



# Specifications

Receiving Card A8s

Rev1.0.1 NS110100243

## Overview

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A8s is the high-end mini receiving card series of NovaStar with small size and full functions. Designed with high-density connectors, anti-looseness effect and dust proof function, it is quite stable and reliable. The board card has integrated network transformers to simplify design for users. A board card can suit all kinds of applications.

A single A8s card is able to load 256\*256 pixels. It supports many practical functions such as module Flash management interface, smart module management, dual backup of calibration coefficients, voltage and temperature detection etc. With specific design of the circuit and program, A8s is able to effectively reduce electromagnetic radiation of the system and help users to easily pass the EMC certification.

## Features

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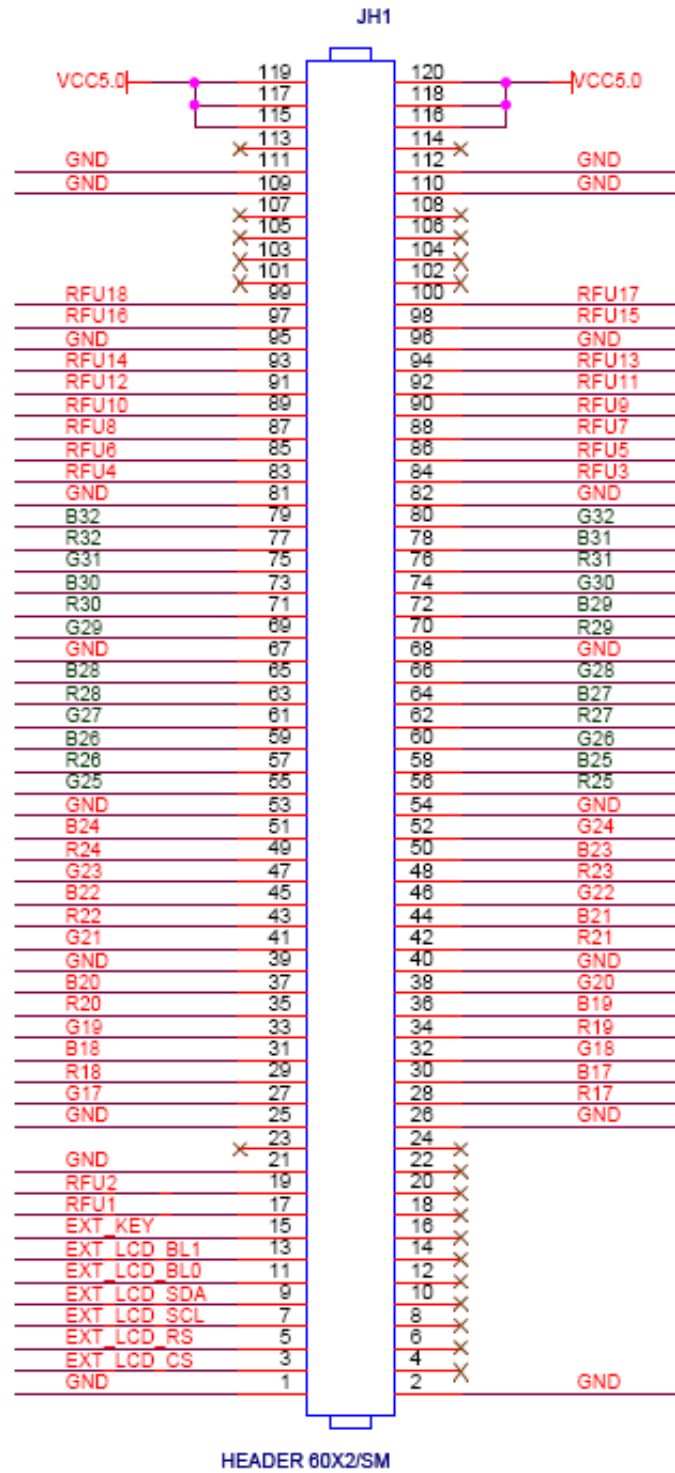
- 1) A single card supports 256\*256 pixels.
- 2) A single card supports parallel output of 32-group RGB signal.
- 3) A single card outputs 64 sets of serial data.
- 4) A8s has integrated network transformers to simplify the design for users.
- 5) A8s supports various hot backups such as loop backup, dual card backup, dual power backup etc. and seamless switching.
- 6) A8s supports dual backup of display parameters.
- 7) A8s supports module Flash management and allows for storage of calibration coefficients and module information.
- 8) Able to apply module Flash calibration coefficients through one-

click.

