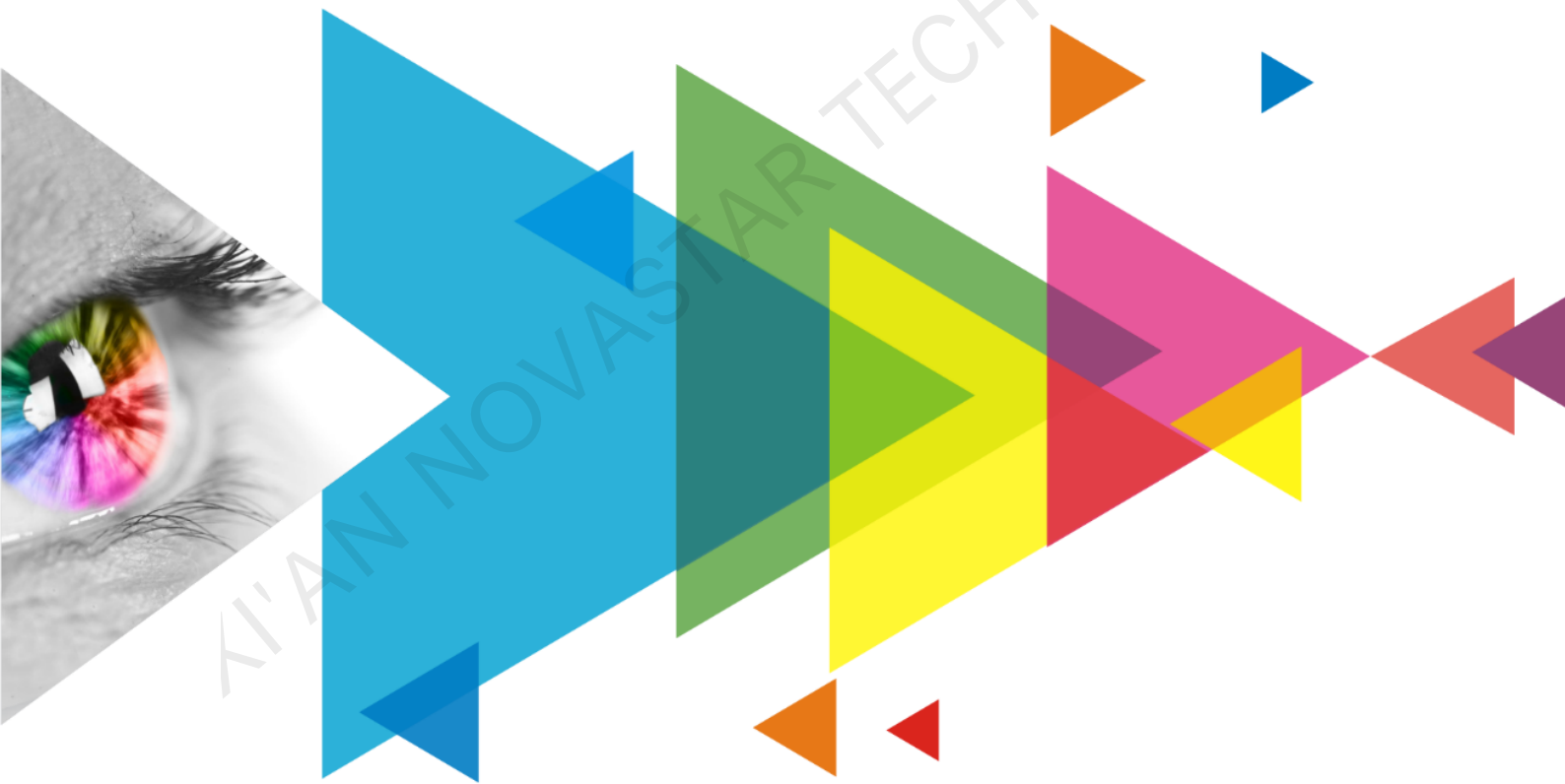


# MRV570-1

## Receiving Card



Specifications

## Change History

Document Version	Release Date	Description
V1.0.0	2023-02-01	First release

## Introduction

The MRV570-1 is a general receiving card developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). A single MRV570-1 supports resolutions up to 512×256@60Hz. Supporting various functions such as pixel level brightness and chroma calibration, the MRV570-1 can significantly improve the display effect and user experience.

