Sipeed Lichee RV Datasheet v1.0

Characteristic:

- CPU: Allwinner D1, XuanTie C906 from T-Head semiconductor, 1GHz
- Embedded HiFi4 DSP，support 4K H.265/H.264 decoding
- Support Linux system，WAFT development environment
- On board 512MB DDR3 DRAM，Reserved SD NAND pad
- On board PMU, support stand-alone operation without base board
- Double M.2 goldfinger connector for GPIO breakout
- On board TF card socket, boot from TF card by default
- On board FEL button and USB Type-c OTG
- On board user LED
- On board 8-pin connector, support 1.14 Inch SPI LCD(optional)

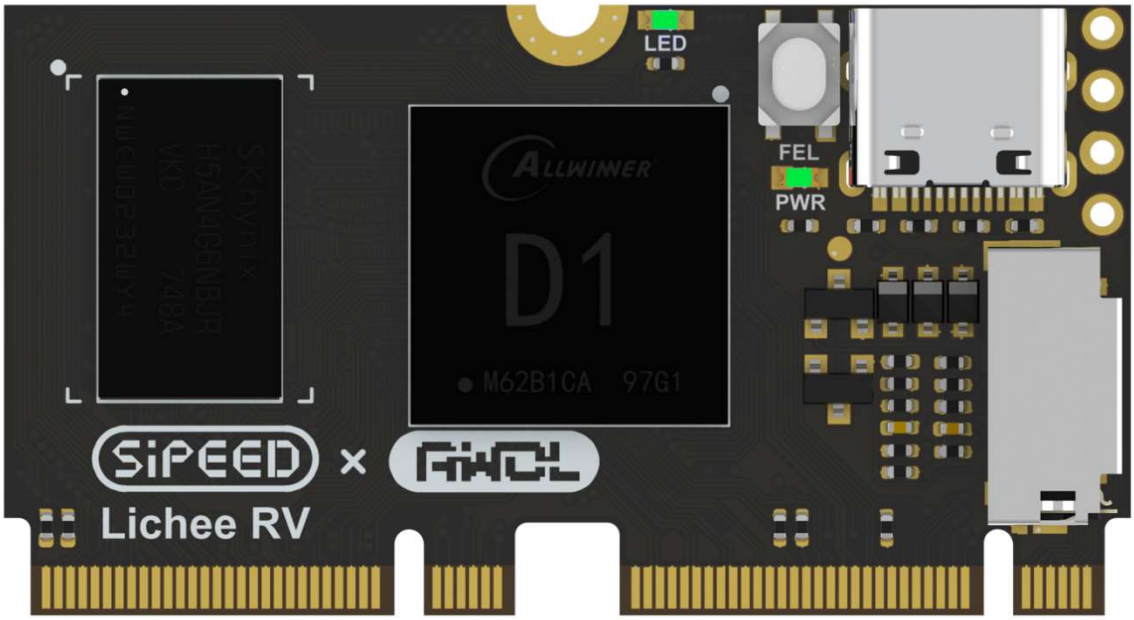
Update record of this document	
V1.0	Edited on November 2, 2021; Original document
V1.1	Edited on November 27, 2021; Added more software resources

