

Fling on PINE64 Quartz64 Model A

Arm

Exported on 10/30/2024

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1 Info

The PINE64 Quartz64 Model A board is a small form factor single board computer (SBC) based on the Rockchip RK3566 SoC with 4 x Cortex-A55 cores supporting up to 8GiB RAM. The SBC also has USB2, USB3, PCIe, and GbE connectivity.

See <https://www.pine64.org/quartz64a/>

The anticipated use case is "Far Edge": e.g. a virtualized IoT gateway.

2 Required and supported hardware

Minimally, you need:

- PINE64 Quartz64 Model A
 - 8GiB
- 1 x micro SD card for UEFI firmware
- 1 x USB drive for installer ISO and actual ESXi installation
- 1 x USB TTL serial cable for serial console

The following hardware is supported:

- PCIe NVMe, AHCI SATA, and USB storage devices
- Built-in ethernet and USB networking
- Graphics console over HDMI (when supported by UEFI)
- USB keyboard
- Serial console

Note that SD and eMMC cards are not supported, and some PCIe devices (such as Intel and Mellanox NICs) may not work on this board.

2.1 USB devices

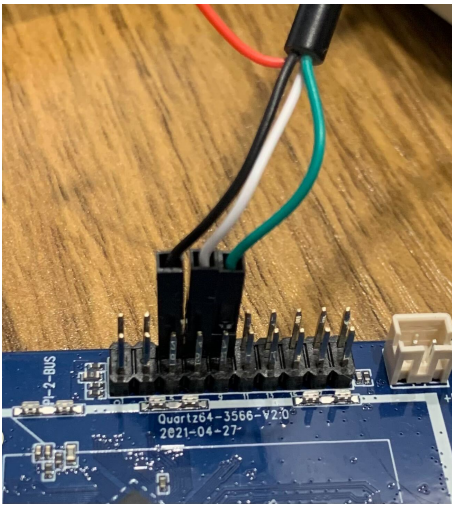
IMPORTANT: USB device can consume significant power and thus put a stress on the Quartz64's power circuits. Some USB devices could consume so much power (e.g. NVMe enclosure) that the system will simply not work, be unstable or have unstable USB behavior. For anything short of a basic USB key and NIC, use a powered USB3 hub.

Note: The system has four USB ports. The white USB2 ports (closest to the middle of the board) are not reliable with the Fling. For best results, use the black USB2 port and/or the blue USB3 port.

3 Preparation

3.1 Serial console access

Connect the USB TTL cable to the GND (pin 6 or 9), UART2_TX_M0_DEBUG (pin 8), and UART2_RX_M0_DEBUG (pin 10) pins on the board's Pi-2-BUS header.



Fire up your terminal emulator and connect to the device on your PC. The parameters used to open this port:

Baud Rate	→	115200
Data Bits	→	8
Parity	→	None
Stop Bits	→	1
Flow Control	→	None

3.1.1 'screen' terminal emulator

Note: device names below may be different. Check your system.

On Linux:

```
$ screen /dev/ttyUSB0 115200
```

3.1.2 'minicom' terminal emulator

Note: device names below may be different. Check your system.

With **minicom**, you will have to configure settings the first time you use it.

On Linux:

```
$ minicom -c on -D /dev/ttyUSB0
```

Now press **CTRL-Z**:

```

Welcome
OPTION
Compil
Port /
Press

      Minicom Command Summary

      Commands can be called by Meta-<key>

      Main Functions          Other Functions
-----
| Dialing directory..D | run script (Go)....G | Clear Screen.....C |
| Send files.....S | Receive files.....R | cOnfigure Minicom..O |
| comm Parameters...P | Add linefeed.....A | Suspend minicom....J |
| Capture on/off....L | Hangup.....H | eXit and reset....X |
| send break.....F | initialize Modem...M | Quit with no reset.Q |
| Terminal settings..T | run Kermit.....K | Cursor key mode....I |
| lineWrap on/off....W | local Echo on/off..E | Help screen.....Z |
| Paste file.....Y | Timestamp toggle...N | scroll Back.....B |
| Add Carriage Ret...U |
|
| Select function or press Enter for none. |
|
-----

Meta-Z for help | 115200 8N1 | NOR | Minicom 2.7.1 | VT102 | Offline | 1-A900UE2E

```

Now press **O**:

```

Welcome to minicom 2.7.1

OPTIONS:
Compiled on Oct  6 2019, 23:16:03.
Port /dev/tty.usbserial-A900UE2E, 23:35:36

Press Meta-Z for help on special keys

      +-----[configuration]-----+
      | Filenames and paths |
      | File transfer protocols |
      | Serial port setup |
      | Modem and dialing |
      | Screen and keyboard |
      | Save setup as dfl |
      | Save setup as.. |
      | Exit |
      +-----+

Meta-Z for help | 115200 8N1 | NOR | Minicom 2.7.1 | VT102 | Offline | 1-A900UE2E