The MRV570-1 uses hub connectors for communication, resulting in high stability. It supports up to 20 groups of parallel RGB data or 64 groups of serial data. Thanks to its EMC Class B compliant hardware design, the MRV570-1 has improved electromagnetic compatibility and is suitable for various on-site setups.

## Certifications

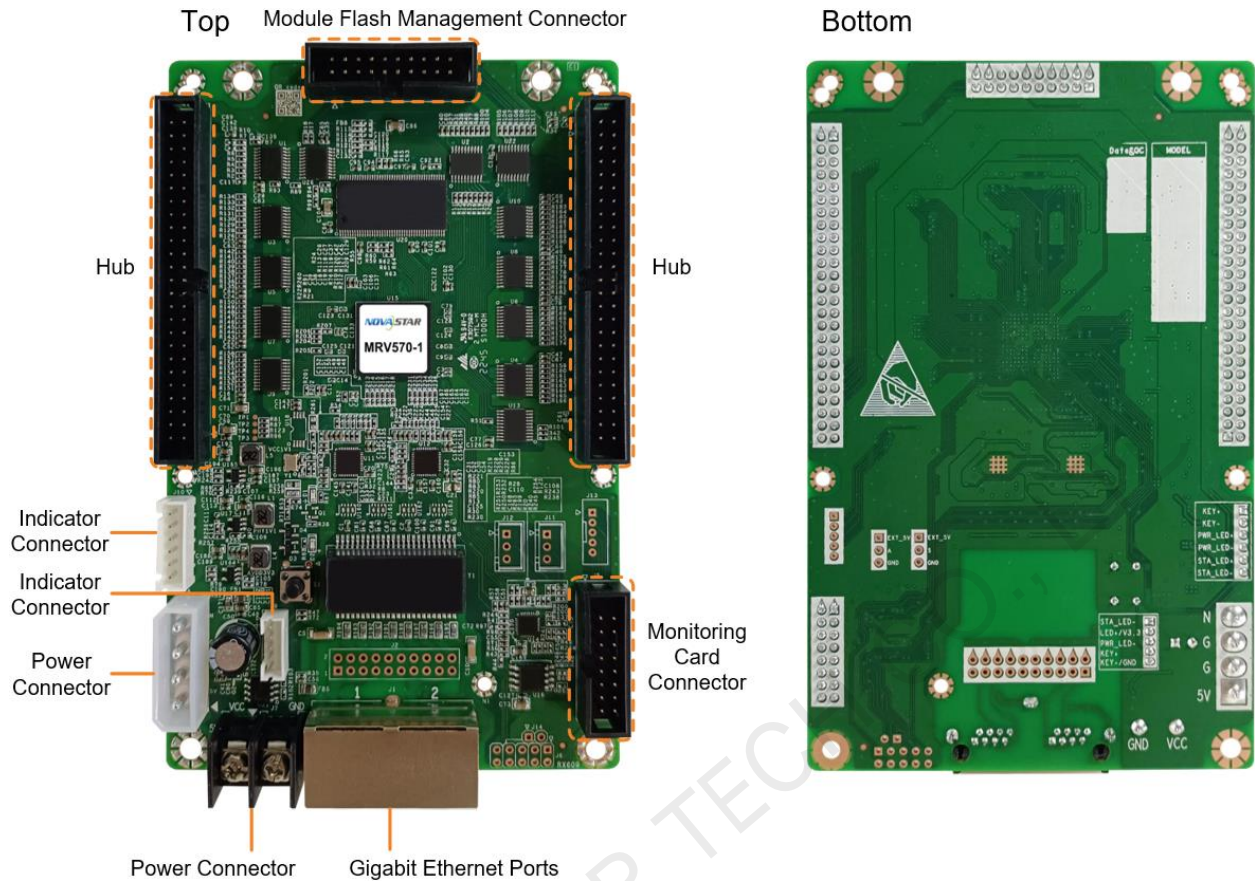
RoHS, EMC Class B

**If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.**

## Features

- Module Flash management to store calibration coefficients and module information
- Pixel level brightness and chroma calibration
- Support for setting of a stored image in the receiving card
- Configuration parameter readback
- Temperature monitoring
- Ethernet cable communication status monitoring
- Power supply voltage monitoring
- Support for connection of a monitoring card

## Appearance



All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Pin Definitions of the Module Flash Management Connector (J4)			
GND	1	2	SPI_CS
SPI_CLK	3	4	SPI_MOSI
CODE0	5	6	H164_CSD
CODE1	7	8	H164_CLK
CODE2	9	10	/
/	11	12	CODE3
CODE4	13	14	/
/	15	16	SPI_MISO
/	17	18	/
/	19	20	GND

