



*Shenzhen Mooncell Electronics Co., Ltd*

## *FPGA Receiving Card Series*

### *A712-B Product Specifications*

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# Updates History

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Document Version	Hardware Version	Release Date	Version History
V3.0	A712-B (V1.0.0)	January 4, 2024	First Release
V3.1	A712-B (V1.0.0)	April 26, 2024	/

# 1 Product Overview

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## **Product Introduction**

A712 is a receiving card that fully researched and developed by Mooncell; it adopted 12x HUB75E interfaces; it can supports the maximum 24 groups of the parallel connection data;the maximum loading capacity could reach up to 512\*384 pixels; with strong processing ability, supper reliability and high competitive price.

## **Application Scenarios**

It could be widely used for high-end LED display area that requires high standards; and has significant advantages in application scenarios such as led rental display, TV Broadcast, LED display for respectable Event,High-end project,etc.

# 2 Function Introduction

## Displaying Effect

It supports pixel level brightness and Chroma Calibration	Using it with the Mooncell Calibration Software to calibrate each one of the pixels on its brightness and Chroma. It can effectively eliminate the Chromatic aberration so as to enhance its consistency of the brightness and Chroma to a high level and result in a better displayed effects.
Multiple Solutions of the Displayed Effects are Supported	Using it with Monncell AutoLED Software, the Refresh and Grey Scale performances are able to take the precedence over other settings.
The Images on the led screen can be rotated 90 degree in a factor of multiple times	Using it with Mooncell AutoLED Software.
The images can be zoomed in or out	Using it with Mooncell AutoLED
18Bit+	Enabling 18Bit + on the software can increase the gray scale of the LED display by 4 times. Effectively deal with the problem of grey release loss caused by the reduction of brightness of the LED display,Solve the pitting problem caused by low gray correction, making the low gray degree of the image more delicate
HDR	Support HDR10 and HLG two video source standards; with a large capacity of independent master, input HDR10 standard or HLG standard video source, can achieve greater brightness dynamic range and color space, greatly enhance the display image quality, make the picture more delicate and realistic
Low latency	Reduce the delay of the video source on the receiving card. Latency as low as 1 frame (for light boards with driver ICs using built-in RAM)

Fast light and dark line adjustment	Fast light and dark line adjustment can be carried out on the software. Quickly solve the bright and dark lines of the display screen caused by the splicing of the box and modules.
3D function	The receiving card parameters set the frame rate to 120HZ, with an independent master that supports 3D function, Turn on the 3D function in the software or on the controlled operation panel of independent master controller. And set 3D parameters to make the screen display 3D effects.
RGB Independent Gamma Adjustment	With independent master and software that supports RGB independent gamma adjustment, By adjusting the "red Gamma", "green Gamma" and "blue Gamma" respectively, Effectively deal with the problems of the display screen, such as uneven low gray, white balance drift, etc. Make the display more realistic.

### Enhanced Operability:

The Receiving Card is Supported to detect its own Sequence number	Using the Network Port testing function on Mooncell AutoLED Software, the receiving card serial number and the Network Port Information will be displayed on the target cabinet. Users will be able to get to know the locations of the receiving cards as well as its Connection diagram.
Data Port User-Defined is supported	Using it with the Mooncell AutoLED Software, you can detect and edit the output data of the receiving cards.
To build up a complicated cabinet is supported	On AutoLED Software, there is an 'Advanced Setting', from here you can quickly arrange or structure the modules at your option.
To structure a complicated Led Screen is supported	On AutoLED Software, there is a "Complicated Led Screen Connection", from here you can quickly arrange or structure the cabinet modules on your option.

