R3288A-DG2N/ R3288A-DG2X

Series

User's Manual

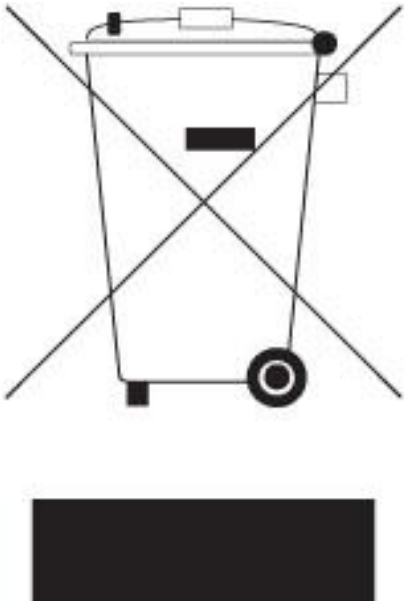
NO: G03-R3288ADG-F

Revision: 5.0

Release date: December 13, 2022

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 40 centigrade is the suitable temperature. (The temperature comes from the request of the chassis and thermal solution)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
5.0	Fifth Edition	December 13, 2022

Item Checklist

☑ Motherboard

Chapter 1
Introduction of the Motherboard

1-1 Feature of Motherboard

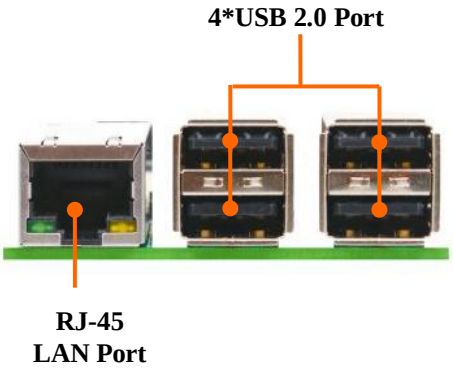
- Rockchip® ARM Cortex A17 RK3288 Quad-core 1.8GHz
- Onboard 2GB 1333 MHz DDR3L DRAM
- Onboard 8GB Flash ROM (Optional for **R3288A-DG2N** series only/ Max 64GB)
- 1*Micro SD Card Socket (Max 64GB)
- 1* Realtek GbE LAN
- 4* USB2.0
- 1* HDMI, 1*MIPI CSI, 1* MIPI DSI
- 1* 5V DC-in/OTG
- 1* Audio Jack
- 1* 26-bit GPIO
- Support 802.11 b/g/n 2.4G Wi-Fi & BT-V4.0
- Support Android 9.0 and Debian 9.0 OS

1-2 Specification

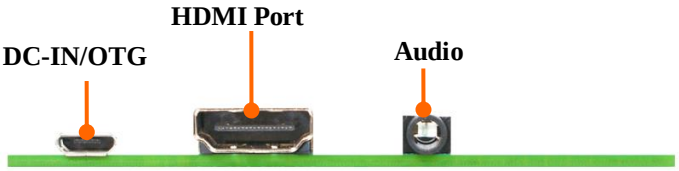
Spec	Description
Design	● 1.8” SBC (85 * 56mm)
CPU	● Rockchip® ARM Cortex A17 RK3288 Quad-core 1.8GHz SoC ** for detailed CPU support information please visit our website*
PMU	● Rockchip® **RK808-B** PMU
Memory	● Onboard 2GB 1333MHz DDR3L DRAM ● 8GB eMMC Flash ROM *(*optional for **R3288A-DG2N** series)*
Network	● 1* Realtek RTL8211E-VB Gigabit LAN chip ● 1* Realtek RTL8723BS chip for 802.11b/g/n 2.4G WIFI &BT-V4.0
Expansion	● 1* Micro-SD (TF) Card Socket
Rear I/O	● 4* USB 2.0 port ● 1* RJ-45 LAN port
Side I/O	● 1* 5V DC-in/ USB OTG combo ● 1* HDMI port ● 1* Audio Line-out/MIC port
Internal I/O	● 1* MIPI CSI connector ● 1* MIPI DSI connector ● 1* Power switch/Recover/Reset header ● 1* 26-bit GPIO & I2C combo header