Pin Definitions of the 5-Pin Indicator Connector (J9)				
1	2	3	4	5
STA_LED	LED +/3.3V	PWR_LED -	KEY +	KEY -/GND

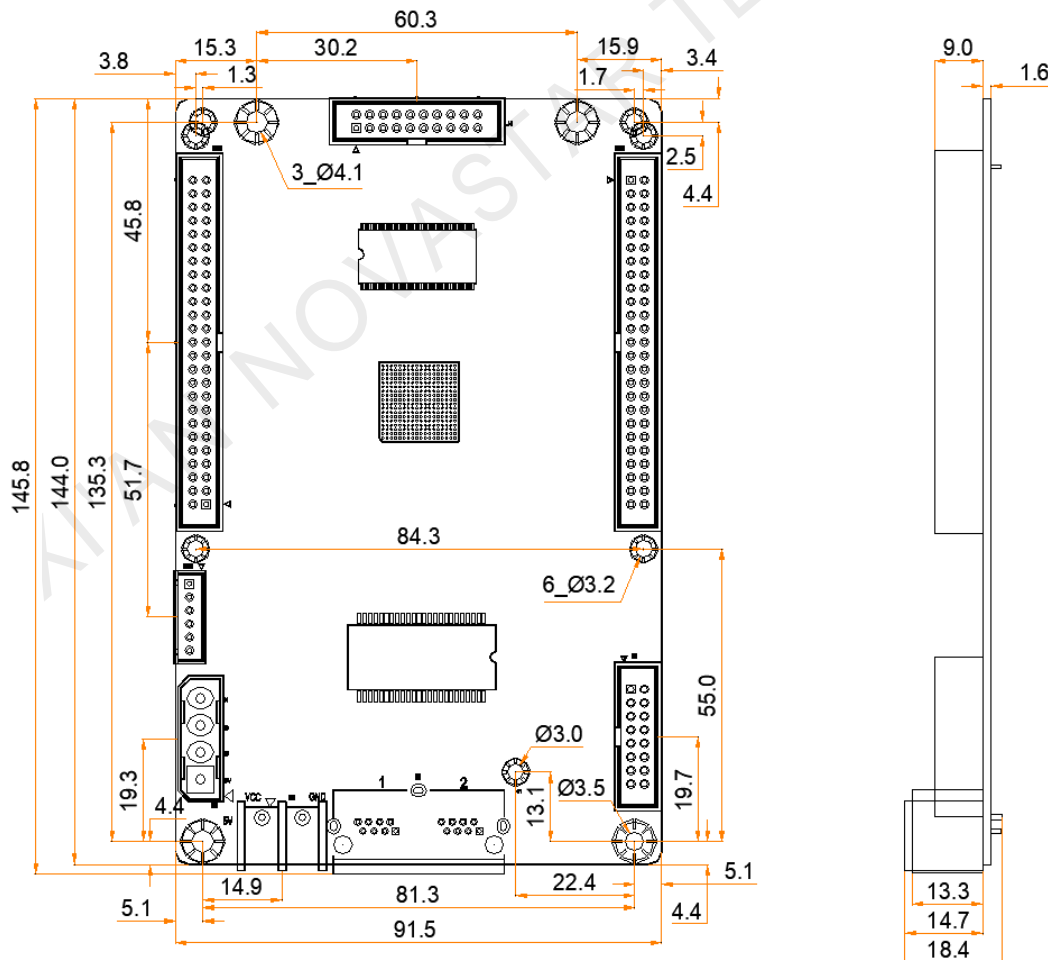
Pin Definitions of the 6-Pin Indicator Connector (J10)					
1	2	3	4	5	6
KEY+	KEY-	PWR_LED+	PWR_LED-	STA_LED+	STA_LED-

## Indicators

Indicator	Color	Status	Description
Running indicator	Green	Flashing once every 1s	The receiving card is functioning normally. Ethernet cable connection is normal, and video source input is available.
		Flashing once every 3s	Ethernet cable connection is abnormal.
		Flashing 3 times every 0.5s	Ethernet cable connection is normal, but no video source input is available.
		Flashing once every 0.2s	The receiving card failed to load the program in the application area and is now using the backup program.
		Flashing 8 times every 0.5s	A redundancy switchover occurred on the Ethernet port and the loop backup has taken effect.
Power indicator	Red	Always on	The power supply is normal.

