



StarFive  
赛昉科技

## VisionFive FAQ

Version: 1.0

Date: 2022/08/15

Doc ID: VisionFive-FAQEN-001

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Important legal notice before reading our documentation.

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## Contact Us

Address: Room 502, Building 2, No. 61 Shengxia Rd., China (Shanghai) Pilot Free Trade Zone, Shanghai, 201203, China

Website: <http://www.starfivetech.com>

Email: [sales@starfivetech.com](mailto:sales@starfivetech.com)(sales) , [support@starfivetech.com](mailto:support@starfivetech.com)(support)

# Preface

About this guide and technical support information.

## About this document

This document mainly lists the *Frequently Asked Questions (FAQ)* on the VisionFive Single Board Computer (SBC) from existing users and their corresponding solution from StarFive technical support.






## Revision History

Table 0-1 Revision History

Version	Released	Revision
V1.0	2022/08/15	The first official release.

## Notes and notices

The following notes and notices might appear in this guide:

-  **Tip:**  
Suggests how to apply the information in a topic or step.
-  **Note:**  
Explains a special case or expands on an important point.
-  **Important:**  
Points out critical information concerning a topic or step.
-  **CAUTION:**  
Indicates that an action or step can cause loss of data, security problems, or performance issues.
-  **Warning:**  
Indicates that an action or step can result in physical harm or cause damage to hardware.

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StarFive

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# 1. Introduction

VisionFive is the first generation of affordable RISC-V computers designed to run Linux. It is fully open-source with open-source software, open hardware design, and RISC-V open architecture.

It is powered by RISC-V SiFive U74 Dual-Core 64-bit RV64GC ISA SoC with 8GB LPDDR4 RAM and has rich I/O peripherals such as USB 3.0 ports, 40-pin GPIO header, Gigabit Ethernet Connector, Micro-SD card slot and much more.

StarFive

## 2. FAQ List

### 2.1. Why starfive\_crtc\_enable\_vblan is empty?

#### Description

The parameter **starfive\_crtc\_enable\_vblan** is empty on VisionFive. However, the parameter is required when setting DRM in the Open Harmony operating system. I hope StarFive can add this parameter.

Figure 2-1 starfive\_crtc\_enable\_vblan is empty

```
# modetest -M starfive
Encoders:
id      crtc      type      possible crtcs  possible clones
33      0          DSI       0x00000001      0x00000001

Connectors:
id      encoder  status      name          size (mm)      modes      encoders
34      0          connected   DSI-1         154x86         1          33
modes:
index name refresh (Hz) hdisp hss hse htot vdisp vss vse vtot
#0 800x480 60.00 800 850 870 880 480 615 620 625 33000 flags: ; type: preferred, driver
props:
1 EDID:
flags: immutable blob
blobs:
value:
2 DPMS:
flags: enum
enums: On=0 Standby=1 Suspend=2 Off=3
value: 0
5 link-status:
flags: enum
enums: Good=0 Bad=1
value: 0
6 non-desktop:
flags: immutable range
values: 0 1
value: 0
4 TILE:
flags: immutable blob
blobs:
value:

CRTCs:
id      fb      pos      size
32      0      (0,0)    (0x0)
#0 nan 0 0 0 0 0 0 0 0 0 0 0 flags: ; type:
props:
24 VRR_ENABLED:
flags: range
values: 0 1
value: 0

Planes:
id      crtc      fb      CRTC x,y      x,y      gamma size      possible crtcs
31      0          0      0,0           0,0      0          0          0x00000001
formats: RG16 UYVY VYUY YUYV YVYU YU12 NV21 NV12 AR24 AB24
props:
8 type:
flags: immutable enum
enums: Overlay=0 Primary=1 Cursor=2
value: 1

Frame buffers:
id      size      pitch

# vbltest -M starfive
drmWaitVBlank (relative) failed ret: -1
```



## SoC

JH7100

## SBC

VisionFive

## Software

USDK V2.0.0

## Cause

Customer misunderstanding.

Theoretically, we do not necessarily need to have the **WaitVBlank** logic.

**WaitVBlank** is not an appropriate solution, due to the following uncertainties.

- You cannot specify the CRTC with **WaitVBlank**.
- You cannot make sure how many vblanks you have to wait.

## Solution

Instead of the **WaitVBlank** method, StarFive is using the **wait page flip complete** method by **select** to know the **page flip complete**. Our DRM framework supports the current page flip logic.

## Procedure

Use the following command to verify that DRM framework supports the page flip logic:

```
modetest -M starfive -s 34@32:800x480@RG16 -v
```

## 2.2. How to expand the remaining TF card space?

### Description

I used a 64 G TF card to burn the image system. But when compiling **ffmpeg** on VisionFive, it indicated that the TF card space was insufficient. After booting Fedora and running `df -h`, I see that only 12 G for `/dev/mmcblk0p4` is mounted on. Where is the rest? How can I use the remaining space?

