phyCORE-i.MX 8M Plus FPSC Quickstart Guide ALPHA1

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ALPHA1 i.MX 8M Plus Quickstart Guide	
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下表显示了与本手册兼容的 BSP：

适用 BSP	BSP 发布类型	BSP 发布日期	BSP 状态
BSP-Yocto-NXP-i.MX8MP-FPSC-ALPHA1	Alpha	2025/08/11	已发布

This Quickstart guide describes the tools and provides the know-how to install and boot the Linux Board Support Package (BSP) for the **phyCORE-i.MX 8M Plus FPSC Kit**.

This kit is currently in Alpha Status. There are several topics to keep in mind while working with this kit and guide:

- The **phyCORE-i.MX 8M Plus FPSC Kit** will go through several functional changes during the Alpha Stage of development. Due to this, this Quickstart guide may change without any prior notice.
- The **phyCORE-i.MX 8M Plus FPSC Kit** has some functionality that is not currently operational. Please be aware of this when working with the Alpha Kit.
- This Quickstart guide is only for booting and starting the basic functionality of the **phyCORE-i.MX 8M Plus FPSC Kit**.
- Hardware manual for the **phyCORE-i.MX 8M Plus FPSC Kit** can be found here: Hardware Manual - phyCORE-i.MX 8M Plus FPSC (1617.2/1618.1) (L-1076e.A1)
- Yocto Reference Manual for scarthgap can be found here: Yocto Reference Manual (scarthgap)
- BSP Manual for **phyCORE-i.MX 8M Plus FPSC Kit** can be found here: TBD

The following manuals will be available in future releases of the phyCORE-i.MX 8M Plus FPSC:

- Pin Muxing Table - a complete list of all signal chains from processor to carrier board output. Signal level, signal type, and other useful information is also included.

For more information or details regarding the phyCORE-i.MX 8M Plus FPSC, please contact the PHYTEC Sales department.

CHAPTER 1

Requirements

1.1 Included in the Kit

- Alpha phyCORE-i.MX 8M Plus FPSC SOM on Alpha Libra Development Board (PD-05023-ALPHA.A0)
- Power adapter supplying 24 V / 3,75 A (SV071)
- Ethernet cable (WK114)
- USB-A to USB-C cable (WK560)
- SD Card with prepared prebuilt images
- 2.54 10P to DB9P Female (WF072)
- 2 x 2.54 10P to DB9P Male (WF228)

1.2 Components

警告

As this is an Alpha Kit, there will be continuous revisions being made to the phyCORE-i.MX 8M Plus FPSC SoM and Libra FPSC board. Due to this, components and features may not be available. Contact PHYTEC if there any questions regarding components and features for this Alpha Kit. To see which components are currently functional, refer to the phyCORE-i.MX 8M Plus FPSC release notes.

1.3 Additional (optional) equipment (not included in Alpha Kit)

- Display (KLCD-AC209-FPSCG)
- Embedded Imaging Kit (KPB-xxxx-Video-L01, KPB-xxxx-Video-L02)