- 9) Support Clear view.
- 10) Work in conjunction with the advanced control system, supporting arbitrary rotation.
- 11) Support 18bit + grey-level output.
- 12) A8s supports smart module with the functions of storing and managing information like calibration coefficients, module information, module parameters etc. as well as flat cable detection and LED pixel-by-pixel error detection without monitoring card.
- 13) A8s supports LCD Human-Computer Interaction (HCI).
- 14) Support Mapping which will display the serial number and port number of the current cabinet.
- 15) A8s supports monitoring of temperature, supply voltage and network cable communication status.
- 16) A8s supports pixel-by-pixel brightness/chroma calibration.
- 17) Support dual backup of calibration coefficients.
- 18) Support LED ID.
- 19) A8s supports prestoring picture settings.
- 20) A8s supports configuration file readback.
- 21) A8s supports backup and readback of the firmware program.
- 22) With specific EMC design to effectively reduce electromagnetic radiation.

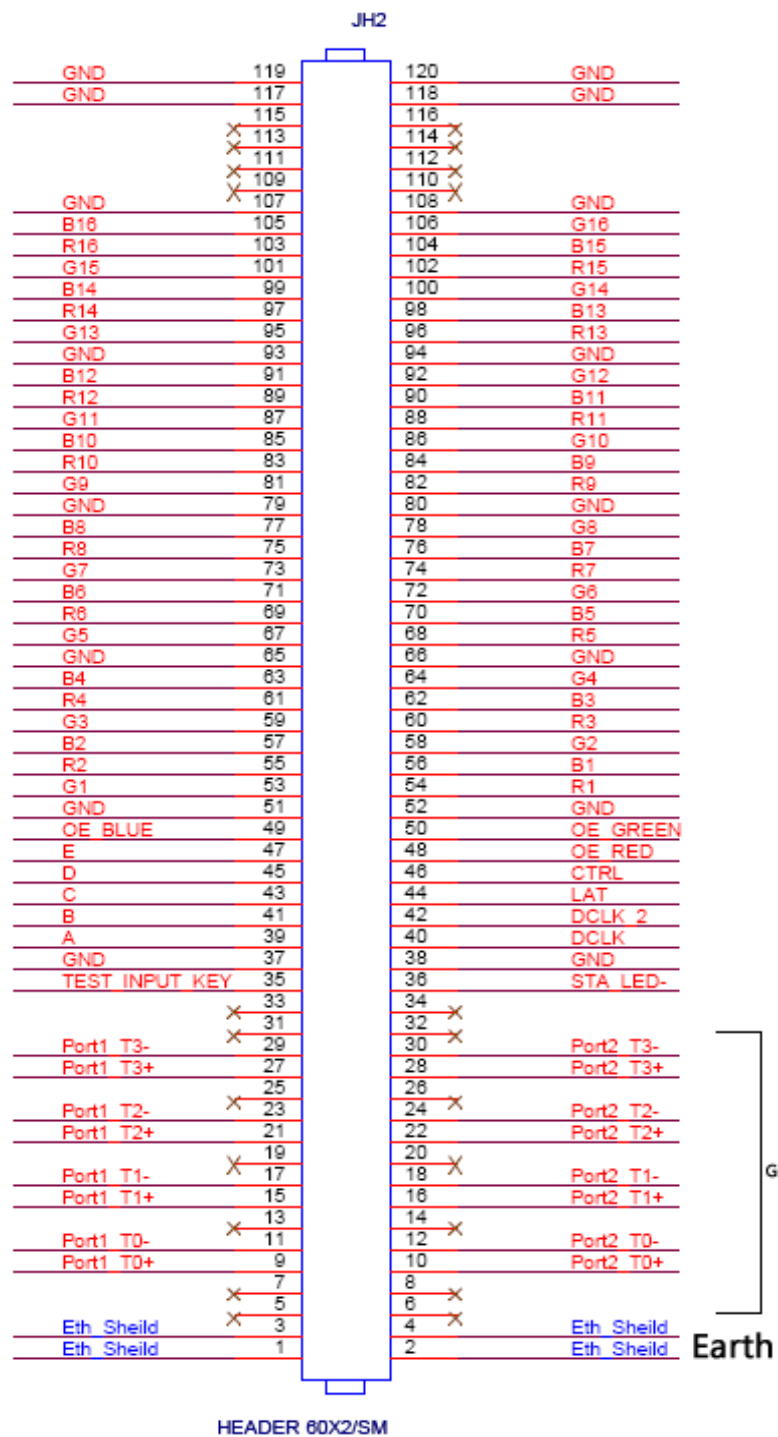
# Output Interface Definitions

32-group parallel data pattern



JH1							
		GND	1	2	GND		
LCD	CS signal of LCD	EXT_LCD_CS	3	4	NC		
	RS signal of LCD	EXT_LCD_RS	5	6	NC		
	Clock signal of LCD	EXT_LCD_SCL	7	8	NC		
	Data signal of LCD	EXT_LCD_SD A	9	10	NC		
	Backlight signal 1 of LCD	EXT_LCD_BL0	11	12	NC		
	Backlight signal 2 of LCD	EXT_LCD_BL1	13	14	NC		
	LCD control key	EXT_KEY	15	16	NC		
		RFU1	17	18	NC		
		RFU2	19	20	NC		
		GND	21	22	NC		
		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		
Note 5	/	RFU4	83	84	RFU3	/	Note 5
	/	RFU6	85	86	RFU5	/	
	/	RFU8	87	88	RFU7	/	
	/	RFU10	89	90	RFU9	/	
	/	RFU12	91	92	RFU11	/	
	/	RFU14	93	94	RFU13	/	
		GND	95	96	GND		
Note 5	/	RFU16	97	98	RFU15	/	Note 5
	/	RFU18	99	100	RFU17	/	
		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		
Note 1		VCC	115	116	VCC		Note1
		VCC	117	118	VCC		
		VCC	119	120	VCC		