## SoC

JH7100

## SBC

VisionFive

## Software

Fedora 33

## Cause

Fedora image is 12.6 G after decompression.

When you burned the Fedora system, only 12.6 G space was allocated in your TF card while the remaining space was not allocated.

## Solution

You can expand the remaining space of TF card in the Fedora system.

## Procedure

1. Check the disk usage under the current Fedora system. After entering the command, you can see that the root file system is mounted on the `/dev/mmcblk0p4` partition:

```
[riscv@fedora-starfive ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.5G   0  3.5G   0% /dev
tmpfs           3.6G   0  3.6G   0% /dev/shm
tmpfs           1.5G  1.2M  1.5G   1% /run
/dev/mmcblk0p4  12G   8.3G  2.9G  75% /
tmpfs           3.6G  4.0K  3.6G   1% /tmp
/dev/mmcblk0p3  458M  130M  314M  30% /boot
/dev/mmcblk0p2  122M   4.5M  118M   4% /boot/efi
tmpfs           718M   52K  718M   1% /run/user/985
tmpfs           718M   44K  718M   1% /run/user/1000
[riscv@fedora-starfive ~]$
```

2. Then execute the following command to see that the starting address of partition #4 is 1320960, which will be used when re-creating partition #4 later.

```
[riscv@fedora-starfive ~]$ cat /sys/block/mmcblk0/mmcblk0p4/start
1320960
[riscv@fedora-starfive ~]$
```

3. Execute the following command to operate the TF card:

```
[riscv@fedora-starfive ~]$ sudo fdisk /dev/mmcblk0
```

We trust you have received the usual lecture from the local System Administrator. It usually boils down to these three things:

- #1) Respect the privacy of others.
- #2) Think before you type.
- #3) With great power comes great responsibility.

```
[sudo] password for riscv:          #Enter user password

Welcome to fdisk (util-linux 2.36.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): d             #Delete partition
Partition number (2-4, default 4): 4          #Delete partition #4

Partition 4 has been deleted.


Command (m for help): n             #Create a new partition
Partition type
   p   primary (2 primary, 0 extended, 2 free)
   e   extended (container for logical partitions)
Select (default p): p               # Create primary partition
Partition number (1,4, default 1): 4          #Create partition #4
First sector (2048-122138623, default 2048): 1320960          #Enter
the starting address of partition #4
Last sector, +/-sectors or +/-size{K,M,G,T,P} (1320960-122138623,
default 122138623):                #Press "enter" to select default
Created a new partition 4 of type 'Linux' and of size 57.6 GiB.
Partition #4 contains a ext4 signature.


Do you want to remove the signature? [Y]es/[N]o: N          #Do not
remove the signature


Command (m for help): w             #Write the above operations to the
partition table

The partition table has been altered.
Syncing disks.

[riscv@fedora-starfive ~]$
```

4. After the operation is complete, execute the following command to reboot:

```
sudo reboot
```

5. After rebooting, enter the system and execute the `resize2fs` command to adjust the space of the ext file system, so that the system disk can be expanded.

```
[riscv@fedora-starfive ~]$ sudo resize2fs /dev/mmcblk0p4
[sudo] password for riscv:
```

```

resize2fs 1.45.6 (20-Mar-2020)
Filesystem at /dev/mmcblk0p4 is mounted on /; on-line resizing r[
 313.505284] EXT4-fs (mmcblk0p4): resizing filesystem from 2999808 to
15102208 blocks
equired
old_desc_blocks = 2, new_desc_blocks = 8
[ 315.140090] EXT4-fs (mmcblk0p4): resized filesystem to 15102208
The filesystem on /dev/mmcblk0p4 is now 15102208 (4k) blocks long.

[riscv@fedora-starfive ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.5G   0  3.5G   0% /dev
tmpfs           3.6G   0  3.6G   0% /dev/shm
tmpfs           1.5G  1.2M  1.5G   1% /run
/dev/mmcblk0p4   57G   8.3G   49G  15% /
tmpfs           3.6G  4.0K  3.6G   1% /tmp
/dev/mmcblk0p3   458M  130M  314M  30% /boot
/dev/mmcblk0p2   122M   4.5M  118M   4% /boot/efi
tmpfs           718M   52K  718M   1% /run/user/985
tmpfs           718M   44K  718M   1% /run/user/1000
[riscv@fedora-starfive ~]$

```

Now your root file system has been expanded from 12 G to 57 G.