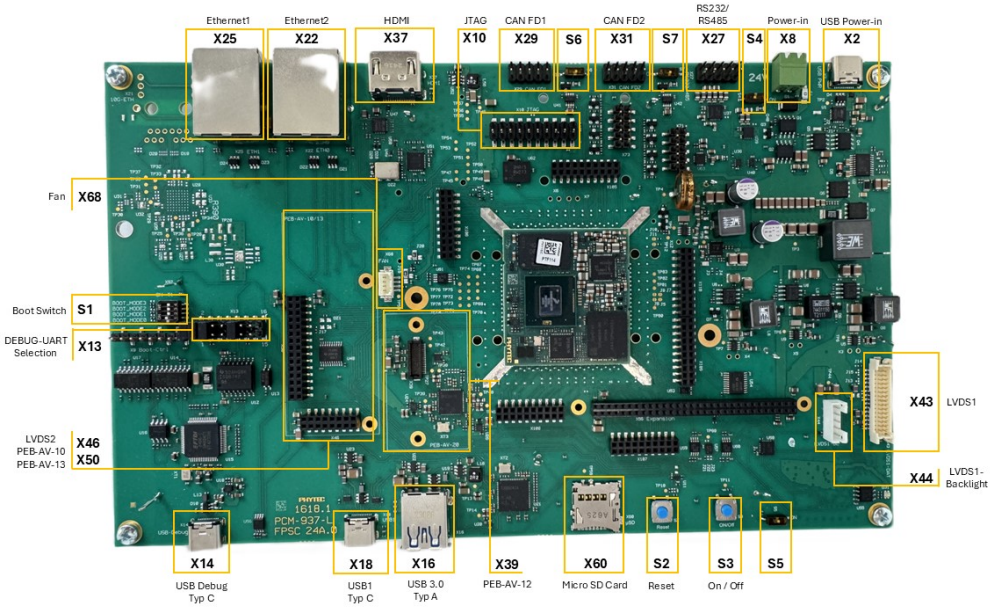


图 1: **Libra FPSC Components (top)**

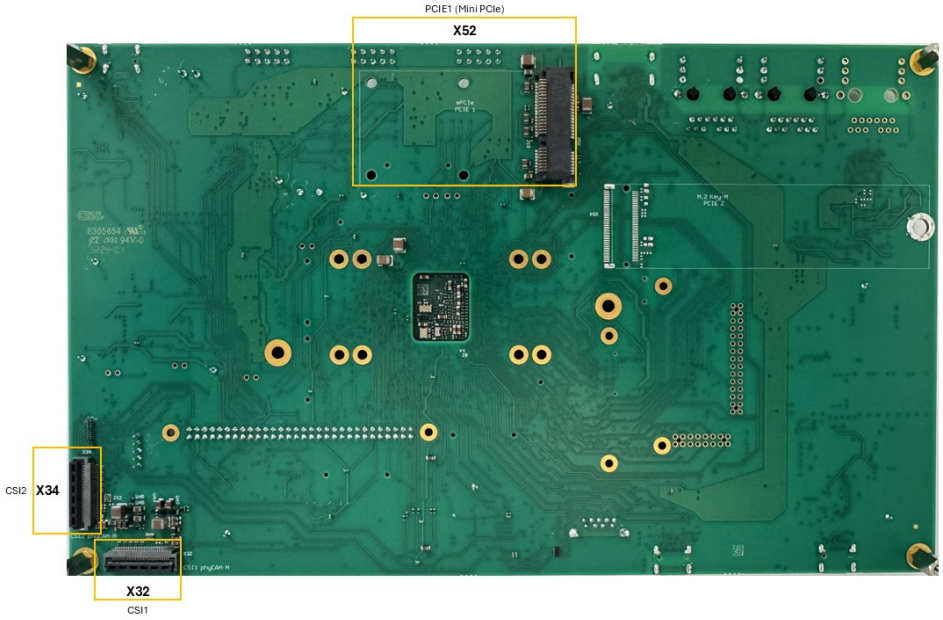


图 2: **Libra FPSC Components (bottom)**

1.4 Linux Host PC

Before you can work with the phyCORE-i.MX 8M Plus FPSC Board Support Package (BSP), you will need a host PC with the following minimum requirements:

- A modern Linux operating host system either natively or via a virtual machine.
- Ubuntu 22.04 LTS 64-bit recommended. Other distributions will likely work but note that some setup information as well as OS-specific commands and paths may differ.
- VMWare Workstation, VMWare Player, and VirtualBox are possible solutions if you want to use a virtual machine.
- Root access to your Linux host PC. Some commands in this guide will not work if you do not have sudo access (e.g. package installation, formatting an SD card).
- At least 40 GB to 50 GB of free space on the build partition of the host PC.
- An SD card reader, operational under Linux.
- An active internet connection.

CHAPTER 2

Connecting the Board

There a few manual connections that you will need to make before using the Libra FPSC.

2.1 Connecting the DEBUG USB interface

For the following steps, a console connection via USB is required. You can use the included USB Type-A to USB Type-C cable.

备注

For convenience, we have added a board UART to USB converter. This means, no RS232 interface is required during development for console communication between our carrier board and your host PC.