## Hardware Stability

Ethernet Cable Backup(Hot Backup)	The main cable will be having the loop connection. If there's one cable breaks then still there will have another one to make sure the led display work properly.
	Dual receiving cards backup is supported( Dual Circuit backup design) Customized :when the main working receiving card fails, the other one (backup) will take its job to keep the led display working properly.
Support voltage detection (customized)	Support detecting the working voltage of the receiving card
Support temperature detection (customized)	Support detecting the working temperature of the receiving card
Support power status detection (Customized)	The hardware has a power detection interface for detecting the working status of the power supply

## Smart Software and Hardware Stability

The receiving card can read the configuration data back from where it has been stored	You will be able to do this on Mooncell AutoLED Software.
It supports to detect the error rates of the network cable	On the Mooncell AutoLED Software, you can detect the network cable connectivity in real time to tell the condition of the network cables, so that you can get rid of any errors immediately.
Communication Monitoring Function	On Mooncell AutoLED Software, you can monitor the Working Status of the receiving cards in real time.

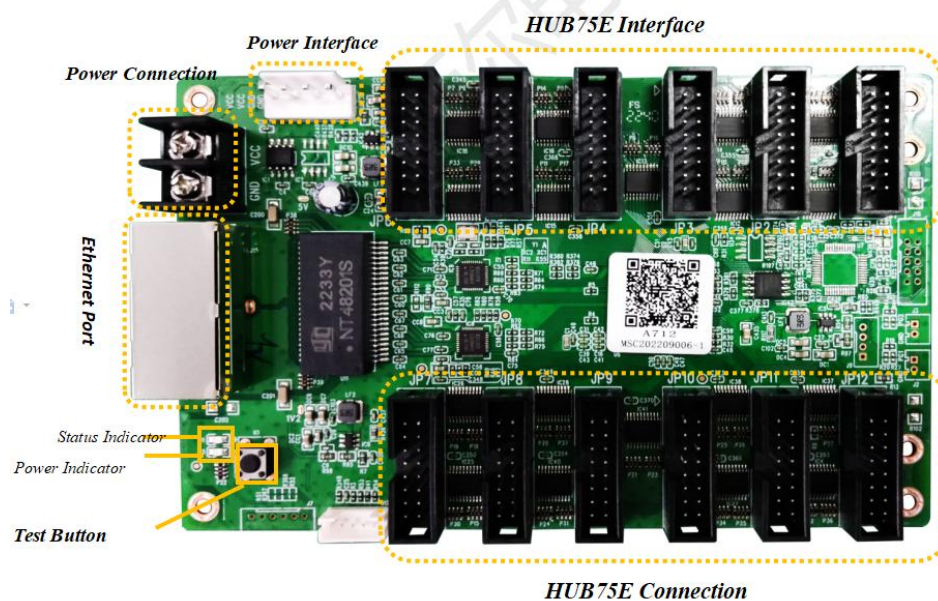
### 3 Product Parameters

RGB Parallel	Data Ports/Interfaces/ QTY	Driver IC	The Maximum Loading Capacity(Pixels )	Loading Capacity After lightness Calibrating (Pixels)	Loading Capacity after Color Calibrating(Pixels)
24 Groups	HUB75E/12	Conventional	512*384	512*256	256*320
		PWM	512*512	512*512	256*320

### Basic Parameters

Single Network Pot Cascading Quantity	Scanning Lines Supported		
≤1000PCS	1-64 Scan		