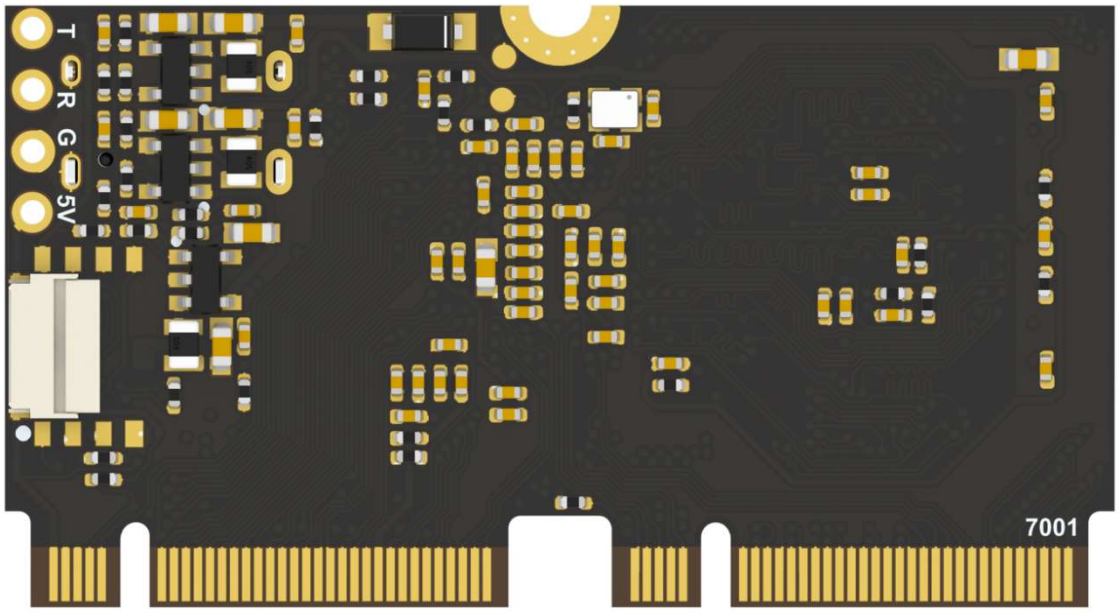
Hardware overview	
CPU	Allwinner D1, single RV64GCV core XuanTie C906 fromT-Head semiconductor
RAM	16bit 512MB DDR3，792MHz clock
Storage	On board TF card socket Reserved SD-NAND pads (used for commercial customization, Conflict with 8pin LCD connector)
Display interface	MIPI：4-lane MIPI-DSI, extended to goldfinger connector RGB：RGB 888 TTL， extended to goldfinger connector MCU(I80)： extended to goldfinger connector SPI：On board 8pin connector，support 1.14 Inch SPI LCD
Audio interface	Analog headphone output (HPOUT): extended to goldfinger connector Analog Line in (LINEIN): extended to goldfinger connector Digital audio(I2S/SPDIF): extended to goldfinger connector Analog differencial mic input (MIC3): extended to goldfinger connector Digital mic input (DMIC)： extended to goldfinger connector
Ethernet	RMII/RGMII： extended to goldfinger connector
USB	USB 2.0 DRD(USB0)： On board USB Type-C USB 2.0 HOST(USB1): extended to goldfinger connector
GPIO	extended to goldfinger connector
Button	• FEL button (for upgrade mode)
LEDs	• 1x Power LED • 1x User LED (active at high level)
PCB Layer	4 Layers
Mount mode	Double M.2 B-KEY goldfinger and M2 screw

Software overview	
System	Tina Linux(Based on OpenWRT 14.07), Debian
	YoC (RTOS)
BSP	Tina SDK from AllWinnerTech (register and download from https://open.allwinnertech.com/)
Supported development language	C/C++, Python, Golang, etc...
UI&YoC resources	https://occ.t-head.cn/

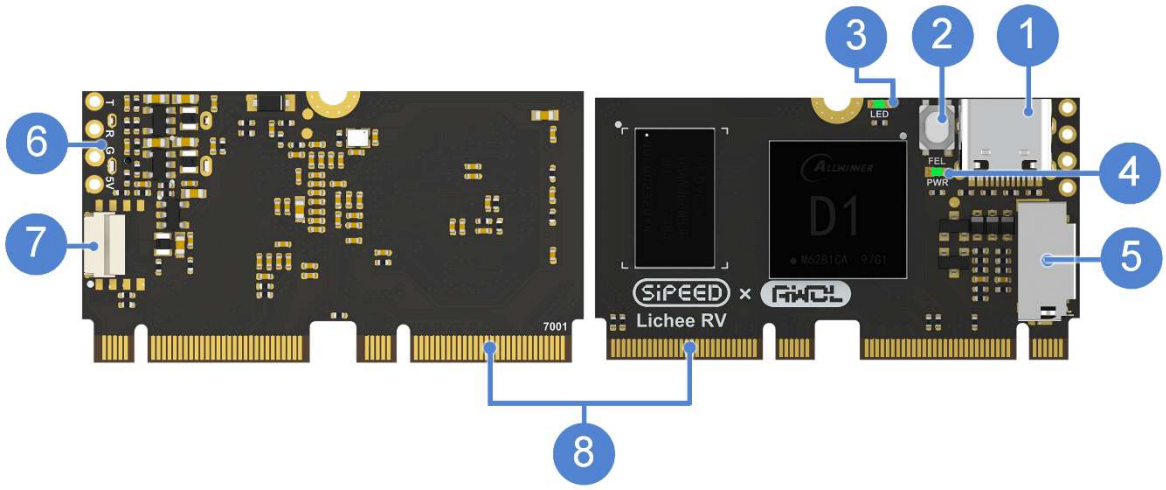
Working conditions	
Power supply	Type-c connector or DEBUG Pins VCC：5V±10%, 0.5A max
Temperature rise	<40K
Temperature range	0℃ ~ 65℃

