



A4X Receiving Card

Specification V3.3

Shenzhen Mooncell Electronics Co., Ltd

1 Product Overview

Product Introduction

A4X is a small sized receiving card that fully researched and developed by Mooncell; it adopted the high-precision 120 PIN connector; it can supports the maximum 32 groups of the parallel connection data;the maximum loading capacity could reach up to 768*256 pixels; with strong processing ability, supper reliability and high competitive price.

Product Features

- It features the small size and thickness, saving a lot more space for the narrow cabinet and space of the led strip(bar).
- It features high precision connector, which is dust-proof & shock proof; with high reliability and stability.
- Integrated Network Transformer, Simplified Design, Improved Electromagnetic Compatibility.
- With strong LED Driver IC compatibility.

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.

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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	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	Using it with Mooncell AutoLED Software.
The images can be zoomed in or out	Using it with Mooncell AutoLED
18bit +	Improve the effect of low gray display, smoother screen transition
Support low latency	Support low-delay control and display of the receiving card, that is, on the basis of using the sending card, the time delay between the output of the signal source and the display of the light board is 2 frames
Support 3D	3D picture effect, you need to use 3D glasses to watch; transmit the format of the 3D signal to the 3D glasses by connecting the 3D signal transmitter.

Support RGB standalone gamma	Can independently customize the GAMMA value of RGB
Supports disconnected display settings	Set the status of the receiving card interrupt communication display (black screen, standby picture, last frame).

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.
Support Smart Module (customized functions)	The smart module consists of Flash and MCU. Flash can store the correction coefficients, MCU can communicate with the receiving card to realize the monitoring of temperature, voltage and communication status of the module, users do not need to install a separate monitoring card, saving the space of the box.
Support module auto-calibration (Optional function)	When a lamp board is replaced, the receiving card automatically reads the new lamp board ID and correction factor when it is powered up and saves them in the receiving card Flash.

Hardware Stability

(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.
	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.
Dual Power Supplies Backup	Detect power status and feed back to the software
It supports to detect the voltage	It will detects the voltage status of the receiving cards.
It supports to detect the temperature	The operating temperature of the receiving cards could be detected.
Supports access to module sensors	Sensor for module infrared distance access via I2C requires HUB and module support
FPGA dual program startup	When the FPGA main program configuration is unsuccessful, enter the standby BOOT program to work and achieve normal communication.

Smart Software and Hardware Stability

Readback	You will be able to do this on Mooncell AutoLED Software. The receiving card can read the configuration data back from where it has been stored
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.