## 2.3. How to load image?

### Description

I entered the following commands according to step 12 in chapter 4 of the [VisionFive Single Board Computer Software Technical Reference Manual](#) on RVspace, but the image cannot be loaded.

```

setenv kernel_comp_addr_r 0x90000000;setenv kernel_comp_size
0x10000000;setenv ramdisk_addr_r 0x88300000
fatls mmc 0:1
fatload mmc 0:1 ${kernel_addr_r} Image.gz
fatload mmc 0:1 ${fdt_addr_r} jh7100-starfive-visionfive-v1.dtb
fatload mmc 0:1 ${ramdisk_addr_r} rootfs.cpio.gz
booti ${kernel_addr_r} ${ramdisk_addr_r}:${filesize} ${fdt_addr_r}

```

### SoC

JH7100

### SBC

VisionFive

## Cause

The configuration of environment variables on the document is incomplete:

After starting parameters according to the `booti` command to judge the steps of `setenv` in the document, we find that the address configuration of `kernel_addr_r` and `fdt_addr_r` is missing. So the image cannot be loaded.

## Solution

We have updated the configuration of environment variables on the document, and you can execute the command again to load the image.

## Procedure

1. Add the configuration of environment variables to load the image: `setenv kernel_addr_r 0x84000000;setenv fdt_addr_r 0x88000000.`
2. Enter the following updated command, and you can load the image successfully:

```
setenv kernel_comp_addr_r 0x90000000;setenv kernel_comp_size
0x10000000;setenv kernel_addr_r 0x84000000;setenv fdt_addr_r
0x88000000;setenv ramdisk_addr_r 0x88300000
fatls mmc 0:1
fatload mmc 0:1 ${kernel_addr_r} Image.gz
fatload mmc 0:1 ${fdt_addr_r} jh7100-starfive-visionfive-v1.dtb
fatload mmc 0:1 ${ramdisk_addr_r} rootfs.cpio.gz
booti ${kernel_addr_r} ${ramdisk_addr_r}:${filesize} ${fdt_addr_r}
```

## 2.4. How to solve the error of missing `openssl/evp.h` when compiling uboot?

### Description

When I compiled uboot according to chapter 3 of the [VisionFive Single Board Computer Software Technical Reference Manual](#), the output log contains the following error message:

```
fatal error: openssl/evp.h: 没有那个文件或目录
```

### SoC

JH7100

### SBC

VisionFive

## Software

Ubuntu 20.04

## Cause

The `u-boot` code uses the related code in OpenSSL while OpenSSL is not installed on your environment.

## Solution

Install OpenSSL.

## Procedure

Execute the following command on your Ubuntu to install OpenSSL:

```
sudo apt install libssl dev
```

## 2.5. Why an error occurred when running `gpio.py`?

### Description

Following the instructions on the RVspace Forum <https://forum.rvspace.org/t/new-python-package-for-visionfive-gpio-thanks-to-zengjf/334>, I input the command at the terminal `vim gpio.py` to create python program `gpio.py`, and the following is the command:

```
sudo pip3 install gpio
sudo su
chmod 666 /sys/class/gpio/export
vim gpio.py    #copy the following commands into gpio.py

import time
import gpio as GPIO
GPIO.setup(448, GPIO.OUT)
while True:
    GPIO.output(448, GPIO.HIGH)
    time.sleep(1.0)
    GPIO.output(448, GPIO.LOW)
    time.sleep(1.0)
```

However, an error occurred when I run the command on the Fedora system. Error information:

```
AttributeError: partially initialized module 'gpio' has no attribute
'setup' (most likely due to a circular import)
```

## SoC

JH7100

## SBC

VisionFive

## Cause

The name of the python file you created is the same as that of the GPIO library file imported.

## Solution

Rename the `gpio.py` file to `gpioctrl.py`, and the command can run normally.

## 2.6. Why the serial port outputs garbled text?

### Description

After my VisionFive is powered on, the serial port outputs some garbled text.

## SoC

JH7100

## SBC

VisionFive

## Software

Fedora 33

## Cause

- The serial cable is not cross-connected.
- The electrical level of the USB-to-serial port is wrong.

## Procedure

1. Check whether the serial port is connected correctly: confirm that the **normal** serial port is connected at 115,200 baud rate; if it's connected with **debug** port at 9,600 baud rate, the code cannot be displayed normally.
2. Confirm that both ends of the serial port are connected tightly with a Dupont cable; if it is loose, reconnect it.

3. Check the connection mode of the serial port. If the serial port is cross-connected, it is correct; if it is direct-connected, change to the cross-connection method.
4. Check the VID and PID of the USB-to-serial master control. Confirm that the Prolific PL2303 can be used on VisionFive.
5. Check the electrical level of the USB-to-serial port. Confirm that the electrical level of the USB-to-serial port is 3.3 V; if not, change the serial line with 3.3 V, and the serial port output will return to normal.

