Getting Started With the i.MX 6 SoloX Developer's Kit

Embedded Artists

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1 Document Revision History

Revision	Date	Description
A	2015-09-28	First release

2 Introduction

This document provides you with step-by-step instructions to start working with the iMX6 SoloX Developer's Kit. By following these instructions you will have a terminal application connected to the board and Linux running on the board.

2.1   Conventions

A number of conventions have been used throughout to help the reader better understand the content of the document.

`Constant width text` – is used for file system paths and command, utility and tool names.

```
$ This field illustrates user input in a terminal running on the
development workstation, i.e., on the workstation where you edit,
configure and build Linux
```

```
# This field illustrates user input on the target hardware, i.e.,
input given to the terminal attached to the COM Board
```

```
This field is used to illustrate example code or excerpt from a
document.
```

3 Getting Started

3.1 Kit Content

- One iMX6 SoloX Developer's Kit (**EAK00245**)
    - Consists of one iMX6 SoloX COM Board (**EAC00244**) and
    - one COM Carrier Board (**EAC00246**)
- One micro-B to A USB cable
- One FTDI cable (UART-to-USB bridge for console output)
- One Debug interface board with 10-pos FPC cable
- Power supply
- One Micro-Fit 3.0 2-pos connector with 30 cm cables
- One Micro-Fit 3.0 10-pos connector with 30 cm cables
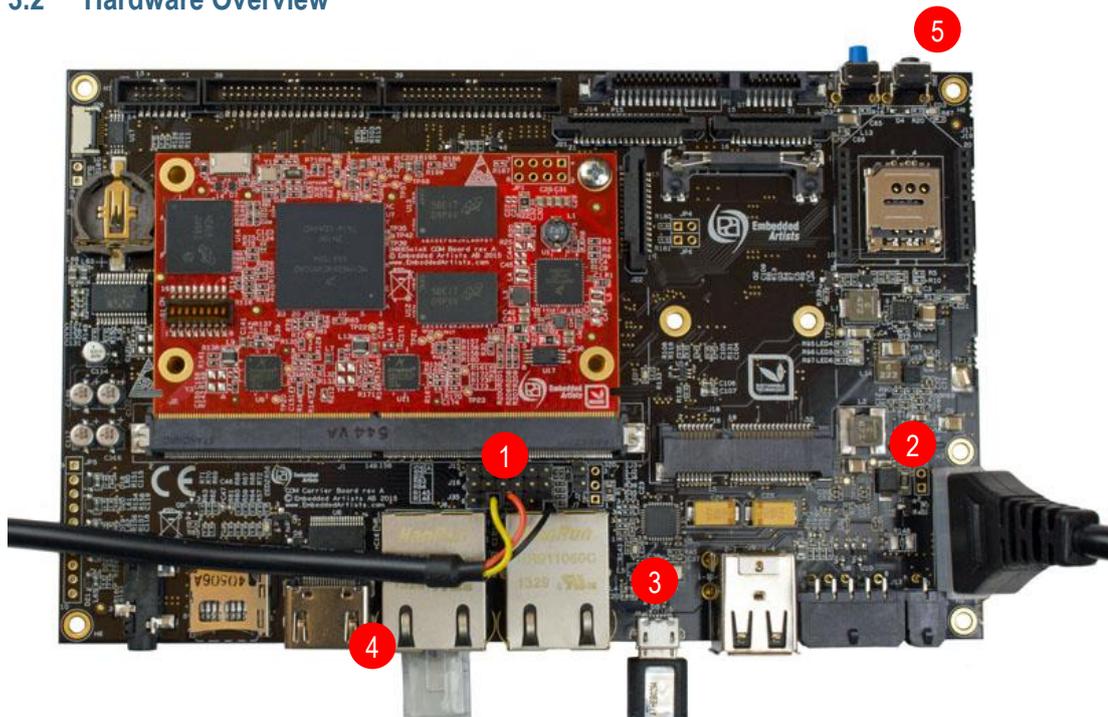
3.2 Hardware Overview