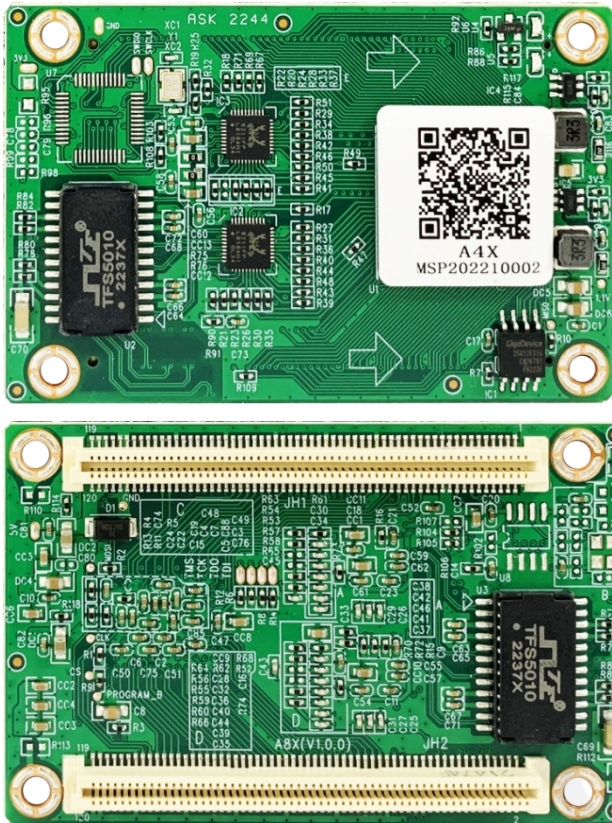
3 Product Parameters

Basic Parameters

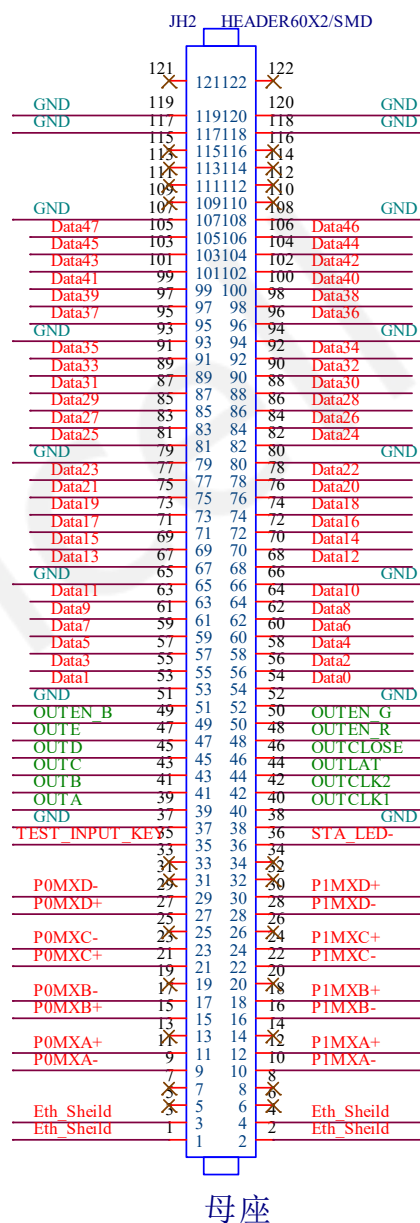
RGB Parallel	Maximum Loading Capacity(Pixels)		Luminance Correction Bandwidth (pixels)	Chroma Correction Band Load (pixels)
32 Groups	PWM Driver IC	768*256	768*256	256*352
	Conventional Driver IC	512*512		

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

Hardware Introduction



Port Definition of the 32 Groups of parallel connection data



JH1 Definition:

illustration	Definition	PIN	PIN	Definition	illustration
	GND	1	2	GND	
/	NC	9	10	NC	
/	NC	11	12	NC	
/	NC	13	14	NC	
/	NC	15	16	NC	
/	NC	17	18	NC	3.3V Subsidiary Output
	NC	19	20	3.3V_LED	
	GND	21	22		
	NC	23	24	NC	
	GND	25	26	GND	
	G17	27	28	R17	
	R18	29	30	B17	
	B18	31	32	G18	
	G19	33	34	R19	
	R20	35	36	B19	
	B20	37	38	G20	
	GND	39	40	GND	
	G21	41	42	R21	
	R22	43	44	B21	
	B22	45	46	G22	
	G23	47	48	R23	
	R24	49	50	B23	
	B24	51	52	G24	
	GND	53	54	GND	
	G25	55	56	R25	
	R26	57	58	B25	

	B26	59	60	G26	
	G27	61	62	R27	
	R28	63	64	B27	
	B28	65	66	G28	
	GND	67	68	GND	
	G29	69	70	R29	
	R30	71	72	B29	
	B30	73	74	G30	
	G31	75	76	R31	
	R32	77	78	B31	
	B32	79	80	G32	
	GND	81	82	GND	
	NC	83	84	NC	
	NC	85	86	NC	
	NC	87	88	NC	
	NC	89	90	NC	
	NC	91	92	NC	
	NC	93	94	NC	
	GND	95	96	GND	
	NC	97	98	RFU15	Dual Backup Communication Signals
	NC	99	100	RFU17	Dual Card Backup Identity Signal
	NC	101	102	NC	
	NC	103	104	NC	
	NC	105	106	NC	
	NC	107	108	NC	
	GND	109	110	GND	

	GND	111	112	GND	
	NC	113	114	NC	
	VCC	115	116	VCC	
	VCC	117	118	VCC	
	VCC	119	120	VCC	
	NC	121	122	NC	

JH2 Definition:

illustration	Definition	PIN	PIN	Definition	illustration
	NC	1	2	NC	
	NC	3	4	NC	
	NC	5	6	NC	
	NC	7	8	NC	
Gigabyte Ethernet Port	P0 MXA+	9	10	P1 MXA+	Gigabyte Ethernet Port
	P0 MXA-	11	12	P1 MXA-	
	NC	13	14	NC	
	P0 MXB+	15	16	P1 MXB+	
	P0 MXB-	17	18	Port2_B-	
	NC	19	20	NC	
	P0 MXC+	21	22	P1 MXC+	
	P0 MXC-	23	24	P1 MXC-	
	NC	25	26	NC	
	P0 MXD+	27	28	P1 MXD+	
	P0 MXD-	29	30	P1 MXD-	
	NC	31	32	NC	
	NC	33	34	NC	
Testing Key	TEST_INPUT_KEY	35	36	STA_LED-	Operating Indicator(ACTIVE LOW)

