

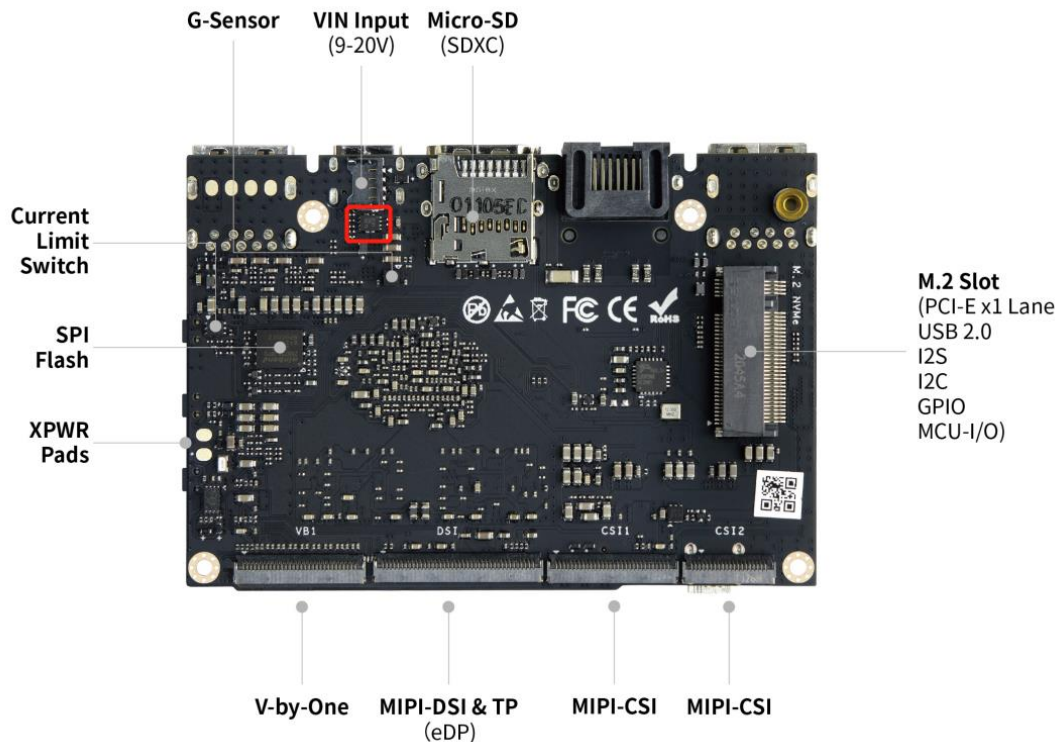
VIM4 RESTOCKING ISSUES

Shortage of TPS2121RUXR Chip

INTRODUCTION:

Khadas is experiencing an issue with restocking VIM4 single board computers, because the TPS2121RUXR chip that controls power source selection between USB-C and VIN is in short supply.

In this document, we will describe an alternate version of VIM4 for bulk orders and OEM projects, which does not use this chip. Retailers and Developers should continue to use the original version of VIM4.

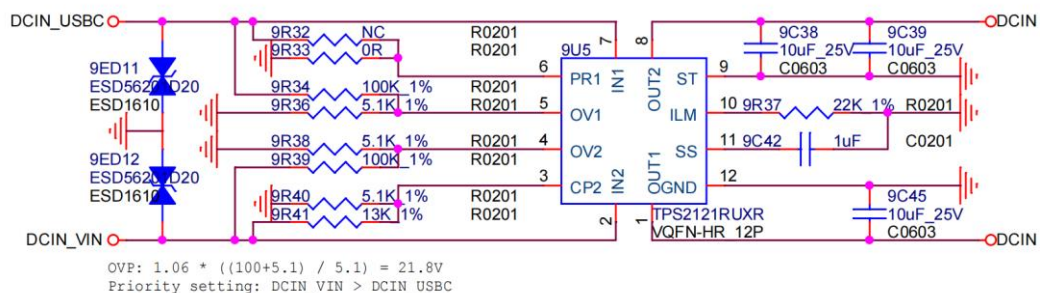


Datasheet: Texas Instruments [TPS2121RUXR](#) (9U5) (highlighted in red above)

STANDARD VERSION:

1. Schematics:

The original design includes TPS2121RUXR(Part No.: 9U5) and circuit diagram below:



2. Circuit Description:

- DCIN is the unified power supply for the system, and all power supplies for VIM4 are provided from DCIN.
- The TI TPS2121RUXR chip is for switching between the USB-C port (net DCIN_USBC) and VIN (net DCIN_VIN) power sources.
- Both DCIN_USBC and DCIN_VIN supply power to DCIN through the TPS2121RUXR chip.