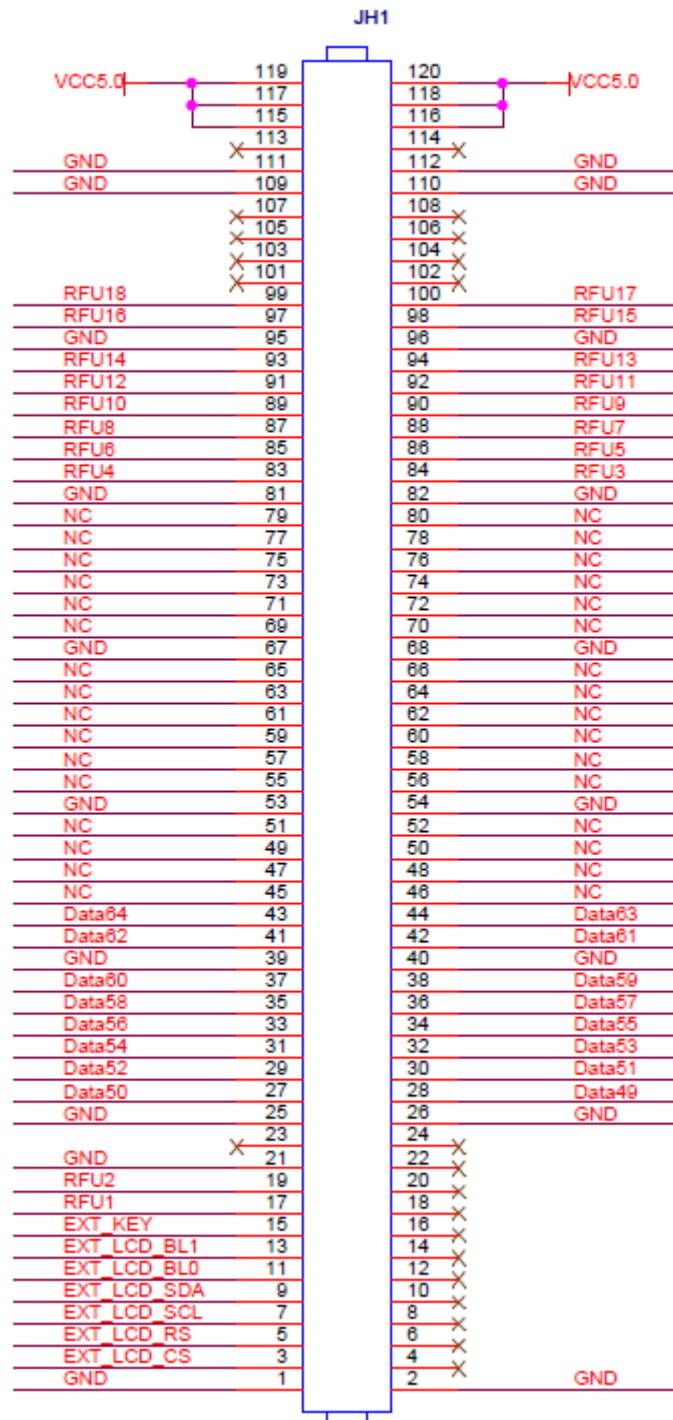


JH2							
		Eth_Sheild	1	2	Eth_Sheild		
		Eth_Sheild	3	4	Eth_Sheild		
		NC	5	6	NC		
		NC	7	8	NC		
Gigabit Ethernet port	/	Port1_T0+	9	10	Port2_T0+	/	Gigabit Ethernet port
	/	Port1_T0-	11	12	Port2_T0-	/	
		NC	13	14	NC		
	/	Port1_T1+	15	16	Port2_T1+	/	
	/	Port1_T1-	17	18	Port2_T1-	/	
		NC	19	20	NC		
	/	Port1_T2+	21	22	Port2_T2+	/	
	/	Port1_T2-	23	24	Port2_T2-	/	
		NC	25	26	NC		
	/	Port1_T3+	27	28	Port2_T3+	/	
	/	Port1_T3-	29	30	Port2_T3-	/	
			NC	31	32	NC	
		NC	33	34	NC		
	Test key	TEST_INPUT_KEY	35	36	STA_LED-	Operating LED	Note 3
		GND	37	38	GND		
	Row decoding signal	A	39	40	DCLK	Channel 1 shift clock output	
	Row decoding signal	B	41	42	DCLK_2	Channel 2 shift clock output	
	Row decoding signal	C	43	44	LAT	Latch signal output	
	Row decoding signal	D	45	46	CTRL	Afterglow control signal	
	Row decoding signal	E	47	48	OE_RED	Display enable	Note4
Note4	Display enable	OE_BLUE	49	50	OE_GREEN	Display enable	
		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	/	