## Dimensions

The board thickness is not greater than 2.0 mm, and the total thickness (board thickness + thickness of components on the top and bottom sides) is not greater than 19.0 mm. Ground connection (GND) is enabled for mounting holes.

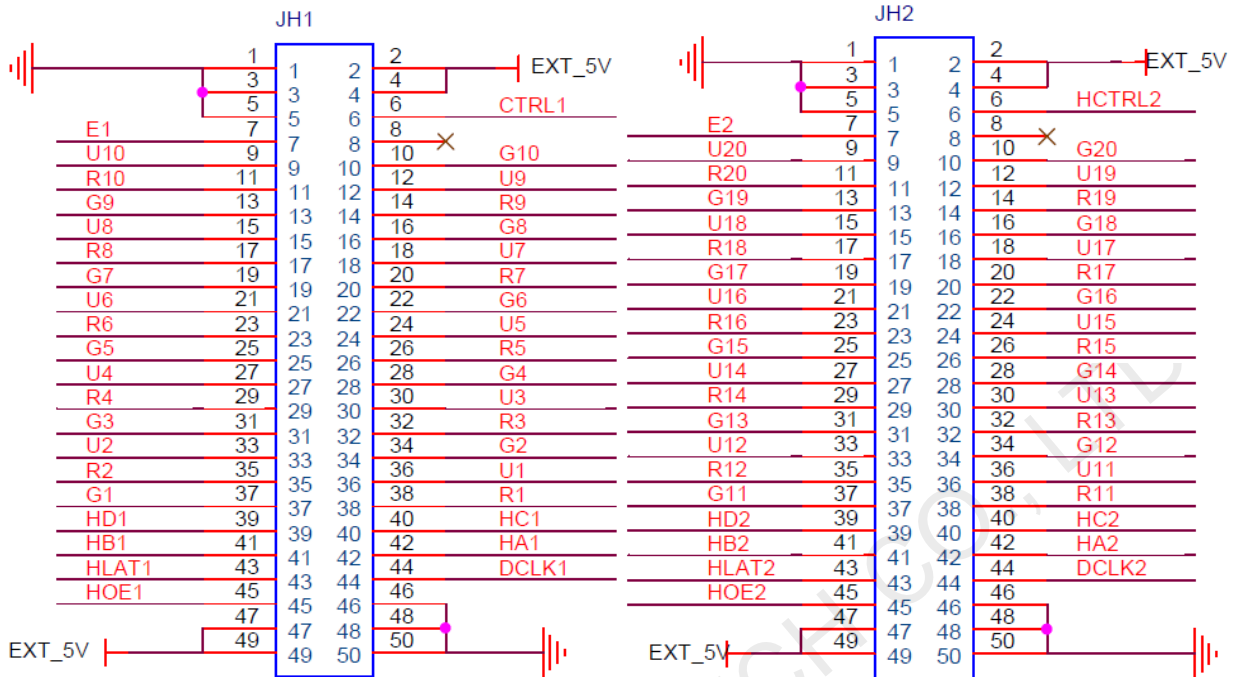


Tolerance:  $\pm 0.3$  Unit: mm

To make molds or trepan mounting holes, please contact NovaStar for a higher-precision structural drawing.