```

Use arrow key to navigate to **Serial port setup** and press the **ENTER**:

```

Welcome to minicom 2.7.1

OPTI+-----+
Comp| A -   Serial Device       : /dev/tty.usbserial-A900UE2E |
Port | B - Lockfile Location      : /usr/local/Cellar/minicom/2.7.1/var |
    | C -   Callin Program      : |
Pres | D - Callout Program       : |
    | E -   Bps/Par/Bits        : 9600 8N1 |
    | F - Hardware Flow Control : No |
    | G - Software Flow Control : No |
    | | |
    | Change which setting? |
+-----+
    | Screen and keyboard |
    | Save setup as dfl   |
    | Save setup as..    |
    | Exit                |
+-----+

Meta-Z for help | 9600 8N1 | NQR | Minicom 2.7.1 | VT102 | Offline | ial-A900UE2E

```

Now press **E**:

```

Welcome to minicom 2.7.1

[Comm Parameters]
Comp| A - Serial De| |E|
Port| B - Lockfile Loc| Current: 9600 8N1| |2.7.1/var|
| C - Callin Pro| Speed| Parity| Data|
Pres| D - Callout Pro| A: <next>| L: None| S: 5|
| E - Bps/Par/B| B: <prev>| M: Even| T: 6|
| F - Hardware Flo| C: 9600| N: Odd| U: 7|
| G - Software Flo| D: 38400| O: Mark| V: 8|
| | E: 115200| P: Space|
| Change which| |
+-----+ Stopbits +-----+
| Screen a| W: 1| Q: 8-N-1|
| Save set| X: 2| R: 7-E-1|
| Save set|
| Exit|
+-----+ Choice, or <Enter> to exit? +-----+

Meta-Z for help | 9600 8N1 | NOR | Minicom 2.7.1 | VT102 | Offline | ial-A900UE2

```

Press **E** again, then **ENTER**.

```
Welcome to minicom 2.7.1
```

```
OPTI-----+  
Comp| A -   Serial Device       : /dev/tty.usbserial-A900UE2E |  
Port | B - Lockfile Location     : /usr/local/Cellar/minicom/2.7.1/var |  
      | C - Callin Program        :                               |  
Pres | D - Callout Program       :                               |  
      | E -   Bps/Par/Bits        : 115200 8N1                     |  
      | F - Hardware Flow Control : No                             |  
      | G - Software Flow Control : No                             |  
      |                               |                           |  
      | Change which setting? █ |                           |  
-----+  
      | Screen and keyboard |  
      | Save setup as dfl   |  
      | Save setup as..    |  
      | Exit                |  
-----+
```

```
Meta-Z for help | 115200 8N1 | NOR | Minicom 2.7.1 | VT102 | Offline | 1-A900UE2E
```


Make sure settings **F** and **G** both say **No** to any kind of flow control. Press **ENTER** when done, then navigate to **Save setup as dfl** and press **ENTER**.

```

Welcome to minicom 2.7.1

OPTIONS:
Compiled on Oct  6 2019, 23:16:03.
Port /dev/tty.usbserial-A900UE2E, 23:35:36

Press Meta-Z for help on special keys

+-----[configuration]-----+
| Filenames and paths         |
| File transfer protocols     |
| Serial port setup          |
| Modem and dialing          |
| Screen and keyboard        |
| Save setup as dfl          |
| Save setup as..            |
| Exit                        |
+-----+

Meta-Z for help | 115200 8N1 | NOR | Minicom 2.7.1 | VT102 | Offline | 1-A900UE2E

```

Use **ESC** to exit out of the menus.

3.2 Updating UEFI firmware

The SD card will be only used for UEFI firmware, so don't bother with a big card.

3.2.1 Downloading firmware

Download the [latest community Quartz64 UEFI firmware](https://github.com/jaredmcneill/quartz64_uefi/releases)¹ for your board (**QUARTZ64_EFI.img.gz**).

Use [Balena Etcher](https://www.balena.io/etcher/)² or similar (e.g. dd on Linux, BSD, or macOS) to perform a "raw" write of the firmware directly to the micro SD card.

¹ https://github.com/jaredmcneill/quartz64_uefi/releases

² <https://www.balena.io/etcher/>

4 Install ESXi-Arm

Follow the generic installation steps, with one caveat: When using the serial console, you will not be able to pass any advanced options to installer (e.g. **autoPartitionOSDataSize** via **Shift-O** in the ESXi bootloader).