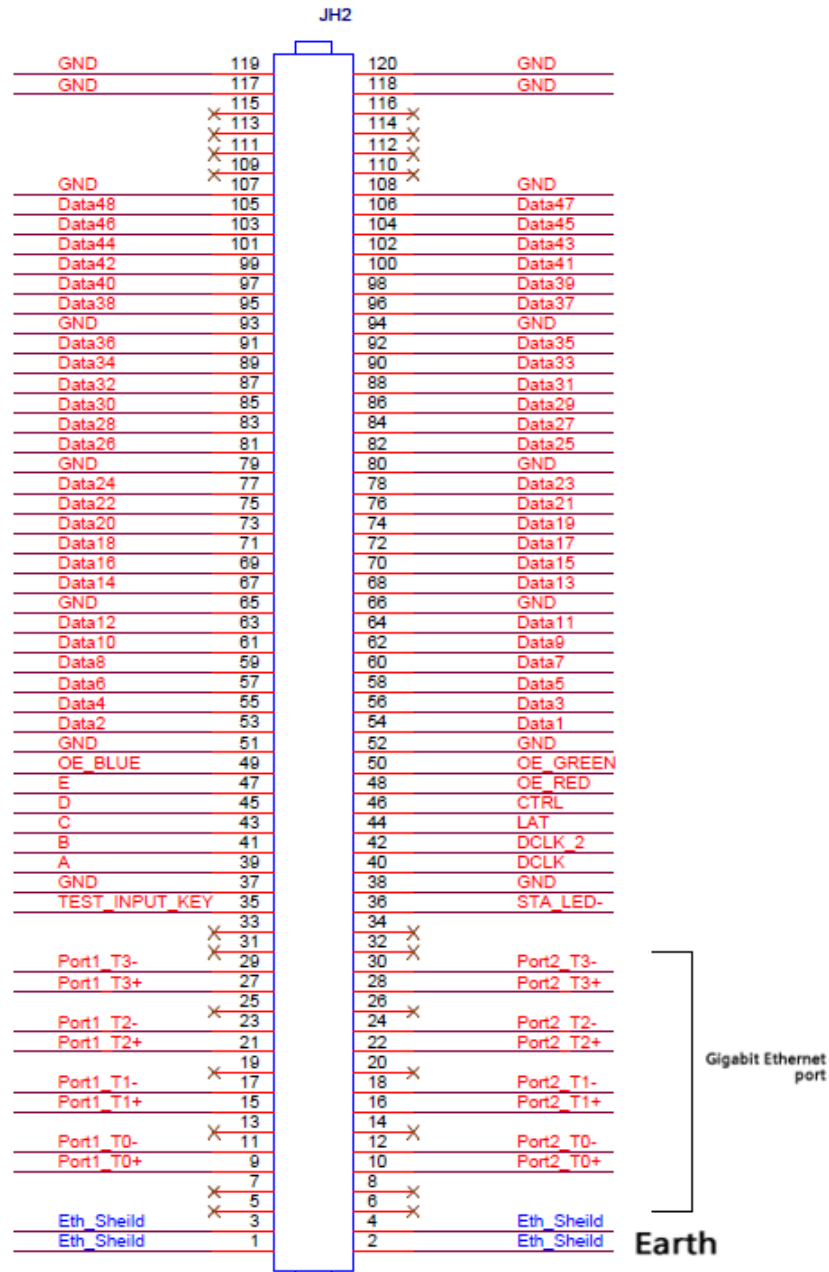
		GND	65	66	GND		
	/	G5	67	68	R5	/	
	/	R6	69	70	B5	/	
	/	B6	71	72	G6	/	
	/	G7	73	74	R7	/	
	/	R8	75	76	B7	/	
	/	B8	77	78	G8	/	
		GND	79	80	GND		
	/	G9	81	82	R9	/	
	/	R10	83	84	B9	/	
	/	B10	85	86	G10	/	
	/	G11	87	88	R11	/	
	/	R12	89	90	B11	/	
	/	B12	91	92	G12	/	
		GND	93	94	GND		
	/	G13	95	96	R13	/	
	/	R14	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		

## 64-set serial data mode



JH1							
		GND	1	2	GND		
LCD	CS signal of LCD	EXT_LCD_CS	3	4	NC		
	RS signal of LCD	EXT_LCD_RS	5	6	NC		
	Clock signal of LCD	EXT_LCD_SCL	7	8	NC		
	Data signal of LCD	EXT_LCD_SDA	9	10	NC		
	Backlight signal 1 of LCD	EXT_LCD_BLO	11	12	NC		
	Backlight signal 2 of LCD	EXT_LCD_BL1	13	14	NC		
	LCD control key	EXT_KEY	15	16	NC		
		RFU1	17	18	NC		
		RFU2	19	20	NC		
		GND	21	22	NC		
		NC	23	24	NC		
		GND	25	26	GND		
	/	Data50	27	28	Data49	/	
	/	Data52	29	30	Data51	/	
	/	Data54	31	32	Data53	/	
	/	Data56	33	34	Data55	/	
	/	Data58	35	36	Data57	/	
	/	Data60	37	38	Data59	/	
		GND	39	40	GND		
	/	Data62	41	42	Data61	/	
	/	Data64	43	44	Data63	/	
		NC	45	46	NC		
		NC	47	48	NC		
		NC	49	50	NC		
		NC	51	52	NC		
		GND	53	54	GND		
		NC	55	56	NC		
		NC	57	58	NC		
		NC	59	60	NC		
		NC	61	62	NC		
		NC	63	64	NC		