1-3 Product Diagram

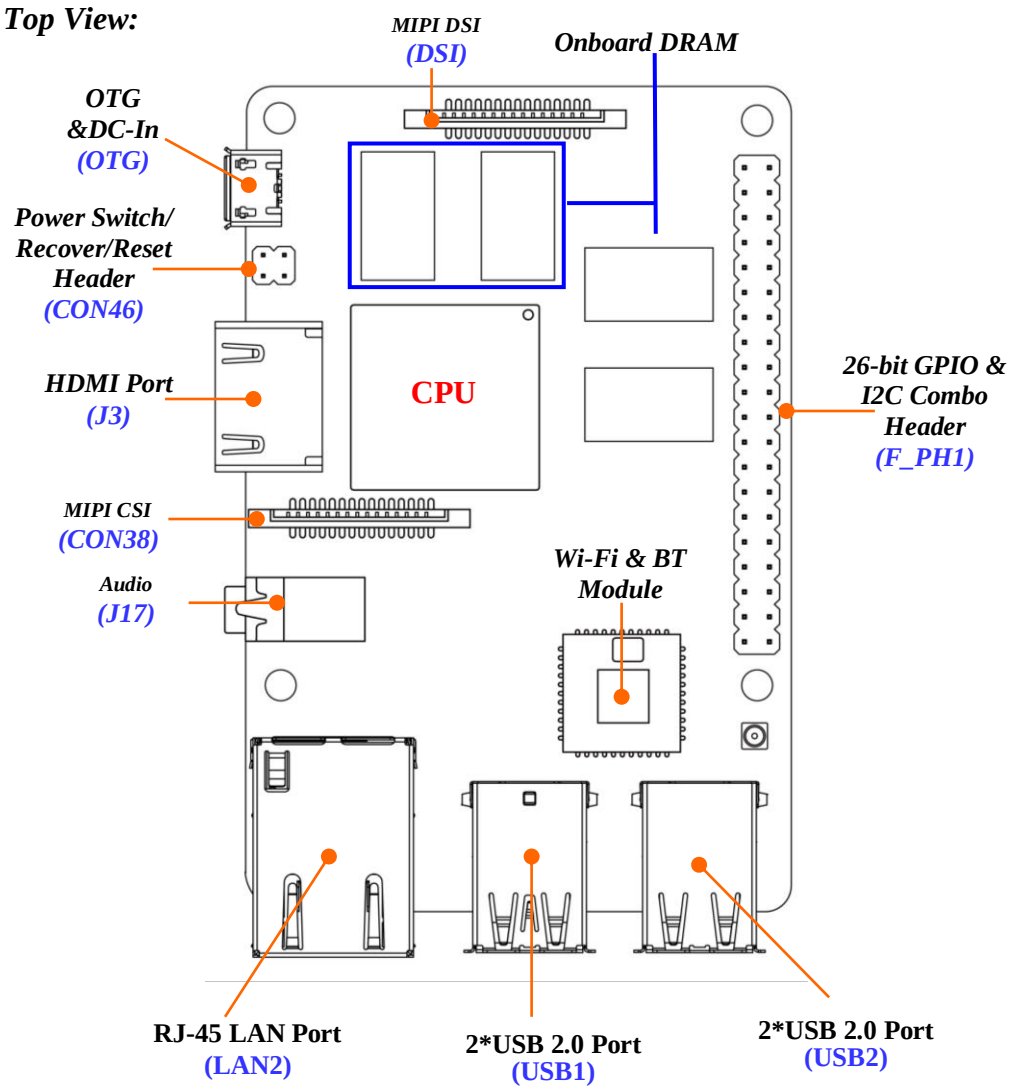
Rear I/O:



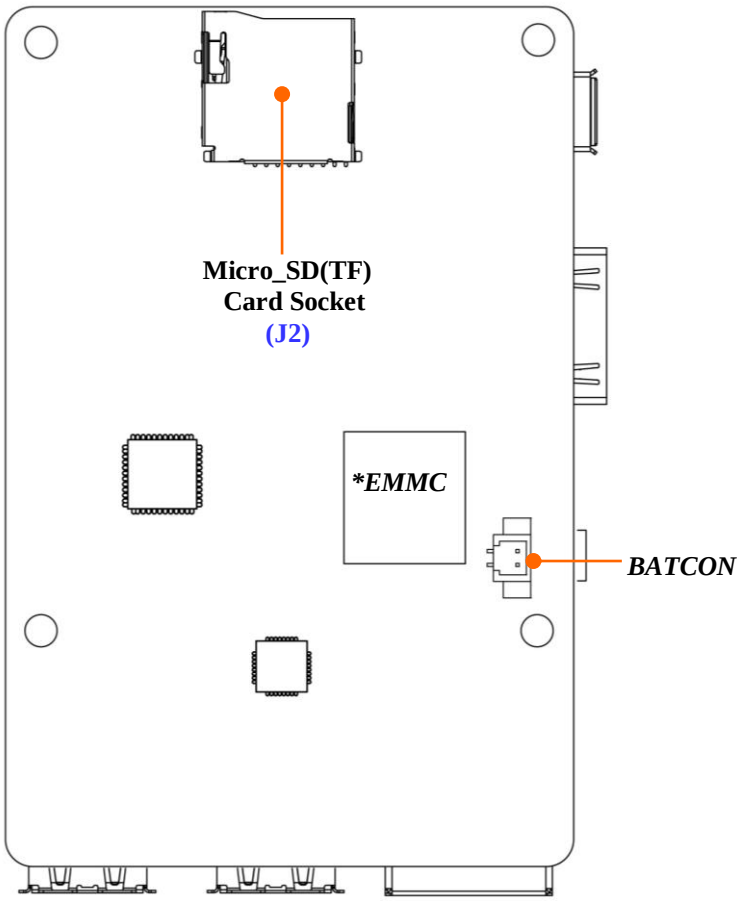
Side I/O:



Motherboard Diagram:



Bottom View:



***Note:** EMMC is only optional for **Model** **R3288A-DG2N** series; **R3288A-DG2X** series come without EMMC.*

Connectors:

P/N	Name
OTG	5V DC–in & USB OTG connector
J3	HDMI Port Connector
J17	Audio Line-out/MIC Connector
LAN2	RJ-45 Gigabit LAN Port Connector
USB1/USB2	USB 2.0 Port x4
J2 (back)	Micro-SD (TF) Card Socket

Headers:

P/N	Name	Description
CON46	Power Switch & System Recovery & Reset Header	4-pin Block
F_PH1	26-bit GPIO& & I2C Combo Header	40-pin Block

Chapter 2
Hardware Installation

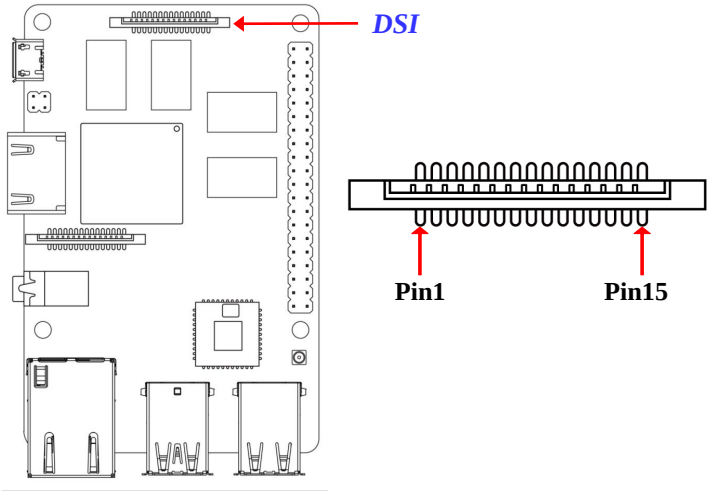
2-1 External Connectors

**** Diagram please refer to Page-3.***

Icon	*Name*	*Function*
	**5V DC-in /USB OTG**	1. For user to connect compatible power supply for the system. 2. For user to connect the board with USB OTG cable for software upgrade flash.
	**HDMI Port**	To connect display device that support HDMI specification.
	**Line-out/MIC Connector**	Line-out & MIC audio jack.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection.
	**USB 2.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification.
	**Macro-SD (TF) Card Socket**	For user to insert compatible micro-SD (TF) card into the socket.