	GND	37	38	GND	
Line Decoding Signal	OUTA	39	40	OUTCLK_1	First Shift Clock Output
Line Decoding Signal	OUTB	41	42	OUTCLK_2	Second Shift Clock output
Line Decoding Signal	OUTC	43	44	OUTLAT	Latch Signal output
Line Decoding Signal	OUTD	45	46	OUTCLOSE	Blanking Control Signal
Line Decoding Signal	OUTE	47	48	OUTEN_R	Display enable (when OE_R, G, B are not controlled separately, use OE_R)
Display enable (when OE_R, G, B are not controlled separately, use OE_R)	OUTEN_B	49	50	OUTEN_G	
	GND	51	52	GND	
	G1	53	54	R1	
	R2	55	56	B1	
	B2	57	58	G2	
	G3	59	60	R3	

	R4	61	62	B3	
	B4	63	64	G4	
	GND	65	66	GND	
	G5	67	68	R5	
	R6	69	70	B5	
	B6	71	72	G6	
	G7	73	74	R7	
	R8	75	76	B7	
	B8	77	78	G8	
	GND	79	80	GND	
	G9	81	82	R9	
	R10	83	84	B9	
	B10	85	86	G10	
	G11	87	88	R11	
	R12	89	90	B11	
	B12	91	92	G12	
	GND	93	94	GND	
	G13	95	96	R13	
	R14	97	98	B13	
	B14	99	100	G14	
	G15	101	102	R15	
	R16	103	104	B15	
	B16	105	106	G16	
	GND	107	108	GND	
	NC	109	110	NC	
	NC	111	112	NC	
	NC	113	114	NC	
	NC	115	116	NC	

	GND	117	118	GND	
	GND	119	120	GND	
	NC	121	122	NC	

Header pinout diagram for the **HEADER60X2/SMD** connector, showing pin numbers 1 through 60 and their corresponding functions. The diagram is organized into two columns of pins, with functions listed on the left and right sides.

Pin Functions:

- Pin 1:** GND
- Pin 2:** GND
- Pin 3:** GND
- Pin 4:** GND
- Pin 5:** GND
- Pin 6:** GND
- Pin 7:** GND
- Pin 8:** GND
- Pin 9:** GND
- Pin 10:** GND
- Pin 11:** GND
- Pin 12:** GND
- Pin 13:** GND
- Pin 14:** GND
- Pin 15:** GND
- Pin 16:** GND
- Pin 17:** GND
- Pin 18:** GND
- Pin 19:** GND
- Pin 20:** GND
- Pin 21:** GND
- Pin 22:** GND
- Pin 23:** GND
- Pin 24:** GND
- Pin 25:** GND
- Pin 26:** GND
- Pin 27:** GND
- Pin 28:** GND
- Pin 29:** GND
- Pin 30:** GND
- Pin 31:** GND
- Pin 32:** GND
- Pin 33:** GND
- Pin 34:** GND
- Pin 35:** GND
- Pin 36:** GND
- Pin 37:** GND
- Pin 38:** GND
- Pin 39:** GND
- Pin 40:** GND
- Pin 41:** GND
- Pin 42:** GND
- Pin 43:** GND
- Pin 44:** GND
- Pin 45:** GND
- Pin 46:** GND
- Pin 47:** GND
- Pin 48:** GND
- Pin 49:** GND
- Pin 50:** GND
- Pin 51:** GND
- Pin 52:** GND
- Pin 53:** GND
- Pin 54:** GND
- Pin 55:** GND
- Pin 56:** GND
- Pin 57:** GND
- Pin 58:** GND
- Pin 59:** GND
- Pin 60:** GND

