StarFive 赛昉科技

VisionFive 2 Errata Sheet

Version: 1.0

Date: 2023/08/31

Doc ID: VisionFive2-ESEN-001

Legal Statements

Important legal notice before reading this documentation.

PROPRIETARY NOTICE

Information in this document is provided "as is," with all faults. Contents may be periodically updated or revised due to the product development. Shanghai StarFive Technology Co., Ltd.(hereinafter "StarFive") reserves the right to make changes without further notice to any products herein.

StarFive expressly disclaims all warranties, representations, and conditions of any kind, whether express or implied, including, but not limited to, the implied warranties or conditions of merchantability, fitness for a particular purpose and non-infringement.

StarFive does not assume any liability rising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation indirect, incidental, special, exemplary, or consequential damages.

Contact Us

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

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

Email: sales@starfivetech.com(sales) , support@starfivetech.com(support)

Contents

List of Tables

List of Figures

Preface

About this guide and technical support information.

About this document

This document mainly provides information about known device issues affecting VisionFive 2.

Revision History

Table 0-1 Revision History

Version	Released	Revision
1.0	2023/08/31	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.

1. Production Device Issues for VisionFive 2

The following table lists the issues and the affected device.

Table 1-1 Production Device Issues for VisionFive 2

No.	Issue	Affected Device	Planned Fix
1	RTC interrupt issue *(on page 7)*	VisionFive 2	StarFive next generation SoC
2	RTC does not support timing after power down or restart *(on page 7)*	VisionFive 2	StarFive next generation SoC
3	Ethernet GMAC Supports RGMII Only *(on page 7)*	VisionFive 2	StarFive next generation SoC
4	Watchdog timeout reset issue *(on page 9)*	VisionFive 2	StarFive next generation SoC
5	eMMC/SDIO3.0 boot issue *(on page 9)*	VisionFive 2	StarFive next generation SoC
6	Dual screen display issue *(on page 10)*	VisionFive 2	StarFive next generation SoC
7	Not support suspend to RAM *(on page 10)*	VisionFive 2	StarFive next generation SoC

1.1. RTC interrupt issue

Description

After the RTC interrupt is triggered, only one clean operation cannot completely clear the interrupt, which needs multiple clean interrupt operations.

Workaround

When you need to clear the interrupt, you need to keep polling the interrupt status in the `interrupt handling function` until the interrupt is cleared.

1.2. RTC does not support timing after power down or restart

Description

JH-7110 RTC does not have a separate always on domain, so it does not support the ability to continue timing after power down or restart.

Workaround

If this function is required, the customer can add an RTC (Real-Time Clock) chip and a coin cell battery at the board level.

1.3. Ethernet GMAC Supports RGMII Only

Description

JH-7110 only supports RGMII mode for Ethernet GMAC connections.

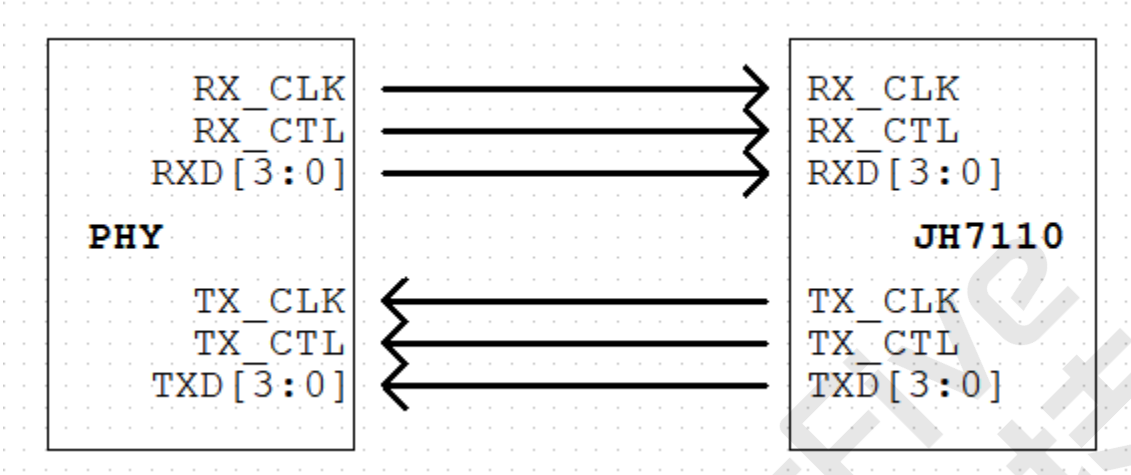
Workaround

Due to this limitation, JH-7110 has the following layout requirements.

1.3.1. 1,000 M Only

If you only need to support 1,000 M mode, you can design the layout following the requirements below.

Figure 1-1 GMAC 1,000 M Only



Layout requirements.