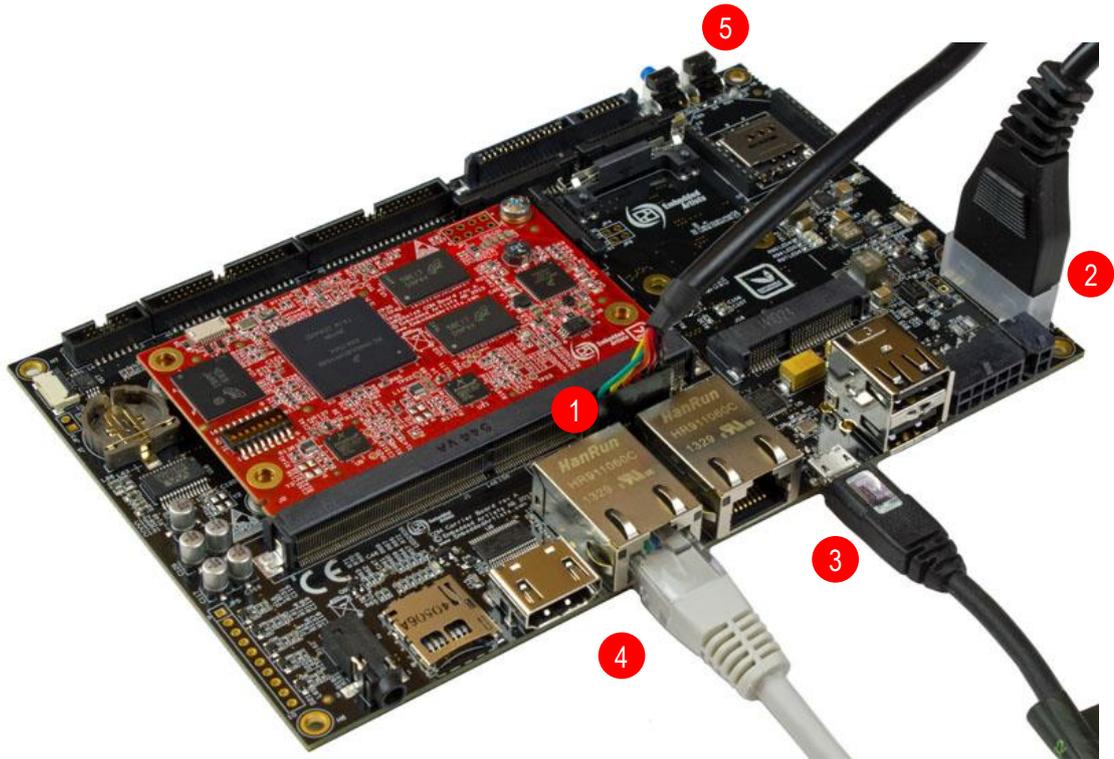**Figure 1 - iMX6 SoloX Developer's Kit Top View**

Figure 2 - iMX6 SoloX Developer's Kit Side View

1. FTDI cable connected to J35 connector
2. Power supply
3. Micro-B to A USB cable connected to USB OTG
4. Network cable connected to the RJ45 connector
5. Reset button

3.3   Connect FTDI Cable

Begin by connecting the FTDI cable to the J35 connector. This is needed for console input/output. Two different kinds of cables can be included in the kit. It could be a cable as shown in Figure 3 where each individual line must be connected. The other alternative is a cable as shown in Figure 4.