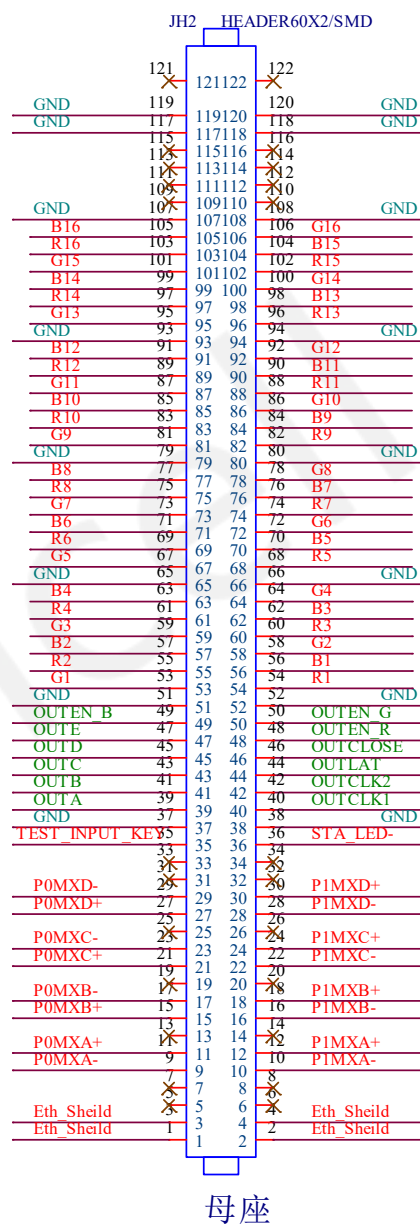
Additional Labels:

- EXT 5V:** External 5V power supply connection.
- MS_ID (双卡备份身份标识信号):** Micro SD card backup identity signal.
- MS_DATA (双备份通讯信号):** Micro SD card backup communication signal.
- +3.3VA:** 3.3V power supply connection.

Header Pinout Diagram:

The diagram shows a 60-pin header connector. The pins are numbered 1 to 60. The functions are as follows:

- Pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60 are all GND.
- Pin 121: EXT 5V
- Pin 122: EXT 5V
- Pin 119: EXT 5V
- Pin 117: EXT 5V
- Pin 115: EXT 5V
- Pin 113: EXT 5V
- Pin 111: EXT 5V
- Pin 109: EXT 5V
- Pin 107: EXT 5V
- Pin 105: EXT 5V
- Pin 103: EXT 5V
- Pin 101: EXT 5V
- Pin 99: EXT 5V
- Pin 97: EXT 5V
- Pin 95: EXT 5V
- Pin 93: EXT 5V
- Pin 91: EXT 5V
- Pin 89: EXT 5V
- Pin 87: EXT 5V
- Pin 85: EXT 5V
- Pin 83: EXT 5V
- Pin 81: EXT 5V
- Pin 79: EXT 5V
- Pin 77: EXT 5V
- Pin 75: EXT 5V
- Pin 73: EXT 5V
- Pin 71: EXT 5V
- Pin 69: EXT 5V
- Pin 67: EXT 5V
- Pin 65: EXT 5V
- Pin 63: EXT 5V
- Pin 61: EXT 5V
- Pin 59: EXT 5V
- Pin 57: EXT 5V
- Pin 55: EXT 5V
- Pin 53: EXT 5V
- Pin 51: EXT 5V
- Pin 49: EXT 5V
- Pin 47: EXT 5V
- Pin 45: EXT 5V
- Pin 43: EXT 5V
- Pin 41: EXT 5V
- Pin 39: EXT 5V
- Pin 37: EXT 5V
- Pin 35: EXT 5V
- Pin 33: EXT 5V
- Pin 31: EXT 5V
- Pin 29: EXT 5V
- Pin 27: EXT 5V
- Pin 25: EXT 5V
- Pin 23: EXT 5V
- Pin 21: EXT 5V
- Pin 19: EXT 5V
- Pin 17: EXT 5V
- Pin 15: EXT 5V
- Pin 13: EXT 5V
- Pin 11: EXT 5V
- Pin 9: EXT 5V
- Pin 7: EXT 5V
- Pin 5: EXT 5V
- Pin 3: EXT 5V
- Pin 1: EXT 5V



JH1 Definition:

Illustration	Definition	Pin	Pin	Definition	Illustration
	GND	1	2	GND	
/	NC	9	10	NC	
/	NC	11	12	NC	
/	NC	13	14	NC	
/	NC	15	16	NC	
/	NC	17	18	NC	
	NC	19	20	3.3V_LE	3.3V Subsidiary Output
	GND	21	22	D	
	NC	23	24	NC	
	GND	25	26	GND	
	Data49	27	28	Data48	
	Data51	29	30	Data50	
	Data53	31	32	Data52	
	Data55	33	34	Data54	
	Data57	35	36	Data56	
	Data59	37	38	Data58	
	GND	39	40	GND	
	Data61	41	42	Data60	
	Data63	43	44	Data62	
	Data65	45	46	Data64	
	Data67	47	48	Data66	
	Data69	49	50	Data68	
	Data71	51	52	Data70	
	GND	53	54	GND	
	Data73	55	56	Data72	