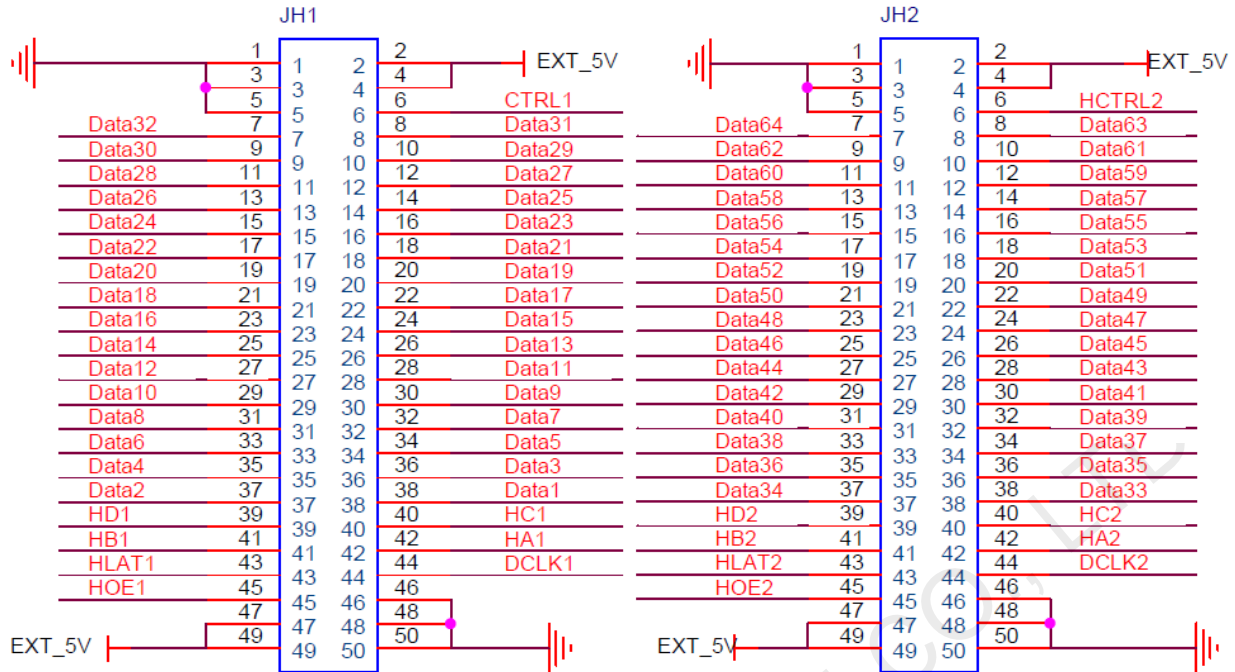
# Pins

## 20 Groups of Parallel RGB Data



JH1					JH2						
/	GND	1	2	EXT_5V	/	/	GND	1	2	EXT_5V	/
/	GND	3	4	EXT_5V	/	/	GND	3	4	EXT_5V	/
/	GND	5	6	CTRL1	Afterglow control signal	/	GND	5	6	HCTRL2	Afterglow control signal
Line decoding signal	E1	7	8	NC	/	Line decoding signal	E2	7	8	NC	/
/	U10	9	10	G10	/	/	U20	9	10	G20	/
/	R10	11	12	U9	/	/	R20	11	12	U19	/
/	G9	13	14	R9	/	/	G19	13	14	R19	/
/	U8	15	16	G8	/	/	U18	15	16	G18	/
/	R8	17	18	U7	/	/	R18	17	18	U17	/
/	G7	19	20	R7	/	/	G17	19	20	R17	/
/	U6	21	22	G6	/	/	U16	21	22	G16	/
/	R6	23	24	U5	/	/	R16	23	24	U15	/
/	G5	25	26	R5	/	/	G15	25	26	R15	/
/	U4	27	28	G4	/	/	U14	27	28	G14	/
/	R4	29	30	U3	/	/	R14	29	30	U13	/
/	G3	31	32	R3	/	/	G13	31	32	R13	/
/	U2	33	34	G2	/	/	U12	33	34	G12	/
/	R2	35	36	U1	/	/	R12	35	36	U11	/
/	G1	37	38	R1	/	/	G11	37	38	R11	/
Line decoding signal	HD1	39	40	HC1	Line decoding signal	Line decoding signal	HD2	39	40	HC2	Line decoding signal
	HB1	41	42	HA1			HB2	41	42	HA2	
Latch signal	HLAT1	43	44	DCLK1	Shift clock	Latch signal	HLAT2	43	44	DCLK2	Shift clock
Display enable signal	HOE1	45	46	GND	/	Display enable signal	HOE2	45	46	GND	/
/	EXT_5V	47	48	GND	/	/	EXT_5V	47	48	GND	/
/	EXT_5V	49	50	GND	/	/	EXT_5V	49	50	GND	/

## 64 Groups of Serial Data



In serial mode, there are 64 data cables in total. Each cable can drive one LED strip independently.

- For horizontal LED strips, Data1 drives the first row of strip from the top and Data64 drives the 64th row by default (front view).
- For vertical LED strips, Data1 drives the first column of strip from the left and Data64 drives the 64th column by default (front view).