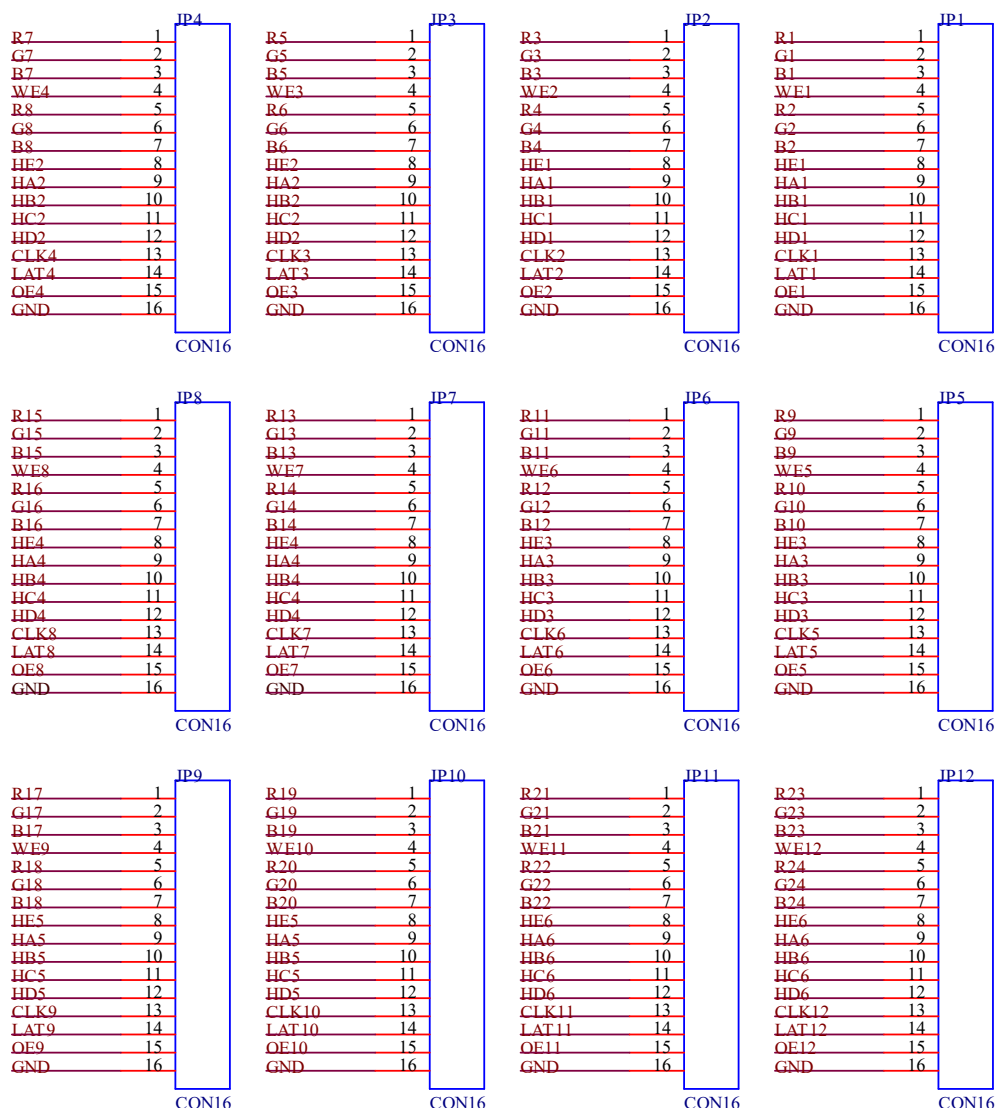
### Hardware Introduction





## Output Port Definition

Port Definition of the 24 Groups of parallel connection data



### JP1-JP12 PIN Definition :

Illustration	Definition	PIN#	PIN#	Definition	Illustration
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RGB Data Output	R	1	2	G	RGB Data Output
	B	3	4	GND	GND
	R	5	6	G	RGB Data Output
	B	7	8	HE	Line Decoding Signal
HA	9	10	HB		
Line Decoding Signal	HC	11	12	HD	
Shift Clock Output	CLK	13	14	LAT	Latch Signal
Display Enable(Remarks 1)	OE	15	16	GND	GND

Remarks 1: Pin # 15 is the display enable pin. And When using the PWM chip it will be the GCLK Signal.

**J11 Pin Definition:**

Definition	PIN#	PIN#	Definition
+5V	1	2	GND
FLS_CS	3	4	FLS_DO
FLS_CLK	5	6	FLS_DI
PROGRAM_B	7	8	mCONF_DONE
GND	9	10	+5V

