MRV432

Receiving Card

Specifications

Change History

Document Version	Release Date	Description
V1.1.1	2023-12-30	Updated feature descriptions.
V1.1.0	2022-12-27	• Added the table of appearance description. • Added the dimensions diagram description. • Updated the description of the maximum resolution. • Updated the appearance diagram. • Updated the dimensions diagram. • Updated the input voltage. • Updated the packing information.
V1.0.2	2021-12-03	• Updated the certification description. • Updated the description of features.
V1.0.1	2021-07-30	Added the certification related description.
V1.0.0	2021-03-25	First release

Introduction

The MRV432 is a general receiving card developed by developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). For PWM driver ICs, a single MRV432 supports resolutions up to 512×512@60Hz. For common driver ICs, a single MRV432 supports resolutions up to 512×384@60Hz. Supporting various functions such as pixel level brightness and chroma calibration, quick adjustment of dark or bright lines, 3D, individual Gamma adjustment for RGB, and image rotation in 90° increments, the MRV432 can significantly improve the display effect and user experience.

The MRV432 uses 8 HUB320 connectors for communication. It supports up to 32 groups of parallel RGB data or 64 groups of serial data. Thanks to its EMC compliant hardware design, the MRV432 has improved electromagnetic compatibility and is suitable for various on-site setups.

Certifications

RoHS, EMC Class A

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

Improvements to Display Effect

- Pixel level brightness and chroma calibration
  Work with the high-precision calibration system to perform brightness and chroma calibration on each LED to effectively remove brightness differences and chroma differences, enabling high brightness consistency and chroma consistency.
- Quick seam correction
  The dark or bright lines caused by splicing of modules or cabinets can be adjusted to improve the visual experience. The adjustment can be easily made and takes effect immediately.
- 3D
  Working with the LED controller that supports 3D function, the receiving card supports 3D output.

- Individual Gamma adjustment for RGB
  Working with NovaLCT (V5.2.0 or later) and the LED controller that supports this function, the receiving card supports individual adjustment of red Gamma, green Gamma and blue Gamma, which can effectively control image non-uniformity under low grayscale and white balance offset, allowing for a more realistic image.
- Image rotation in 90° increments
  The display image can be set to rotate in multiples of 90° (0°/90°/180°/270°).