## 2.7. Why no log output after connecting the debug port?

### Description

After connecting the debug port and booting up my SBC, I cannot receive any log output.

### SoC

JH7100

### SBC

VisionFive

### Software

N/A

### Cause

Customer faulty operation.

The customer mistook the debug port for burning firmware as the serial port for debug purposes.

### Solution

Make sure you have used the correct pins and followed the correct procedures.

### Procedure

The SBC has 2 serial pins, one for regular use and the other for debug purposes.

**For regular use:** If you need to perform regular tasks, for example, to view log files on your SBC, or to update firmware and u-boot, follow the procedures as described in *Appendix B: Updating Firmware and u-boot* of the [VisionFive Single Board Computer Quick Start Guide](#).

**Result:** Your SBC will display log information during system boot-up.



**For debug purposes:** If you need to flash firmware (for example, to flash files like `jh7100_recovery_boot`, `bootloader`, and `ddrinit` to an SBC), follow the procedure as described in *Appendix C: Recovering the Bootloader* of the [VisionFive Single Board Computer Quick Start Guide](#).



**Note:**

If you mistake this pin as the one for normal use, you cannot receive any log information during boot-up.



**Note:**

For SBC used for debugging, its SPI flash must be blank.

## 2.8. Why I cannot wake up VisionFive after standby?

### Description

VisionFive works properly since boot-up. However, after some idle time, when the screen enters standby mode, I cannot wake it up using either the mouse or the keyboard.

### SoC

JH7100

### SBC

VisionFive

### Software

Installed image: `Fedora-riscv64-jh7100-developer-xfce-Rawhide-20211226-214100.n.0-sda.raw.zst`

### Cause

Insufficient power supply

### Solution

Replace the current power supply with the standard 5 V/3 A power supply, and then you can wake up the device using either the mouse or the keyboard.

## 2.9. How to read the real-time temperature of JH7100?

## Description

I would like to know how to read the real-time temperature of JH7100.

## SoC

JH7100

## SBC

VisionFive

## Software

Fedora 33

## Procedure

1. Enter the following command in the terminal to read data:

```
cat /sys/devices/platform/soc/124a0000.tmon/hwmon/hwmon0/temp1_input
```

2. Divide the read data by 1000 to get the current temperature of JH7100.

## 2.10. Why my VisionFive cannot boot up?

### Description

As shown below, the system of my VisionFive cannot boot up. The serial port display:

```
dwmac.10020000 Waiting for PHY auto negotiation to complete.....  
TIMEOUT!  
Could not initialize PHY dwmac. 10020000  
dwmac.10020000 Waiting for PHY auto negotiation to complete.....  
TIMEOUT!  
Could not initialize PHY dwmac. 10020000  
MMC CD is 0x1, force to True.  
MMC CD is 0x1, force to True.  
switch to partitions #0, OK  
mmc0 is current device  
** No partition table - mmc 0**  
Couldn't find partition mmc 0:1
```

### Cause

From the log information, we can infer that the TF card is recognized, but the boot partition is not found.

Further learned that the version of the fedora image you used is `Fedora-riscv64-vic7100-xfce-dev-Rawhide-20210516233526.n.0-sda.raw`. The screen displayed here may be slightly different from the above code block. But all the similar screen displays are aimed to describe the same problem that the version of the fedora image is too old to be compatible with the system.

### Solution

- Use the latest Fedora image version: `Fedora-riscv64-jh7100-developer-xfce-Rawhide-20211226-214100.n.0-sda.raw.zst`, then you can enter the system normally with the same TF card.

## 2.11. Why I can't update firmware under Windows 10 and Ubuntu 18.04 systems?

### Description

According to the [VisionFive Single Board Computer Quick Start Guide](#), I connected the USB-to-serial converter to the debug port, but firmware cannot be updated under both Windows 10 and Mac's Ubuntu 18.04 virtual machine.

### SoC

JH7100

### SBC

VisionFive

### Cause

The USB-to-serial converter is incompatible with your MacBook.

### Solution

You can change a compatible serial cable with FT232 or PL2303 as the master control.

### Procedure

1. Confirm that the firmware can be updated under Windows 10 and Mac's Ubuntu 18.04 virtual machine.
2. Check your environment. The master control of two serial cables is CP2102 and CH341.
3. Cross-test. Connect your two serial cables to another Windows 10 and Ubuntu 20.04:

- CH341 connects to the VisionFive debug serial port, and firmware cannot be updated. After entering the **recovered mode**, the command cannot be input;
- CP2102 works normally under Windows 10 and Ubuntu 20.04.



**Note:**

The cross-test environment is ThinkPad P15V.

4. Cross-test the serial cable with FT232 and PL2303 as master control in your environment. If they work normally under the system, the firmware can be updated.