- The RX/TX trace length cannot exceed 6,000 mil.
- Match the RXD[3:0] signal group and the RX_CTL and RX_CLK signals with trace length to within 100 mil. Match the TXD[3:0] signal group and the TX_CTL and TX_CLK group trace length to within 100 mil.
- The routing of data and clock lanes should keep a complete reference plane.

1.3.2. Auto-Negotiation

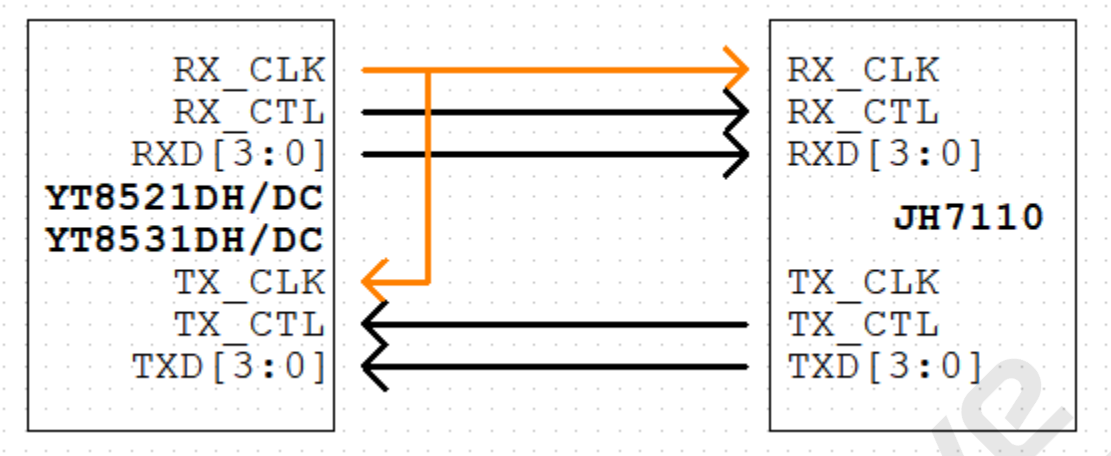
If you need to support 10/100/1,000 M mode auto-negotiation, you need to know the following limitations, and then you can design the layout following the requirements below.

Important:
For auto-negotiation mode, only the following PHY models are supported.

- YT8521DH/DC
- YT8531DH/DC

Plus, you need to connect the RX_CLK of the PHY to its TX_CLK as shown by the orange lines in the following diagram.

Figure 1-2 GMAC 10 M/100 M/1,000 M Auto-Negotiation



Layout requirements for GMAC0.

- The trace length from TX_CLK to RX_CLK cannot exceed 500 mil.
- The RX and TX trace length cannot exceed 4,300 mil.
- Match the RXD[3:0] signal group and the RX_CTL and RX_CLK signals with trace length to within 100 mil.
- Match the TXD[3:0] signal group and the TX_CTL and RX_CLK signals with trace length to within 100 mil.
- The routing of data and clock lanes should keep a complete reference plane.

Layout requirements for GMAC1.

- The trace length from TX_CLK to RX_CLK cannot exceed 500 mil.
- The RX_CLK trace length cannot exceed 4,000 mil. Match the RXD[3:0] signal group and the RX_CTL and RX_CLK signals with trace length to within 100 mil.
- The TX_CLK trace length is 2,000 mil longer than that of the RX_CLK. Match the TXD[3:0] signal group and the TX_CTL and RX_CLK signals with trace length to within 100 mil.
- The routing of data and clock lanes should keep a complete reference plane.

1.4. Watchdog timeout reset issue

Description

Watchdog does not reset after timeout has been triggered. Because the hardware design of watchdog requires timeout twice before resetting.

Workaround

Modify the driver to set the "timeout" time to half of the initial setting time.

1.5. eMMC/SDIO3.0 boot issue

Description

There is a low possibility that the VisionFive 2 may fail to boot in eMMC or SDIO3.0 boot mode.

Workaround

- StarFive recommends that you use QSPI boot mode.
- If you use eMMC/SDIO3.0 boot mode and VisionFive 2 fails to boot up:
  - Confirm that the type of eMMC or SD card you used is included in the JH-7110 AVL.
  - If the eMMC or SD card is in the AVL but VisionFive 2 still cannot boot up, StarFive recommends you try restarting the VisionFive 2 and then boot it again using the SD Card or eMMC mode.

1.6. Dual screen display issue

Description

When HDMI and RGB displays at the same time, the resolution of them must be the same when using the same clock source. In other words, when using HDMI clock as the parent clock of RGB, the resolution of HDMI and RGB must be the same.

Workaround

RGB can use a "vout src" clock as the parent clock to achieve independence from the HDMI process and be unaffected by it. The issue has been resolved in the driver.

1.7. Not support suspend to RAM

Description

JH-7110 SoC does not support suspend to RAM function.

Workaround

This issue will be fixed in StarFive next generation SoC JH-8100.