provided USB-A to USB-B Micro Cable to your PC and to the FTDI Debug Port (X1) on the Pollux board. When using the virtual machine, ensure the USB device is properly passed through to the virtual machine.
3. Open a terminal (within the virtual machine or your Linux host-system) and enter the command „**tio /dev/ttyUSB0**“. You should then see the message "Connected" (B)
4. Power cycle the board. Within a few seconds, you'll see the boot message and login prompt on the console. (C)
5. Use „**root**“ as the login name on the serial console and press enter. You are now successfully connected to the board and ready to go. (C)
6. You can now enter „**ip a**“ to view the configuration of the target's Ethernet interface. This will be helpful for the next optional step. (D)

ETHERNET CONNECTION

Setting up an Ethernet connection is optional but recommended for faster development. While the UART connection works well for basic tasks, an SSH connection over Ethernet provides better performance, especially useful for file transfers and development tasks. For the setup, you'll need a network adapter on your host PC to connect to the Pollux board. We recommend having a second network adapter for internet access, as this allows you to simultaneously work with the board and access online resources.

The Pollux board comes with a pre-configured static IP address (192.168.3.10) for peer-to-peer connection, but the board can also obtain an additional IP address via DHCP. You can view the DHCP-assigned IP address through the UART connection using the „**ip a**“ command. (D)

PEER-TO-PEER CONNECTION

1. Connect an Ethernet cable between your PC and the Pollux board's ETH1 port X8.
2. Navigate to the Network Configuration on your host system (e.g. Windows). Choose the ethernet connection to the Pollux board and configure it with these IPv4 settings:

IP Address: 192.168.3.10

Subnet Mask: 255.255.255.0

Gateway: 192.168.3.10

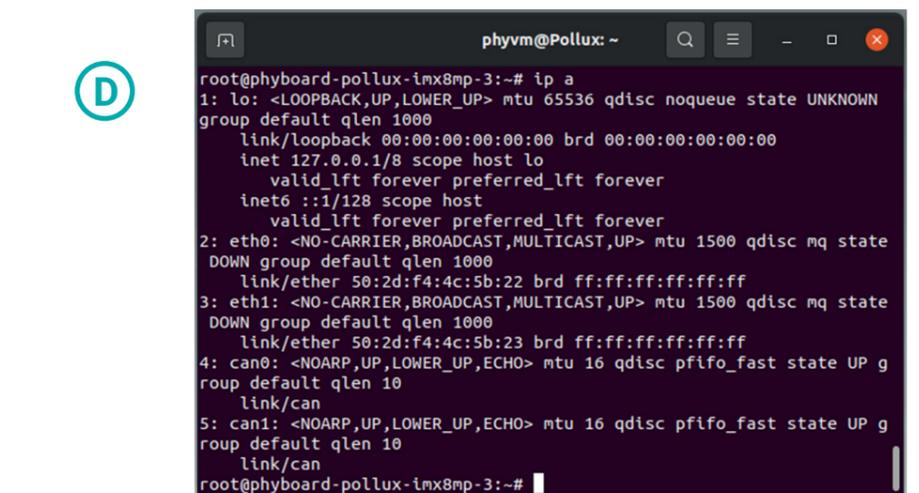
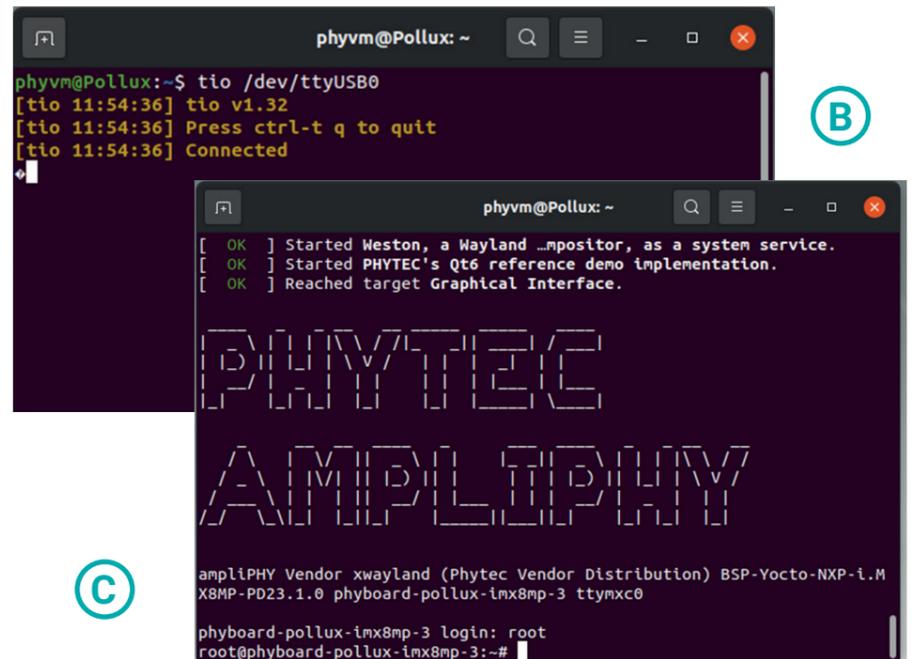
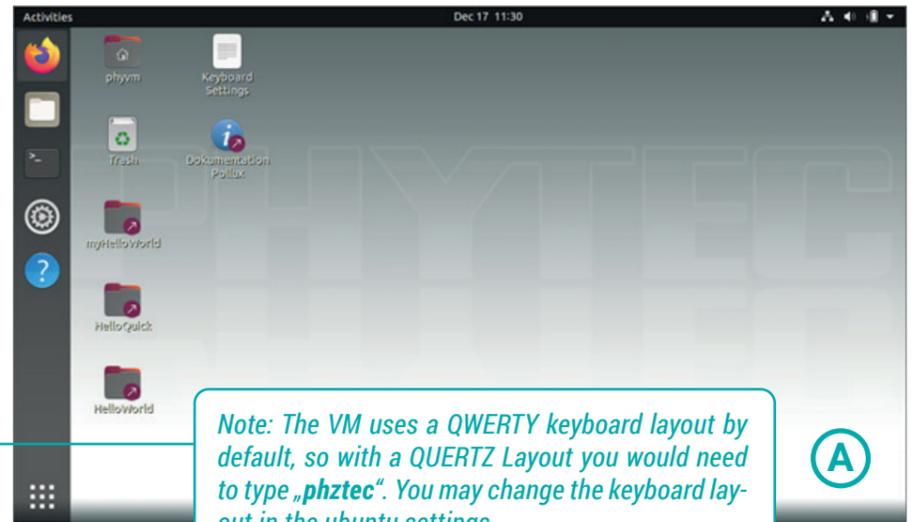
3. Open a terminal (from your host system or within the VM) and connect to the Pollux board with the command „**ssh root@192.168.3.11**“. You should now see an authentication question. Type yes and press Enter.

You are now connected to the Pollux board. Congratulations!

4 | YOUR POSSIBLE NEXT STEPS

Visit our product page <https://www.phytec.de/p/som/phycore-imx-8m-plus> for the latest documentation, downloads & FAQs. The download section contains several essential guides. We recommend starting with the **Development Environment Guide**, as this covers:

- comprehensive instructions for working with PHYTEC's pre-configured virtual machine
- Setting up a native Linux development environment if you don't work with the VM
- Cross-compiling your first applications using Eclipse.



ADDITIONAL DOCUMENTATION AVAILABLE IN THE DOWNLOAD SECTION

Hardware Manual:

A detailed description of the System on Module and accompanying carrierboard.

Yocto Guide: Reference for working with the PHYTEC BSP, including detailed information about Yocto Project fundamentals, BSP customization procedures, and practical workflows with tools like Poky and Bitbake.

BSP Manual: Focuses specifically on the phyCORE's BSP implementation, covering essential topics like build processes, boot procedures, software updates, device tree configurations, and peripheral access methods.

Please feel free to contact our support team if you have any questions about getting the board up and running.

<https://www.phytec.de/support/help-desk/>