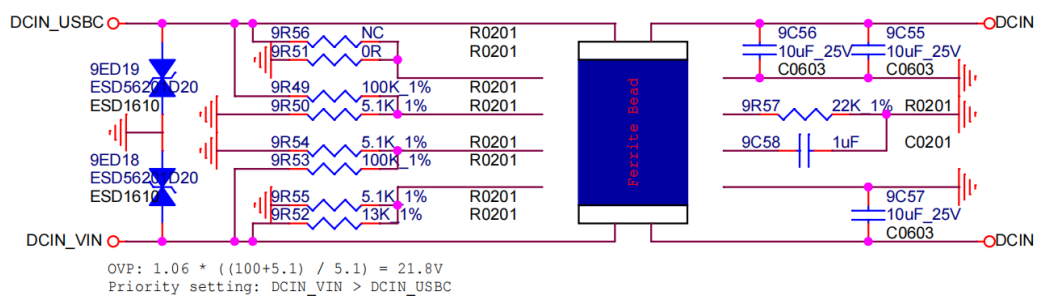
3. TPS2121RUXR Power Switching Logic Table:

USB-C Port (Net: DCIN_USBC)	VIN Connector (Net: DCIN_VIN)	Power Selection (DCIN)
● ON	○ OFF	USB-C
○ OFF	● ON	VIN
● ON	● ON	VIN

ALTERNATE VERSION(A.k.a FB VERSION):

1. Schematics:

New Circuit Diagram replacing TPS2121RUXR with 0603 Ferrite Bead:



2. Circuit Description:

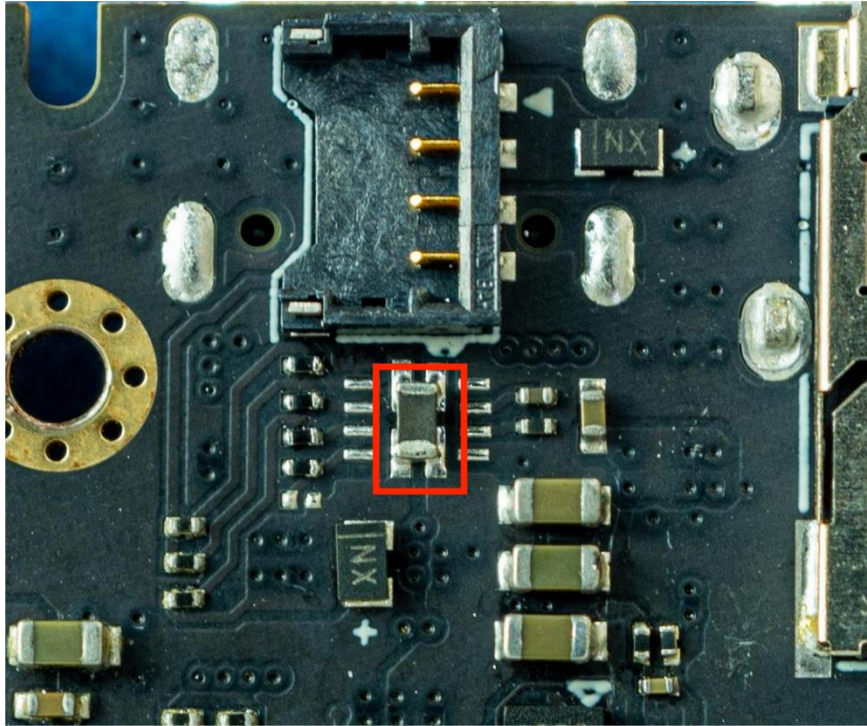
- DCIN is the unified power supply for the system, and all power supplies for VIM4 are provided from DCIN.
- DCIN_USBC and DCIN_VIN are shorted through the FB (ferrite bead), and power input from DCIN_VIN will backflow to DCIN_USBC.

3. New PCB Layout:

- PCB 2D Layout:



b) PCBA Photograph:



c) Possible Risks:

Power Source	Risk Level	Remarks
USB-C Only	Safe! No issues.	
VIN Only		
USB-C + VIN at 5V		
USB-C and VIN > 5.5V	High Risk!	Will damage your PC!

* Note: the standard version of VIM4 which includes the TPS2121RUXR chip, does not have this power-selection risk.

FURTHER INFORMATION:

1. This alternate version of VIM4 with ferrite bead is a temporary solution, and we will continue production of the original VIM4 once TPS2121RUXR becomes available.
2. VIM3 restocking issues: https://dl.khadas.com/products/vim3/misc/vim3_restocking_issue.pdf
3. Contact our sales team or email support@khadas.com for more information.

Sorry for the inconvenience, and thanks for reading.