## 2.12. How do I build a Fedora image with my environment?

### Description

I would like to build an Operating System based on my graphical desktop environment. Are there any reference steps or workflow details to build a Fedora image?

### SoC

JH7100

### SBC

VisionFive

### Cause

We haven't sorted out this part of the document yet.

### Solution

StarFive suggests that you can refer to the following manuals:

- For the Fedora system, refer to [Fedora Wiki](#).



**Note:**

The VisionFive Fedora is auto-generated with the Koji system.

- For non-Fedora systems, StarFive suggests that you can refer to the openEuler steps as described in [openEuler Gitee](#).

## 2.13. Why the TF card cannot be automatically mounted?

### Description

According to step 5 in chapter 4 of the [VisionFive Single Board Computer Software Technical Reference Manual](#) on RVspace, I can't see the mounting address of the TF card after executing the following command:

```
sudo mkfs.vfat /dev/sdb1
```

After making the **busybox**, removing the micro-SD card from PC and plugging again to mount it, I cannot see the mounting address of the card with `df -h` while can see the `sd` device with `lsblk`.

### SoC

JH7100

### SBC

VisionFive

### Software

N/A

### Cause

You have not clear the original partition information of the TF card.

### Procedure

1. According to the document, we use the TF card of the same brand and the same capacity to execute again, and find that the TF card can be mounted normally with `df -h`.
2. After checking the screenshot of your operation steps, we find that there are two problems when you execute `sudo gdisk /dev/sdb` in step 3:
  - The command you entered is `sudo gdisk /dev/sdc1`. In this case, you only operate on the part of `sd`1, not on the entire TF card;
  - When you executed `d--->o--->n--->w--->y` in step 4, you directly entered `n` after entering `o`, and all partitions are not deleted. So, you can enter `y` when confirmation is required, and the TF card can be automatically mounted.