	Data75	57	58	Data74	
	Data77	59	60	Data76	
	Data79	61	62	Data78	
	Data81	63	64	Data80	
	Data83	65	66	Data82	
	GND	67	68	GND	
	Data85	69	70	Data84	
	Data87	71	72	Data86	
	Data89	73	74	Data88	
	Data91	75	76	Data90	
	Data93	77	78	Data92	
	Data95	79	80	Data94	
	GND	81	82	GND	
/	NC	83	84	NC	/
	NC	85	86	NC	
	NC	87	88	NC	
	NC	89	90	NC	
	NC	91	92	NC	
	NC	93	94	NC	
	GND	95	96	GND	
/	NC	97	98	RFU15	Dual Backup Communication Signal
	NC	99	100	RFU17	Dual Backup Identity Signal
	NC	101	102	NC	
	NC	103	104	NC	

	NC	10 5	10 6	NC	
	NC	10 7	10 8	NC	
	GND	10 9	11 0	GND	
	GND	11 1	11 2	GND	
	NC	11 3	11 4	NC	
Input Power VCC 3.3V-5.5V(recommended)	VCC	11 5	11 6	VCC	Input Power VCC 3.3V-5.5V(recommended)
	VCC	11 7	11 8	VCC	
	VCC	11 9	12 0	VCC	

JH2 Definition:

Illustration	Definition	PIN	PIN	Definition	Illustration
External Shield Ground	Eth_Sheid	1	2	Eth_Sheid	External Shield Ground
External Shield Ground	Eth_Sheid	3	4	Eth_Sheid	External Shield Ground
	NC	5	6	NC	
	NC	7	8	NC	
Gigabyte Ethernet	P0 MXA-	9	10	P1 MXA-	Gigabyte Ethernet
	P0 MXA+	11	12	P1 MXA+	

Port	NC	13	14	NC	Port
	P0 MXB+	15	16	P1 MXB+	
	P0 MXB-	17	18	Port2_B-	
	NC	19	20	NC	
	P0 MXC+	21	22	P1 MXC-	
	P0 MXC-	23	24	P1 MXC+	
	NC	25	26	NC	
	P0 MXD+	27	28	P1 MXD+	
	P0 MXD-	29	30	P1 MXD-	
	NC	31	32	NC	
	NC	33	34	NC	
Testing Key	TEST_INPUT_KEY	35	36	STA_LED-	Operating Indicator(ACTIVE LOW)
	A	39	40	CLK_1	
Line Decoding Signal	B	41	42	CLK_2	First Shift Clock Output
Line Decoding Signal	C	43	44	LAT	Second Shift Clock output
Line Decoding Signal	D	45	46	CTRL	Latch Signal output
Line Decoding Signal	E	47	48	OE_R	Blanking Control Signal
Line Decoding	OE_B	49	50	OE_G	Display enable (when OE_R,

Signal					G, B are not controlled separately, use OE_R)
Display enable (when OE_R, G, B are not controlled separately, use OE_R)	OE_B	49	50	OE_G	
	GND	51	52	GND	
	Data1	53	54	Data0	
	Data3	55	56	Data2	
	Data5	57	58	Data4	
	Data7	59	60	Data6	
	Data9	61	62	Data8	
	Data11	63	64	Data10	
	GND	65	66	GND	
	Data13	67	68	Data12	
	Data15	69	70	Data14	
	Data17	71	72	Data16	
	Data19	73	74	Data18	
	Data21	75	76	Data20	
	Data23	77	78	Data22	
	GND	79	80	GND	
	Data25	81	82	Data24	
	Data27	83	84	Data26	
	Data29	85	86	Data28	
	Data31	87	88	Data30	
	Data33	89	90	Data32	
	Data35	91	92	Data34	