- Connect your PC's USB port with the USB-C connector of the Libra FPSC (X14). After plugging the USB-C cable into X14 a red LED (D12) will light up to indicate a present USB bus voltage.
- Your device manager will show four new COM ports. Select the first COM port. On the processor side, UART3 is the default debug UART of the A55 Cores. The second COM port is the debug UART for the M7 core. This equals to UART4 on the processor side.

  警告

  Do not open the third or fourth COM port in a terminal program! With the third COM port a reset of the board can be triggered. With the fourth COM port the bootmodes can be set. Opening these COM ports can lead to boards not booting. This feature is not fully functional yet.

- Setup your Terminal with the following parameters: - Speed: 115200 baud - Data bits: 8 - Stop bits: 1 - Parity: None - Flow control: None

2.2 Powering the Board

We recommend powering the Libra FPSC with the power supply (SV055) included in the kit. Connect the power supply to the Power-In connector (X8).

警告

If you are using a power adapter other than the one provided, please note the polarity of the power component X8. Ensure that your power adapter is correctly set up to use the polarity as shown below.

警告

If USB-PD port (X2) is mounted, do not use it in parallel with the 24V Power-In connector (X8). This may damage your device!

小技巧

Be aware that as soon as the Libra FPSC is supplied with power, the SD Card boot sequence will begin. Ensure that all cables are connected to the board!

CHAPTER 3

Prebuilt Images

PHYTEC provides prebuild images and release notes for the phyCORE-i.MX 8M Plus FPSC. They can be downloaded here: https://download.phytec.de/Software/Linux/BSP-Yocto-i.MX8MP/BSP-Yocto-NXP-i.MX8MP-FPSC-ALPHA1/images/ampliphy-vendor/imx8mp-libra-fpsc-1/

There are three images available phytec-qt6demo-image, phytec-headless-image and phytec-vision-image.

CHAPTER 4

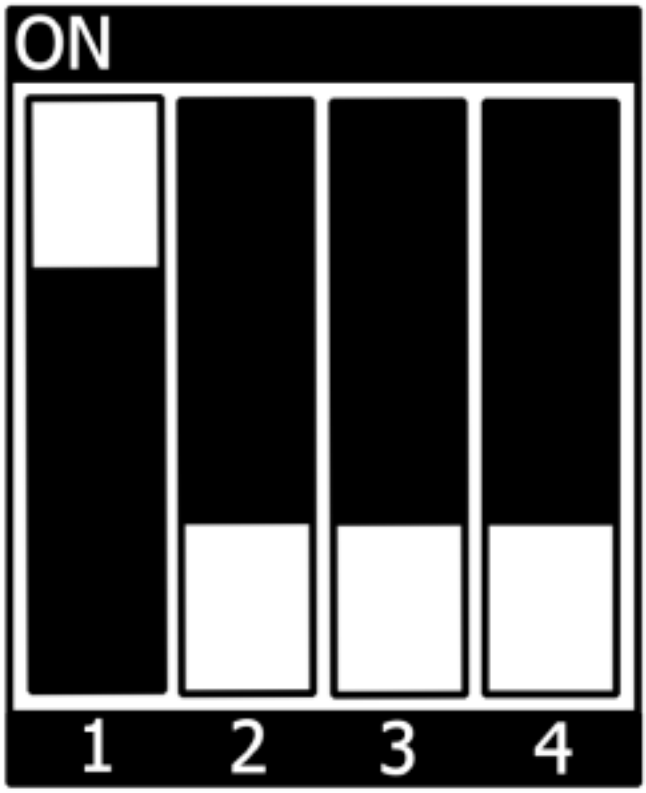
System Booting

The **phyCORE-i.MX 8M Plus FPSC Kit** is shipped with a pre-flashed SD card. It contains the phytec-qt6demo-image and can be used directly as a boot source.

The Quickstart guide will only describe how to boot from the pre-flashed SD card. How to build the BSP yourself, flash your own SD card or boot from other bootsources like eMMC is described in the TBD.

4.1 Boot with SD-Card

- To boot from an SD card, the bootmode switch (S1) needs to be set to the following position:



- 插入 SD 卡
- Connect the target and the host with **USB-C** on (X14) debug USB
- 给开发板通电