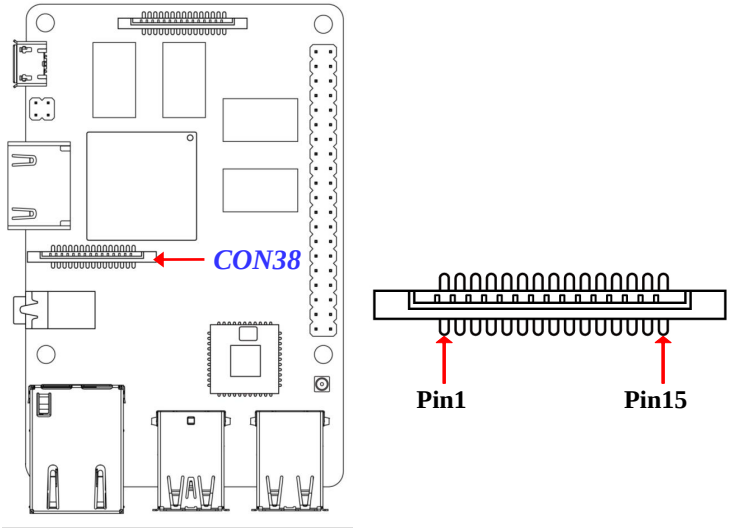
2-2 Internal Connector & Header Pin Definition

DSI (15-pin): MIPI DSI Connector



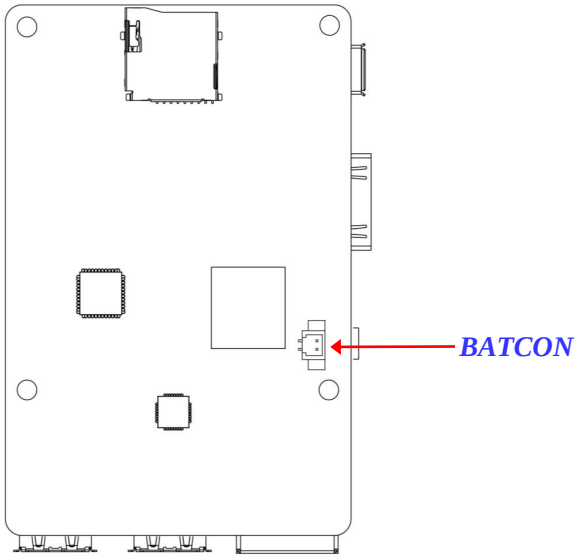
No.	Pin Define
1	VDD
2	VDD
3	GND
4	SDA
5	SCL
6	GND
7	D0P
8	D0N
9	GND
10	CLKP
11	CLKN
12	GND
13	D1P
14	D1N
15	GND

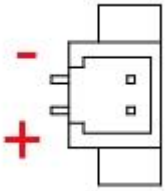
CON38 (15-pin): MIPI CSI Connector



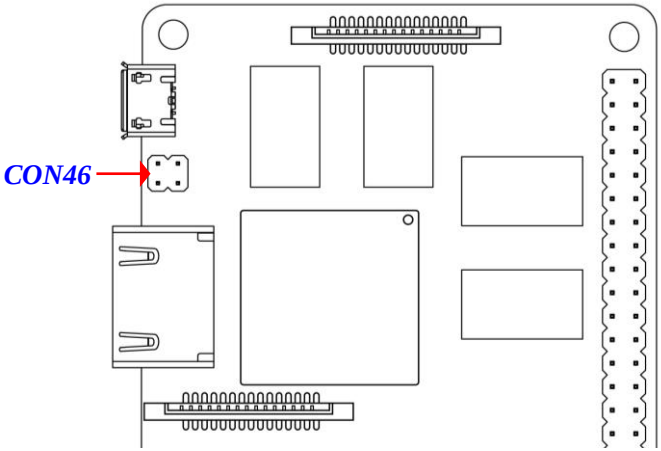
No.	Pin Define
1	3V3
2	SDA
3	SCL
4	MCLK
5	PDN1
6	GND
7	CLKP
8	CLKN
9	GND
10	D1P
11	D1N
12	GND
13	D0P
14	D0N
15	GND