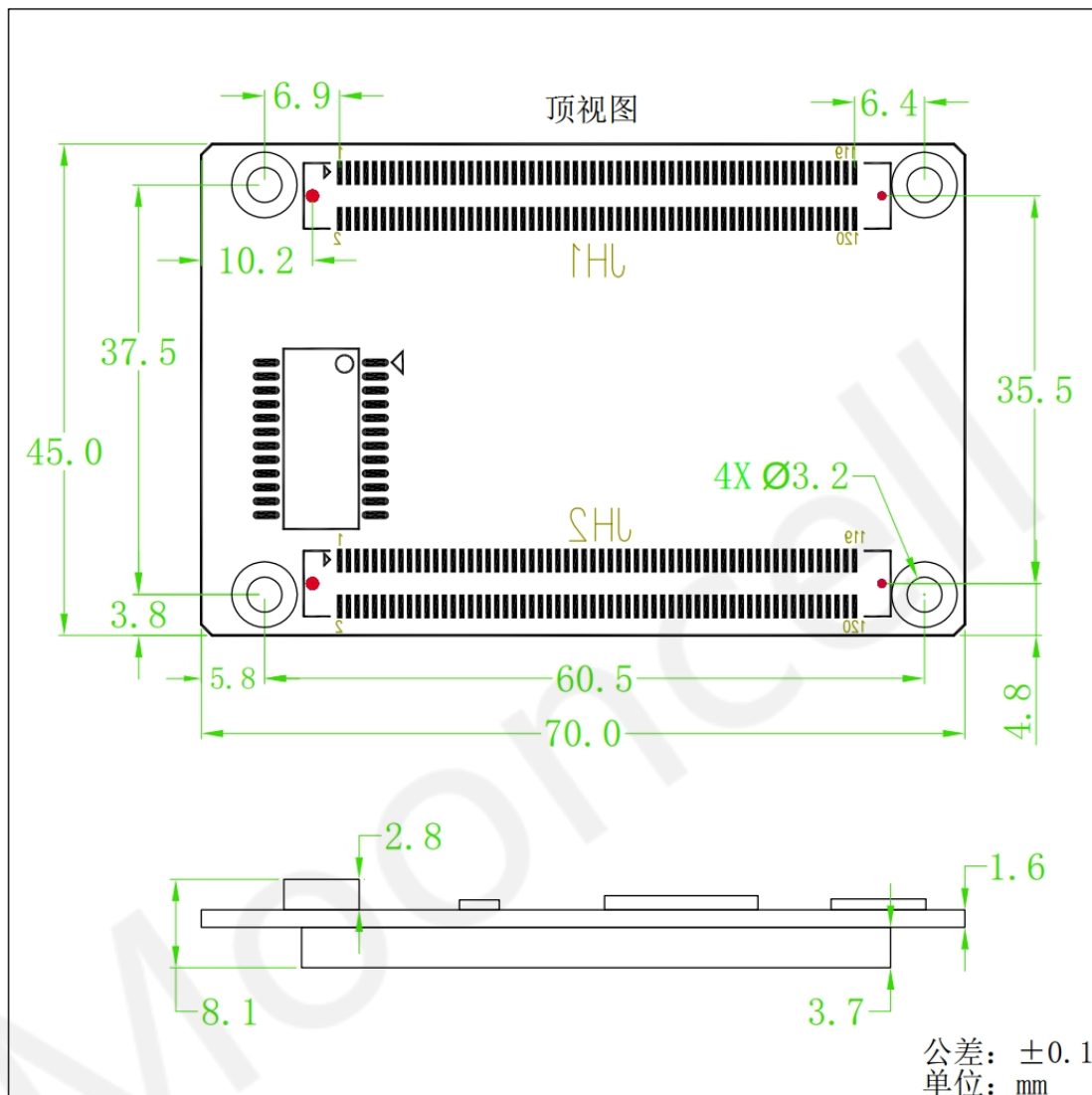
	GND	93	94	GND	
	Data37	95	96	Data36	
	Data39	97	98	Data38	
	Data41	99	100	Data40	
	Data43	101	102	Data42	
	Data45	103	104	Data44	
	Data47	105	106	Data46	
	GND	107	108	GND	
	NC	109	110	NC	
	NC	111	112	NC	
	NC	113	114	NC	
	NC	115	116	NC	
	GND	117	118	GND	
	GND	119	120	GND	
	NC	121	122	NC	

Indicator Illustration

Indicator	Position	Status	Illustration
Status Indicator (Green)	U5	Flickering Slowly at a constant speed	The receiving card is working properly, The Ethernet Cable Connection is fine, No DVI Signal
		Flickering Fast at a constant speed	The receiving card is working properly, The Ethernet Cable Connection is fine, with DVI Signal
		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	U4	Long Lasting On	Power is On

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Dimensions



4 Product Specifications

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	70mmX45mm	
Net Weight	18.3g	
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