JH1					JH2							
/	GND	1	2	EXT_5V	/	/	GND	1	2	EXT_5V	/	
/	GND	3	4	EXT_5V	/	/	GND	3	4	EXT_5V	/	
/	GND	5	6	CTRL1	Afterglow control signal	/	/	GND	5	6	HCTRL2	Afterglow control signal
/	Data32	7	8	Data31	/	/	Data64	7	8	Data63	/	
/	Data30	9	10	Data29	/	/	Data62	9	10	Data61	/	
/	Data28	11	12	Data27	/	/	Data60	11	12	Data59	/	
/	Data26	13	14	Data25	/	/	Data58	13	14	Data57	/	
/	Data24	15	16	Data23	/	/	Data56	15	16	Data55	/	
/	Data22	17	18	Data21	/	/	Data54	17	18	Data53	/	
/	Data20	19	20	Data19	/	/	Data52	19	20	Data51	/	
/	Data18	21	22	Data17	/	/	Data50	21	22	Data49	/	
/	Data16	23	24	Data15	/	/	Data48	23	24	Data47	/	
/	Data14	25	26	Data13	/	/	Data46	25	26	Data45	/	
/	Data12	27	28	Data11	/	/	Data44	27	28	Data43	/	
/	Data10	29	30	Data9	/	/	Data42	29	30	Data41	/	
/	Data8	31	32	Data7	/	/	Data40	31	32	Data39	/	
/	Data6	33	34	Data5	/	/	Data38	33	34	Data37	/	
/	Data4	35	36	Data3	/	/	Data36	35	36	Data35	/	
/	Data2	37	38	Data1	/	/	Data34	37	38	Data33	/	
Line decoding signal	HD1	39	40	HC1	Line decoding signal	Line decoding signal	HD2	39	40	HC2	Line decoding signal	
	HB1	41	42	HA1			HB2	41	42	HA2		
Latch signal	HLAT1	43	44	DCLK1	Shift clock	Latch signal	HLAT2	43	44	DCLK2	Shift clock	
Display enable signal	HOE1	45	46	GND	/	Display enable signal	HOE2	45	46	GND	/	
/	EXT_5V	47	48	GND	/	/	EXT_5V	47	48	GND	/	
/	EXT_5V	49	50	GND	/	/	EXT_5V	49	50	GND	/	

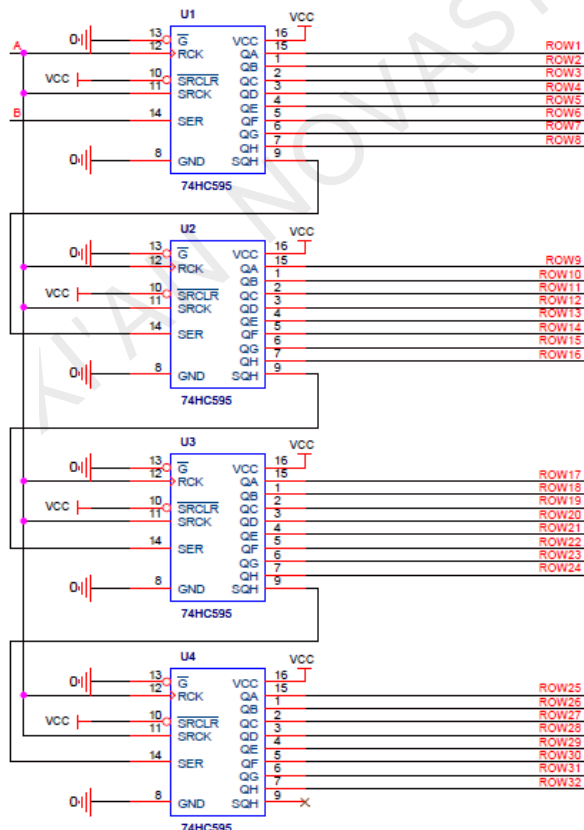
## Specifications

Maximum Resolution	512x256@60Hz	
Electrical Specifications	Input voltage	DC 3.8 V to 5.5 V
	Rated current	0.5 A
	Rated power consumption	2.5 W
Operating Environment	Temperature	-20°C to +70°C
	Humidity	10% RH to 90% RH, non-condensing
Storage Environment	Temperature	-25°C to +125°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	145.8 mm × 91.5 mm × 18.4 mm
Packing Information	Packing specifications	An antistatic bag and anti-collision foam are provided for each receiving card. Each packing box contains 100 receiving cards.
	Packing box dimensions	625.0 mm × 180.0 mm × 470.0 mm

The amount of current and power consumption may vary depending on various factors such as product settings, usage, and environment.

## Appendix

Serial data decoding circuit:





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