Figure 2-2 enter sdc

```

/dev/loop4      56M   56M   0 100% /snap/core18/2284
/dev/loop5      55M   55M   0 100% /snap/snap-store/558
/dev/loop6      37M   37M   0 100% /snap/gh/479
/dev/loop7      66M   66M   0 100% /snap/gtk-common-themes/1!
/dev/loop8      62M   62M   0 100% /snap/core20/1270
/dev/loop9      62M   62M   0 100% /snap/core20/1328
/dev/loop10     51M   51M   0 100% /snap/snap-store/547
/dev/loop11     66M   66M   0 100% /snap/gtk-common-themes/1!
/dev/loop12     44M   44M   0 100% /snap/snapd/14549
/dev/loop13     248M  248M   0 100% /snap/gnome-3-38-2004/87
/dev/loop14     44M   44M   0 100% /snap/snapd/14295
/dev/loop15     249M  249M   0 100% /snap/gnome-3-38-2004/99
/dev/sda1       511M  4.0K  511M   1% /boot/efl
tmpfs           389M   76K  389M   1% /run/user/1000
/dev/sdc1       15G  125M   15G   1% /media/kylin/84F8-EC91

root@ubuntu:~# gdisk /dev/sdc1
GPT fdisk (gdisk) version 1.0.5

Partition table scan:
  MBR: MBR only
  BSD: not present
  APM: not present
  GPT: not present

*****
Found invalid GPT and valid MBR; converting MBR to GPT format
in memory. THIS OPERATION IS POTENTIALLY DESTRUCTIVE! Exit by
typing 'q' if you don't want to convert your MBR partitions
to GPT format!
*****

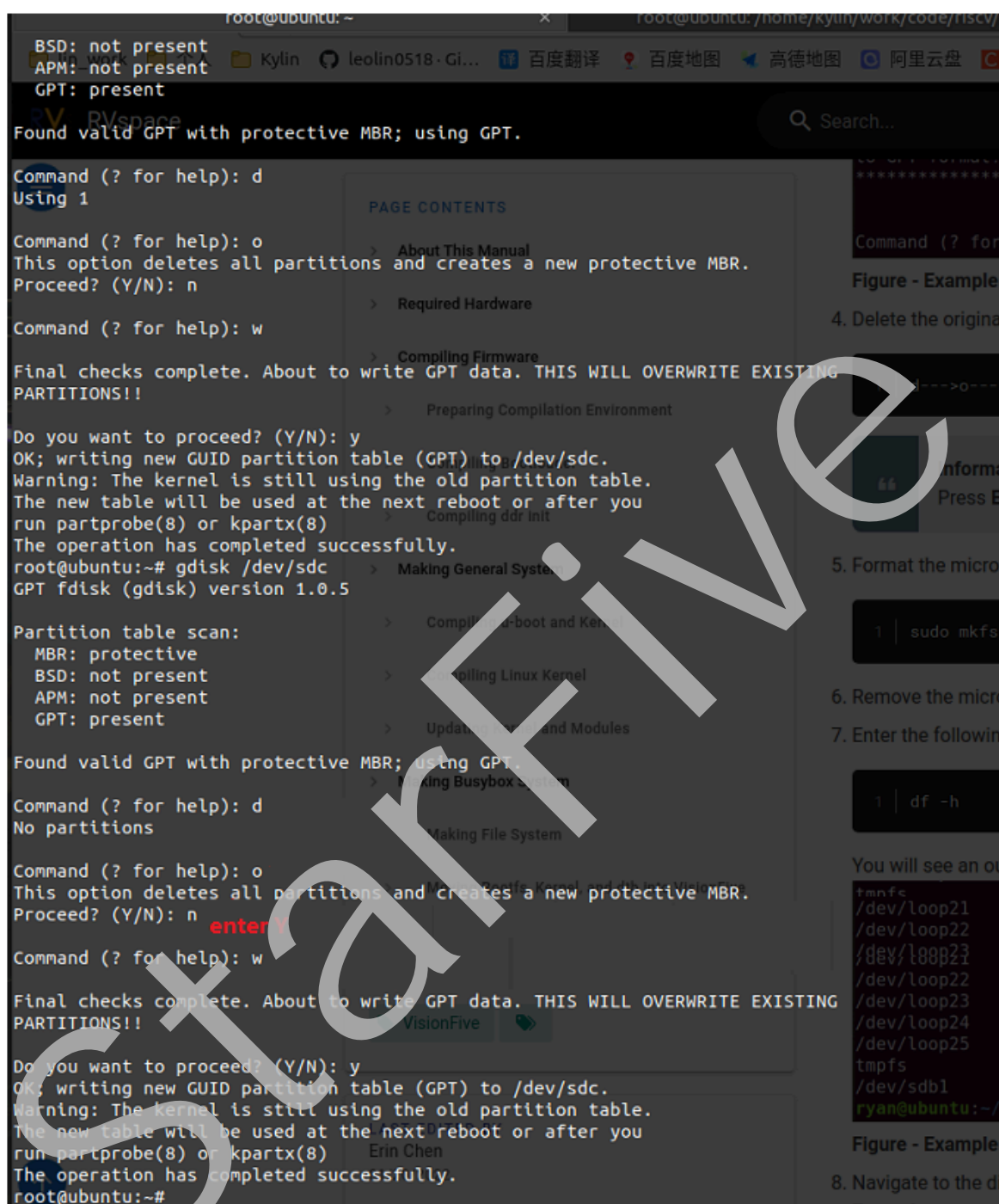
Exact type match not found for type code 6E00; assigning type code
'Linux filesystem'
Exact type match not found for type code 7400; assigning type code
'Linux filesystem'
Warning! Main partition table overlaps the first partition by 34
You will need to delete this partition or resize it in another u

Warning! Secondary partition table overlaps the last partition by
3619150325 blocks!
You will need to delete this partition or resize it in another u

Command (? for help): d
Partition number (1-2):

```

Figure 2-3 enter "Y"



```

root@ubuntu:~#
BSD: not present
APM: not present
GPT: present
Found valid GPT with protective MBR; using GPT.

Command (? for help): d
Using 1

Command (? for help): o
This option deletes all partitions and creates a new protective MBR.
Proceed? (Y/N): n

Command (? for help): w

Final checks complete. About to write GPT data. THIS WILL OVERWRITE EXISTING
PARTITIONS!!

Do you want to proceed? (Y/N): y
OK; writing new GUID partition table (GPT) to /dev/sdc.
Warning: The kernel is still using the old partition table.
The new table will be used at the next reboot or after you
run partprobe(8) or kpartx(8)
The operation has completed successfully.
root@ubuntu:~# gdisk /dev/sdc
GPT fdisk (gdisk) version 1.0.5

Partition table scan:
  MBR: protective
  BSD: not present
  APM: not present
  GPT: present

Found valid GPT with protective MBR; using GPT.

Command (? for help): d
No partitions

Command (? for help): o
This option deletes all partitions and creates a new protective MBR.
Proceed? (Y/N): n enter

Command (? for help): w

Final checks complete. About to write GPT data. THIS WILL OVERWRITE EXISTING
PARTITIONS!!

Do you want to proceed? (Y/N): y
OK; writing new GUID partition table (GPT) to /dev/sdc.
Warning: The kernel is still using the old partition table.
The new table will be used at the next reboot or after you
run partprobe(8) or kpartx(8)
The operation has completed successfully.
root@ubuntu:~#

```

## 2.14. How do I configure or compile u-boot?

### Description

I do not have any experience in configuring or compiling u-boot. Is there any related documentation?

## SoC

JH7100

## SBC

VisionFive

## Cause

N/A.