Appearance drawing



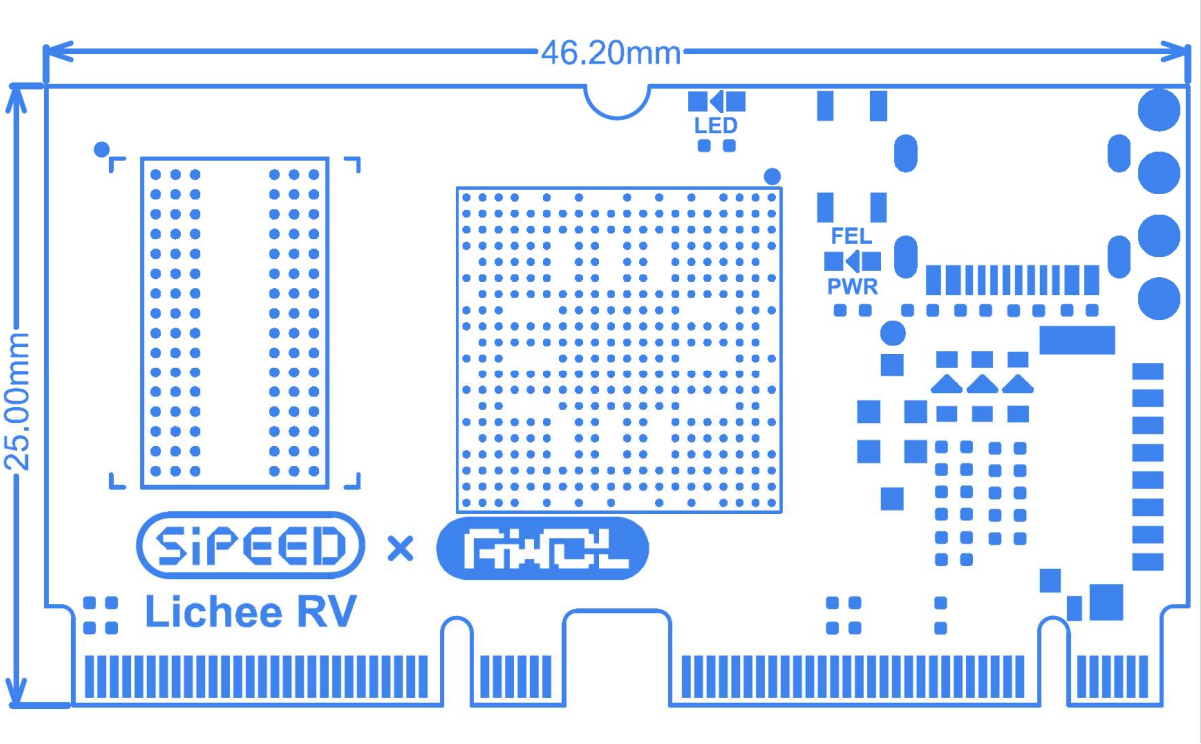


Functional annotation



1. USB Type-c OTG
2. FEL Button
3. User LED
4. Power LED
5. TF card socket
6. UART0 DEBUG
7. 1.14 Inch LCD connector
8. M.2 B-KEY Connector

Dimension information	
Length	46.2 mm
Width	25mm
Thickness	Please check the 3D drawing



Notice	
ESD protection	Please pay attention to avoid static electricity hitting PCBA; Please discharge the human static electricity before touching PCBA
GPIO voltage	The GPIO typical voltage is refered from D1_Datasheet_V0.1, don’ t let it out of range otherwise the PCBA would be damaged.
LCD connector	Please confirm that the FPC of the external LCD screen is plugged in stabily after connect it to the core board
Plug/unplug	Please power down the whole PCBA before plug in the DEBUG PORT, goldenfinger connector or exchange the TF card
Avoid short circuit	Please avoid any liquid or metal touching the pads of components on PCBA during power on, otherwise it will cause short circuit and damage the PCBA
Special GPIO	• GPIO : PC4,PC5 Don’ t use them for GPIO as better，or please refer to <D1_Datasheet_V0.1>

Resources	
Official website	www.sipeed.com
BBS	http://bbs.sipeed.com OR https://occ.t-head.cn/
E-mail	support@sipeed.com
Allwinner Tech SDK	https://open.allwinnertech.com/
Allwinner Tech Development docs	https://d1.docs.allwinnertech.com
Waft UI Document	https://occ.t-head.cn/
linux QQ group	488268051
E-mail (for business cooperation)	support@sipeed.com