Pin marked GND (1) is ground and should be connected to ground (black) on the FTDI cable. The pin marked TX (4) is output from the board and should be connected to RX (orange) on the FTDI cable. The pin marked RX (5) is input to the board and should be connected to TX (yellow) on the FTDI cable.
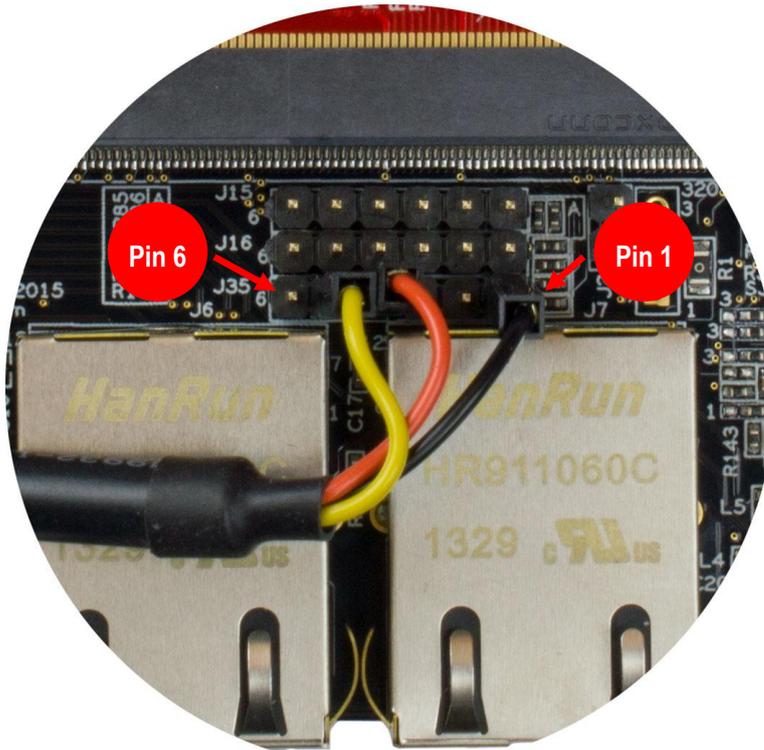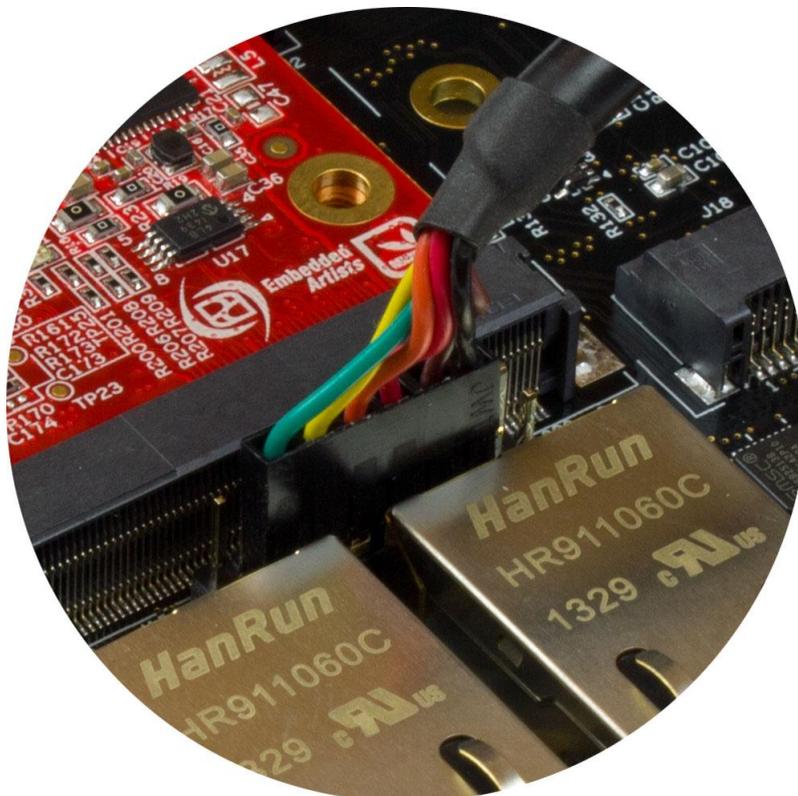
Figure 3 - Connected FTDI cable

Figure 4 - Connected FTDI cable

3.4   Terminal / Console Application

When the FTDI cable has been connected to the board and to your computer drivers are installed (if they haven't already been installed). Normally these are installed automatically.

> **Note**: If you have problems with the drivers for the FTDI cable please visit www.ftdichip.com

The terminal application Tera Term will be used in these instructions and can be downloaded from https://ttssh2.osdn.jp/index.html.en.

1. Start Tera Term and select the virtual COM port that was created when connecting the FTDI cable to your computer. See Figure 5 for an example of how the dialog window looks like for a new connection.
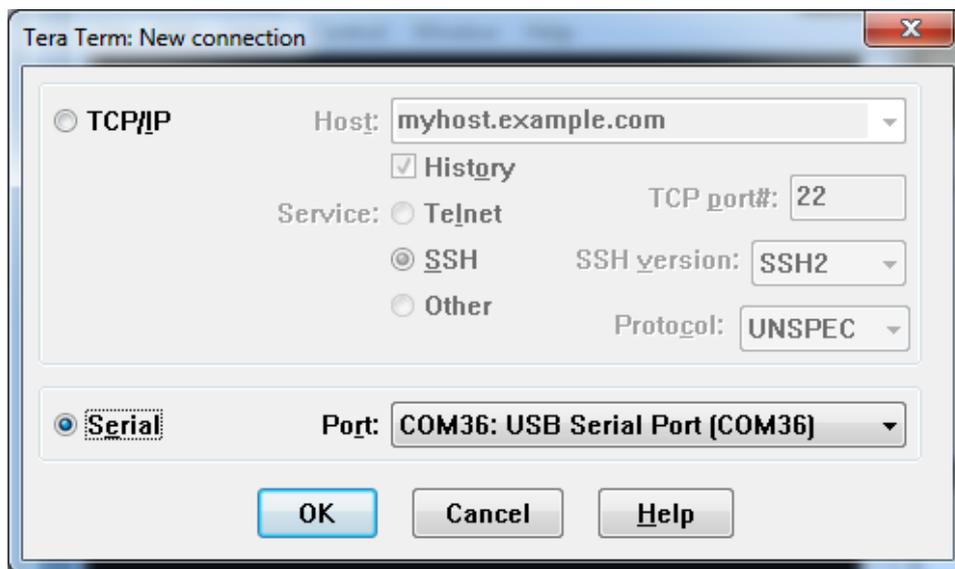
Figure 5 - Tera Term, select COM port