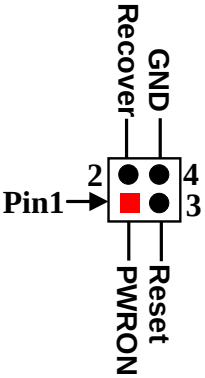
BATCON (2-pin): Battery Connector



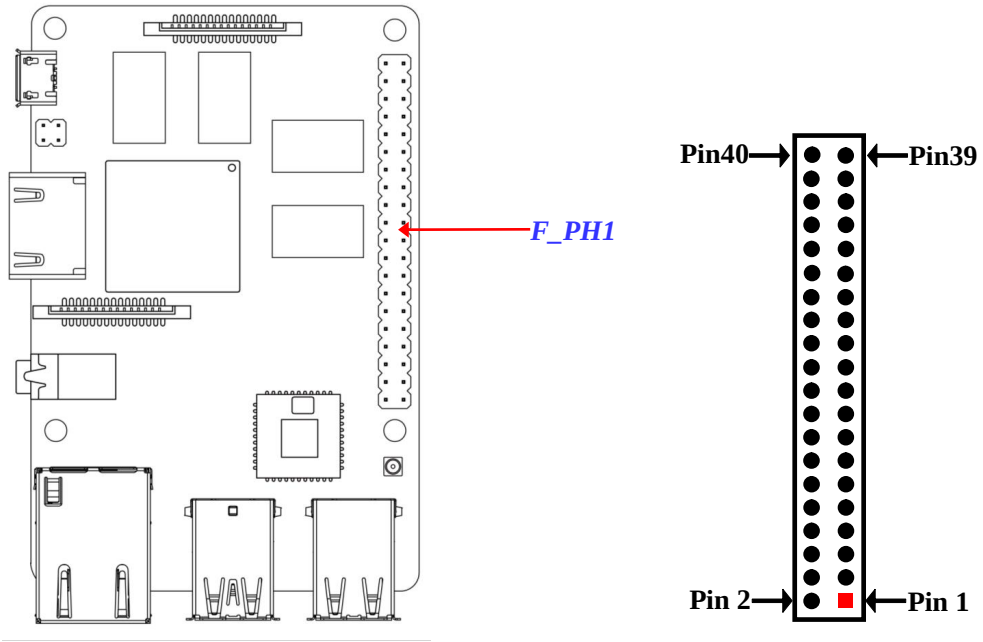


CON46 (4-pin): Power Switch& Recovery & Reset Header





F_PH1 (40-pin): 26-bit GPIO & I2C Combo Header



F_PH1

Pin Define	No.	No.	Pin Define
GPIO-190	**40**	**39**	GND
GPIO-189	**38**	**37**	UART3
UART3	**36**	**35**	GPIO-195
GND	**34**	**33**	UART2
UART2	**32**	**31**	GPIO-168
GND	**30**	**29**	UART4
I2C4	**28**	**27**	I2C4
SPI2	**26**	**25**	GND
SPI2	**24**	**23**	SPI2
GPIO-171	**22**	**21**	SPI2
GND	**20**	**19**	SPI2
UART1	**18**	**17**	3V3
UART1	**16**	**15**	UART4
GND	**14**	**13**	UART4
GPIO-191	**12**	**11**	UART4
UART1	**10**	**9**	GND
UART1	**8**	**7**	GPIO-17 or CLCKOUT
GND	**6**	**5**	I2C1
5V	**4**	**3**	I2C1
5V	**2**	**1**	3V3

***Note:**All pins can be altered into GPIO specification by customized kernel*