## Solution

You can refer to the *Compiling u-boot and Kernel* section in the [VisionFive Single Board Computer Software Technical Reference Manual](#) to configure and compile u-boot with the **JH7100\_VisionFive** branch.

Alternatively, to compile with the **JH7100\_VisionFive\_devel** branch, refer to the steps on [StarFive GitHub](#).

## 2.15. Does VisionFive support Python 3.10?

### Description

I have installed Python 3.10 with the output log that indicated the installation is successful and the environment variable has been changed as well. However, after I entered `python -V`, the output indicated the Python version was 3.9. Does VisionFive support Python 3.10?

## SoC

JH7100

## SBC

VisionFive

## Cause

After the installation, the command, `sudo ln -s /home/riscv/python3.10.4/bin/python`, was entered to use Python 3.10. However, this command did not specify a target to create a symbolic link.

## Solution

Enter the correct command to create a symbolic link:





## | 2 - FAQ List

```
Domain0 Region00      : 0x0000000002000000-0x000000000200ffff (I)
Domain0 Region01      : 0x0000000008000000-0x0000000008007fffff ( )
Domain0 Region02      : 0x0000000000000000-0xffffffffffffffff (R,W,X)
Domain0 Next Address   : 0x00000000080200000
Domain0 Next Arg1      : 0x00000000082200000
Domain0 Next Mode      : S-mode
Domain0 SysReset       : yes
```

```
Boot HART ID          : 0
Boot HART Domain       : root
Boot HART ISA          : rv64imafdcux
Boot HART Features     : scounteren,mcounteren
Boot HART PMP Count    : 16
Boot HART PMP Granularity : 4096
Boot HART PMP Address Bits: 36
Boot HART MHPM Count   : 2
Boot HART MIDELEG       : 0x0000000000000222
Boot HART MEDELEG      : 0x000000000000b109
```

```
U-Boot 2022.04-rc2-VisionFive-SDK_v2.3.0-dirty (Apr 09 2022 - 12:35:02
+0800)StarFive
```

```
CPU:   rv64imafdc
Model: StarFive VisionFive V1
DRAM:  8 GiB
Core:   13 devices, 9 uclasses, devicetree: separate
MMC:   mmc@10000000: 0, mmc@10010000: 1
Loading Environment from SPIFlash... cadence_spi spi@11860000: Can't get
reset: -524
SF: Detected gd25lq128 with page size 256 Bytes, erase size 4 KiB, total 16
MiB
*** Warning - bad CRC, using default environment
```

```
StarFive EEPROM format v1
```

```
-----EEPROM INFO-----
```

```
Vendor : StarFive Technology Co., Ltd.
Product full SN: VF7100A1-2206-D008E000-0000027B
data version: 0x1
PCB revision: 0x1
BOM revision: A
Ethernet MAC address: 6c:cf:39:00:02:7a
```

```
-----EEPROM INFO-----
```

```
In:   serial@12440000
Out:  serial@12440000
Err:  serial@12440000
Net:  dwmac.10020000
MMC CD is 0x1, force to True.
```

```

MMC CD is 0x1, force to True.
Card did not respond to voltage select! : -110
MMC CD is 0x1, force to True.
MMC CD is 0x1, force to True.
Card did not respond to voltage select! : -110
VisionFive #setenv bootfile vmlinuz;setenv fdt_addr_r 0x88000000;setenv
fdt_high 0xffffffffffffffff;setenv fdtcontroladdr 0xffffffffffffffff;setenv
initrd_high 0xffffffffffffffff;setenv kernel_addr_r 0x84000000;setenv
fileaddr a0000000;setenv ipaddr 192.168.92.43;setenv serverip 192.168.92.41
VisionFive #tftpboot ${fileaddr} ${serverip}:image.fit;
Speed: 1000, full duplex
Using dwmac.10020000 device
TFTP from server 192.168.92.41; our IP address is 192.168.92.43
Filename 'image.fit'.
Load address: 0xa0000000
Loading: ##### 73.4 MiB
      8 MiB/s
done
Bytes transferred = 76924590 (495c6ae hex)
VisionFive #bootm start ${fileaddr};bootm loados ${fileaddr};booti
0x80200000 0x86100000:${filesize} 0x86000000
## Loading kernel from FIT Image at a0000000 ...
   Using 'config-1' configuration
   Trying 'vmlinux' kernel subimage
      Description: vmlinux
      Type: Kernel Image
      Compression: uncompressed
      Data Start: 0xa00000cc
      Data Size: 19742208 Bytes = 18.8 MiB
      Architecture: RISC-V
      OS: Linux
      Load Address: 0x80200000
      Entry Point: 0x80200000
   Verifying Hash Integrity ... OK
## Loading fdt from FIT Image at a0000000 ...
   Using 'config-1' configuration
   Trying 'fdt' fdt subimage
      Description: unavailable
      Type: Flat Device Tree
      Compression: uncompressed
      Data Start: 0xa49544cc
      Data Size: 31882 Bytes = 31.1 KiB
      Architecture: RISC-V
      Load Address: 0x86000000
      Hash algo: sha256
      Hash value:
067723438c2c5d69c5b01ac02cc181d9f9c06e0ea7b7d02b5124f3b1cfce667c
   Verifying Hash Integrity ... sha256+ OK
   Loading fdt from 0xa49544cc to 0x86000000
   Booting using the fdt blob at 0x86000000