2. Go to Setup → Serial port and set the Baud rate to **115200** as shown in Figure 6. The terminal application is now connected to the virtual COM port and the board.
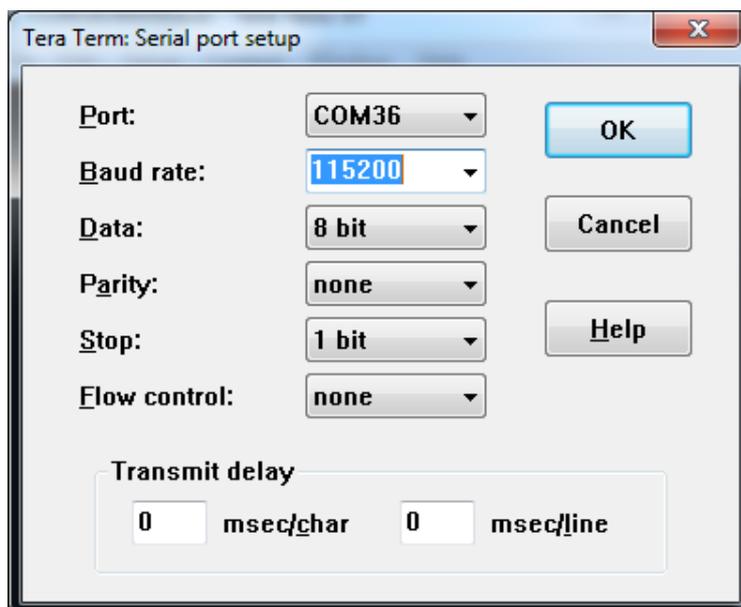
Figure 6 - Tera Term, setup serial port

3.5   Powering the Board

Connect the power supply to the J4 connector as shown in Figure 7.

Figure 7 - Power supply

When the power supply is connected to the board the u-boot bootloader will start to run and boot Linux. When Linux has booted you will be requested to login as shown in Figure 8.

1.   Enter `root` to login. There is by default no password associated with this user.

Figure 8 - Tera Term Linux login

3.6 USB OTG

This step is only needed when deploying new images to the board using the *Manufacturing Tool*. Connect the micro-B to USB A cable to the micro-B connector on the board and to a USB A connector on your computer.

For more details about using the manufacturing tool read section *Deploying Images* in the document *Working with Yocto to build Linux*. This document can be found on Embedded Artists website.

Figure 9 - micro-B to A USB, OTG

3.7   Networking

This step is only needed when connecting the board to a network. Connect an Ethernet cable (**not included**) to one of the RJ45 connectors on the board, for example, the first port as shown in Figure 10.

Figure 10 - Ethernet cable

To check the available network interfaces run `ifconfig` as shown below. If you have connected the cable to port 0 you will see an interface named `eth0`.

```
# ifconfig

eth0      Link encap:Ethernet  HWaddr 00:1A:F1:01:7F:28
          inet addr:192.168.5.63  Bcast:192.168.5.255
Mask:255.255.255.0
          inet6 addr: fe80::21a:f1ff:fe01:7f28/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:17 errors:0 dropped:0 overruns:0 frame:0
          TX packets:26 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2207 (2.1 KiB)  TX bytes:5762 (5.6 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

If you cannot see `eth0` or if it doesn't have a valid IP address (link addr) you can run `ifdown` followed by `ifup` to "restart" the interface.

```
# ifdown eth0
# ifup eth0

fec 2188000.ethernet eth0: Freescale FEC PHY driver [Generic PHY]
(mii_bus:phy_addr=2188000.ethernet:01, irq=-1)
udhcpc (v1.22.1) started
Sending discover...
Sending discover...
libphy: 2188000.ethernet:01 - Link is Up - 1000/Full
Sending discover...
Sending select for 192.168.5.58...
Lease of 192.168.5.58 obtained, lease time 691200
/etc/udhcpc.d/50default: Adding DNS 192.168.5.2
```

You could try to see if you have a working network connection by using the ping utility. In the example below google.com is "pinged". For this to work you need a working Internet connection. An alternative is to ping a computer on your local network.

```
# ping google.com

PING google.com (74.125.232.96): 56 data bytes
64 bytes from 74.125.232.96: seq=0 ttl=55 time=21.507 ms
64 bytes from 74.125.232.96: seq=1 ttl=55 time=16.993 ms
```

3.8   Further Information

The board is now up-and-running. We recommend you to look at the other documents that are available on Embedded Artists website. These will help you get a better understanding of the hardware as well as the available software.

If you have any questions, want to discuss your project requirements, need assistance in integrating the board into your product; please don't hesitate to contact us.

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