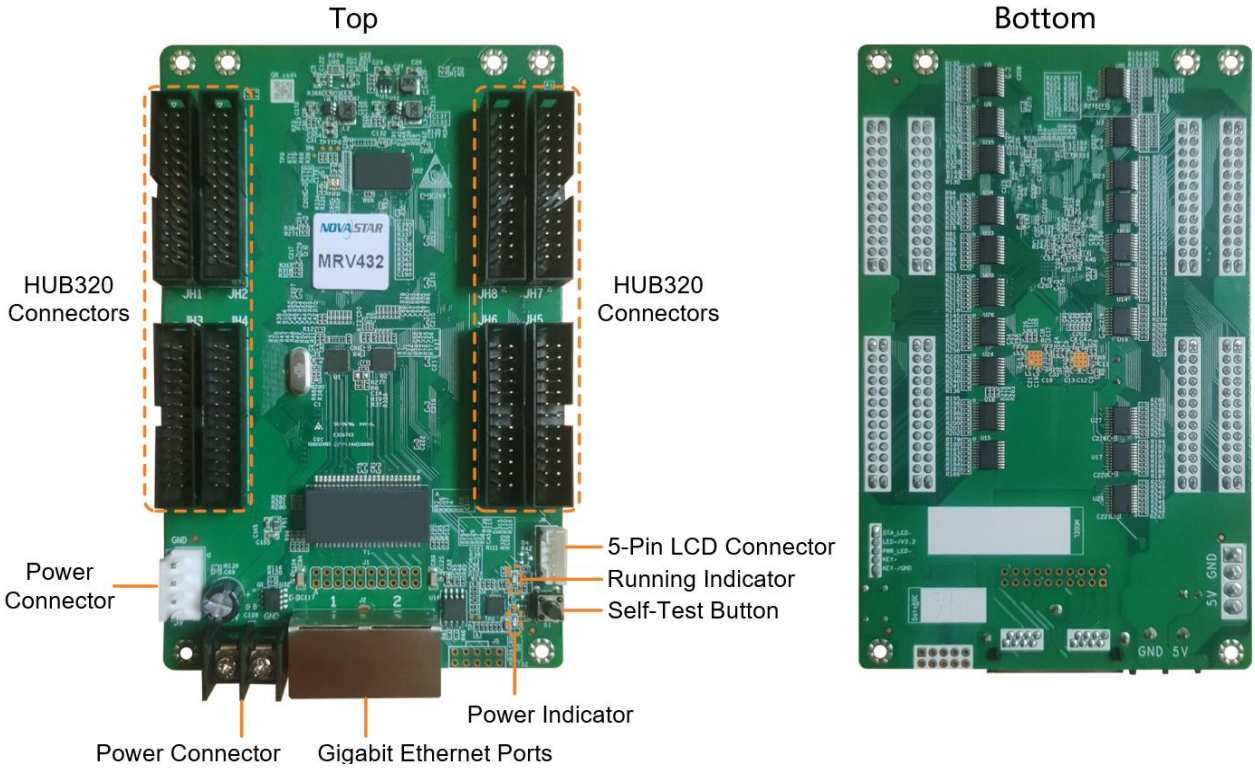
Improvements to Maintainability

- Mapping 1.0
  The cabinets can display the receiving card number and Ethernet port information, allowing users to easily obtain the locations and connection topology of receiving cards.
- Setting of a pre-stored image in receiving card
  The image displayed on the screen during startup, or displayed when the Ethernet cable is disconnected or there is no video signal can be customized.
- Temperature and voltage monitoring
  The receiving card temperature and voltage can be monitored without using peripherals.
- Cabinet LCD
  The LCD module of the cabinet can display the temperature, voltage, single run time and total run time of the receiving card.
- Bit error detection
  The Ethernet port communication quality of the receiving card can be monitored and the number of erroneous packets can be recorded to help troubleshoot network communication problems.
- Firmware program readback
  The receiving card firmware program can be read back and saved to the local computer.
- Configuration parameter readback
  The receiving card configuration parameters can be read back and saved to the local computer.

Improvements to Reliability

- Loop backup
  The receiving card and LED controller form a loop via the main and backup line connections. If a fault occurs at a location of the lines, the screen can still display the image normally.
- Dual backup of configuration parameters
  The receiving card configuration parameters are stored in the application area and factory area of the receiving card at the same time. Users usually use the configuration parameters in the application area. If necessary, users can restore the configuration parameters in the factory area to the application area.
- Dual program backup
  Two copies of firmware program are stored in the receiving card at the factory to avoid the problem that the receiving card may get stuck abnormally during program update.

Appearance



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

Name	Description
HUB320 Connectors	Connect to the module.
Power Connector	Connect to the input power. Either of the connectors can be chosen.
Gigabit Ethernet Ports	Connect to the sending card, and cascade other receiving cards. Each connector can be used as input or output.
Self-Test Button	Set the test pattern. After the Ethernet cable is disconnected, press the button twice, and the test pattern will be displayed on the screen. Press the button again to switch the pattern.
5-Pin LCD Connector	Connect to the LCD.