```

```

## Loading loadables from FIT Image at a0000000 ...
Trying 'ramdisk' loadables subimage
  Description:  buildroot initramfs
  Type:         RAMDisk Image
  Compression:  uncompressed
  Data Start:   0xa12d3f80
  Data Size:    57148544 Bytes = 54.5 MiB
  Architecture: RISC-V
  OS:           Linux
  Load Address: 0x86100000
  Entry Point:  unavailable
  Hash algo:    sha256
  Hash value:
cdafd465c9e6a41462b9bfd83a039be47a7f962cabcf142d69dac3c1a1b5fd6d
  Verifying Hash Integrity ... sha256+ OK
  Loading loadables from 0xa12d3f80 to 0x86100000
  Loading Kernel Image
## Flattened Device Tree blob at 86000000
  Booting using the fdt blob at 0x86000000
  Using Device Tree in place at 0000000086000000, end 000000008600ac89

```

Starting kernel ...

```

bootloader version:211102-0b86f96
ddr 0x00000000, 1M test
ddr 0x00100000, 2M test
DDR clk 2133M,Version: 211102-d086aee
0 crc flash: 9347484d, crc ddr: 9347484d
crc check PASSED

```

bootloader.

OpenSBI v1.0

```

      _ _ _ _ _
     /   \   /   \   /   \   /   \
    | | | | | | | | | | | | | | | |
    | | | | | | | | | | | | | | | |
    | | | | | | | | | | | | | | | |
    | | | | | | | | | | | | | | | |
    \___/  \___/  \___/  \___/  \___/
      | |
      | |
      | |

```

```

fdt_reset_driver_init: gpio-restart init failed, -1001
Platform Name           : StarFive VisionFive V1
Platform Features       : medeleg
Platform HART Count     : 2
Platform IPI Device     : aclint-mswi
Platform Timer Device   : aclint-mtimer @ 6250000Hz
Platform Console Device : uart8250

```

```
Platform HSM Device      : ---
Platform Reboot Device   : ---
Platform Shutdown Device : ---
Firmware Base           : 0x80000000
Firmware Size           : 300 KB
Runtime SBI Version      : 0.3
```

## SoC

JH7100

## SBC

VisionFive

## Software

Buildroot (usdk\_v2.3.0)

## Cause

Insufficient power consumption from the power adapter.

## Solution

You can use a 5 V/3 A power adapter.

## Procedure

1. Check the environment variable setting of your board. The correct environment variable is:

```
setenv bootfile vmlinuz;setenv fdt_addr_r 0x88000000;setenv fdt_high
0xffffffffffffffff;
setenv fdtcontroladdr 0xffffffffffffffff;setenv initrd_high
0xffffffffffffffff;setenv kernel_addr_r 0x84000000;
setenv fileaddr a0000000;setenv ipaddr 192.168.xxx.xxx;setenv serverip
192.168.xxx.xxx.
```



### Note:

The IP address of the board and the TFTP server need to be in the same network segment. It is best to connect the board directly to the TFTP server with a network cable and close the firewall of the server.

2. Check the loaded image file and boot up parameter settings. The correct parameter is:

```
tftpboot ${fileaddr} ${serverip}:image.fit; bootm start ${fileaddr};
bootm loados ${fileaddr};
booti 0x80200000 0x86100000:${filesize} 0x86000000
```

3. Check whether the power adapter of the board is 5 V/3 A or 5 V/2 A with fast charging function.

## 2.17. Why my VisionFive looks different with the introduced one?

### Description

I found the IC part of the board is different from the introduced one. The board lacks one IC on the front as the same side of the USB Type-C connector, but adds one IC on the back side of PCB near the USB Type-C connector. Is there a problem with my board?

### Solution

VisionFive board is in co-lay design with 2 versions of IC (IP2315 or CH224). The IC missing on the front is IP2315, which is used to support PD power input. We have made this part of the function co-lay design with CH224. There are 2 ICs near the front and back of the USB Type-C connector. You only need to mount one of them.

Click on the following link to get more information: <https://forum.rvspace.org/t/does-visionfive-board-miss-a-chip-beside-type-c-connect/149/4>.

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