**J12 Indicator PIN Definition:**

PIN#	1	2	3	4	5
Definition	GND/KEY-	KEY+	LEDR-	VCC/LED+	LEDG-

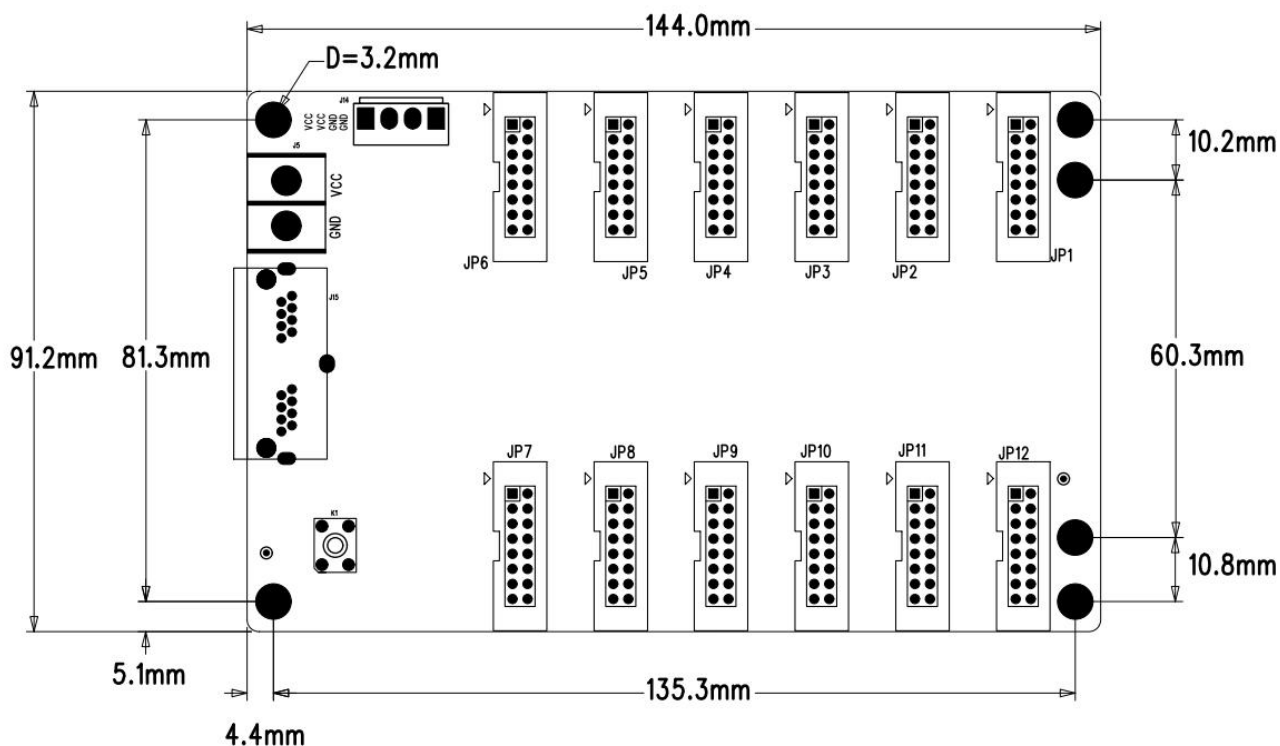
**J14 Socket PIN Definition:**

PIN#	1	2	3	4
Definition	VCC	VCC	GND	GND

## Indicator Illustration

Indicator	Position	Status	Illustration
Status Indicator (Green)	U1	Flickering Slowly at a constant	The receiving card is working properly, The Ethernet Cable Connection is fine, No DVI Signal Input
		Flickering Fast at a constant	The receiving card is working properly, The Ethernet Cable Connection is fine, with DVI Signal Input
		It goes out	No Gigabit Ethernet Signal
		Fast Flickering 3 Tunes	The receiving card is working properly, The Ethernet Cable Loop Connection is fine, DVI Signal Input
Status Indicator	U3	Long Lasting On	Power is On

## Dimensions



# 4 Product Specifications

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## Specifications

Electric Parameters	Input Voltage	DC3.5-5.5V
	Rated Current	0.6A
	Rated Power	3W
Operating Environment	Operating Temperature	-20°C - 70°C
	Operating Humidity	10%RH-90%RH
Storage Environment	Temperature	-25°C~125°C
Dimensions	144.02mmX91.19mm	
Net Weight	100.8g	
Certifications	It conforms to RoHS and CE-EMC standards.	

## Precautions

1. The testing (debugging) and installation should be done by the qualified professionals
2. Anti-Static, Water-Proof and Dust-Proof Required