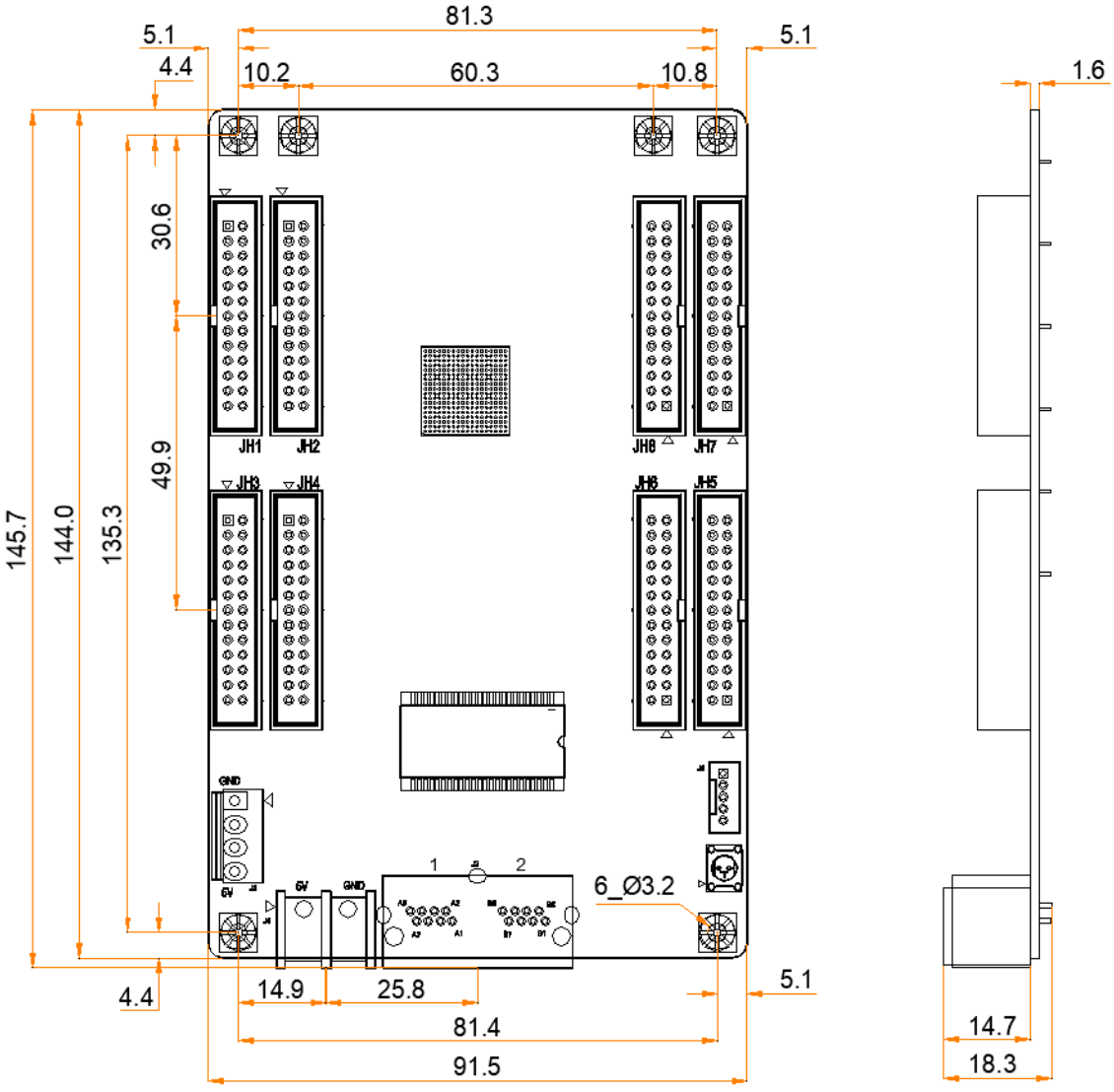
Indicators

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.

Indicator	Color	Status	Description
		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 input 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.

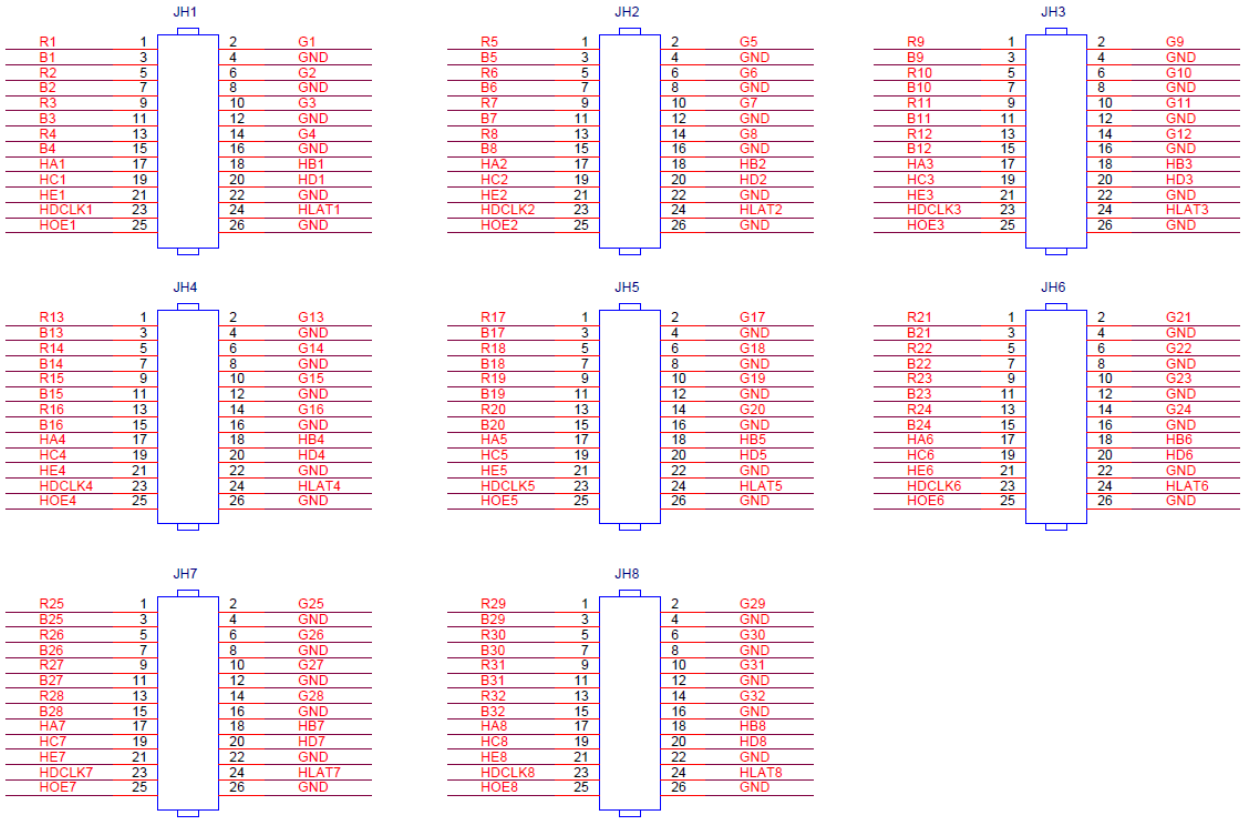


Tolerance: ±0.3 Unit: mm

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

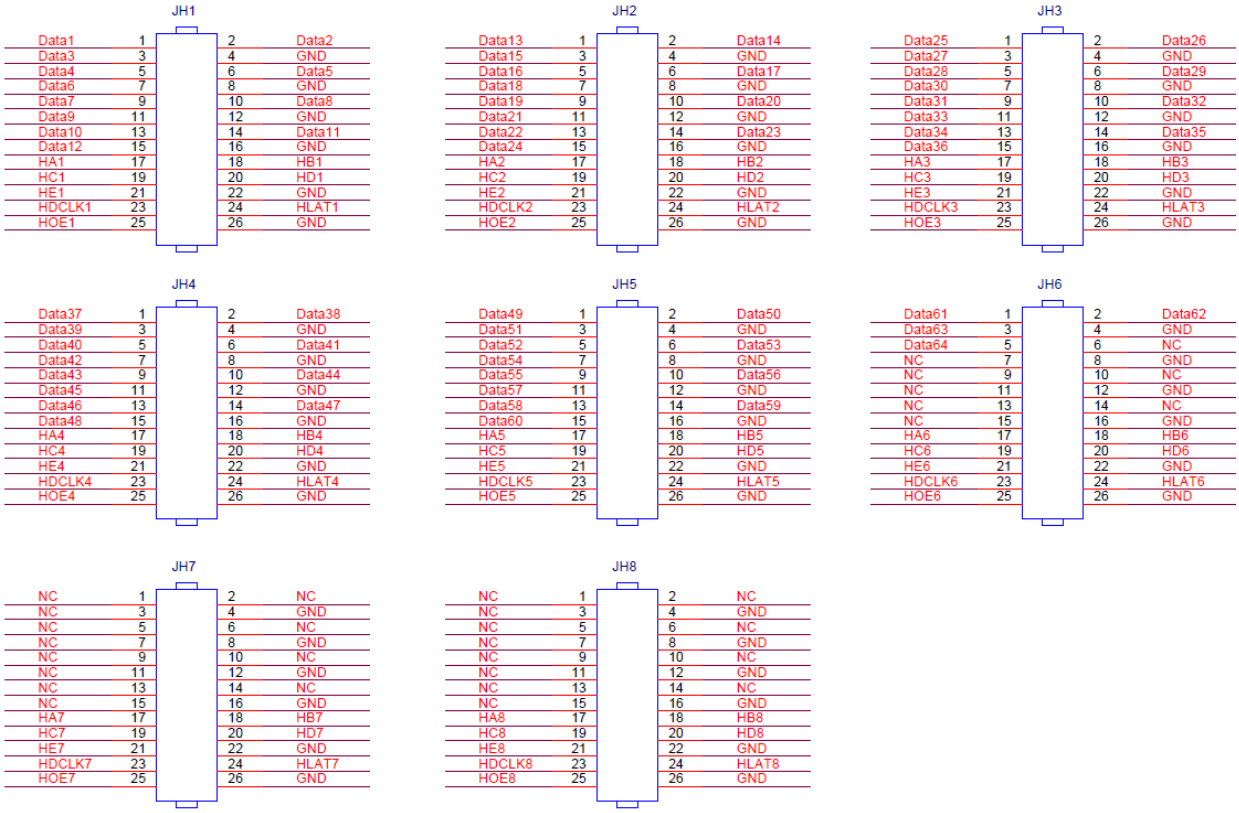
Pins

32 Groups of Parallel RGB Data



JH1–JH8					
/	R	1	2	G	/
/	B	3	4	GND	Ground
/	R	5	6	G	/
/	B	7	8	GND	Ground
/	R	9	10	G	/
/	B	11	12	GND	Ground
/	R	13	14	G	/
/	B	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

64 Groups of Serial Data



JH1–JH5					
/	Data	1	2	Data	/
/	Data	3	4	GND	Ground
/	Data	5	6	Data	/
/	Data	7	8	GND	Ground
/	Data	9	10	Data	/
/	Data	11	12	GND	Ground
/	Data	13	14	Data	/
/	Data	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

JH6					
/	Data	1	2	Data	/
/	Data	3	4	GND	Ground
/	Data	5	6	NC	/
/	NC	7	8	GND	Ground
/	NC	9	10	NC	/
/	NC	11	12	GND	Ground
/	NC	13	14	NC	/
/	NC	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

Specifications

Maximum Resolution	512×512@60Hz (PWM driver ICs) 512×384@60Hz (Common driver ICs)	
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	145.7 mm × 91.5 mm × 18.3 mm
	Net weight	100.0 g Note: It is the weight of a single receiving card only.
Packing Information	Packing specifications	Each receiving card is packaged in a blister pack. 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 factors such as product settings, usage, and environment.

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