		NC	65	66	NC		
		GND	67	68	GND		
		NC	69	70	NC		
		NC	71	72	NC		
		NC	73	74	NC		
		NC	75	76	NC		
		NC	77	78	NC		
		NC	79	80	NC		
		GND	81	82	GND		
Note 5	/	RFU4	83	84	RFU3	/	Note 5
	/	RFU6	85	86	RFU5	/	
	/	RFU8	87	88	RFU7	/	
	/	RFU10	89	90	RFU9	/	
	/	RFU12	91	92	RFU11	/	
	/	RFU14	93	94	RFU13	/	
		GND	95	96	GND		
Note 5	/	RFU16	97	98	RFU15	/	Note 5
	/	RFU18	99	100	RFU17	/	
		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		
Note 1		VCC	115	116	VCC		Note 1
		VCC	117	118	VCC		
		VCC	119	120	VCC		



JH2							
		Eth_Sheild	1	2	Eth_Sheild		
		Eth_Sheild	3	4	Eth_Sheild		
		NC	5	6	NC		
		NC	7	8	NC		
Gigabit Ethernet port	/	Port1_T0+	9	10	Port2_T0+	/	Gigabit Ethernet port
	/	Port1_T0-	11	12	Port2_T0-	/	
		NC	13	14	NC		
	/	Port1_T1+	15	16	Port2_T1+	/	
	/	Port1_T1-	17	18	Port2_T1-	/	
		NC	19	20	NC		
	/	Port1_T2+	21	22	Port2_T2+	/	
	/	Port1_T2-	23	24	Port2_T2-	/	
		NC	25	26	NC		
	/	Port1_T3+	27	28	Port2_T3+	/	
	/	Port1_T3-	29	30	Port2_T3-	/	
			NC	31	32	NC	
		NC	33	34	NC		
	Test key	TEST_INPUT_KEY	35	36	STA_LED-	Operating LED	Note 3
		GND	37	38	GND		
	Row decoding signal	A	39	40	DCLK	Channel 1 shift clock output	
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	Row decoding signal	E	47	48	OE_RED	Display enable	Note4
Note4	Display enable	OE_BLUE	49	50	OE_GREEN	Display enable	
		GND	51	52	GND		
	/	Data2	53	54	Data1	/	
	/	Data4	55	56	Data3	/	
	/	Data6	57	58	Data5	/	
	/	Data8	59	60	Data7	/	

	/	Data10	61	62	Data9	/	
	/	Data12	63	64	Data11	/	
		GND	65	66	GND		
	/	Data14	67	68	Data13	/	
	/	Data16	69	70	Data15	/	
	/	Data18	71	72	Data17	/	
	/	Data20	73	74	Data19	/	
	/	Data22	75	76	Data21	/	
	/	Data24	77	78	Data23	/	
		GND	79	80	GND		
	/	Data26	81	82	Data25	/	
	/	Data28	83	84	Data27	/	
	/	Data30	85	86	Data29	/	
	/	Data32	87	88	Data31	/	
	/	Data34	89	90	Data33	/	
	/	Data36	91	92	Data35	/	
		GND	93	94	GND		
	/	Data38	95	96	Data37	/	
	/	Data40	97	98	Data39	/	
	/	Data42	99	100	Data41	/	
	/	Data44	101	102	Data43	/	
	/	Data46	103	104	Data45	/	
	/	Data48	105	106	Data47	/	
		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		

**Note1.** It is recommended to choose 5.0V as input power VCC.

**Note2.** RGB data group must be used in pairs.

**Note3.** The signal of operating indicator light is low active.

**Note4.** OE\_RED, OE\_GREEN, OE\_BLUE are display enable. Use OE\_RED when OE\_RGB don't control separately. It is GCLK signal when using PWM chip.

**Note5.** RFU3~18 are reserved interfaces for extended functions and see details in the reference designs of other extended functions.

# Dimensions

Board card thickness is 1.6mm, and the total thickness, including the thickness of board card and that of both front and back devices, is about 7.4mm.

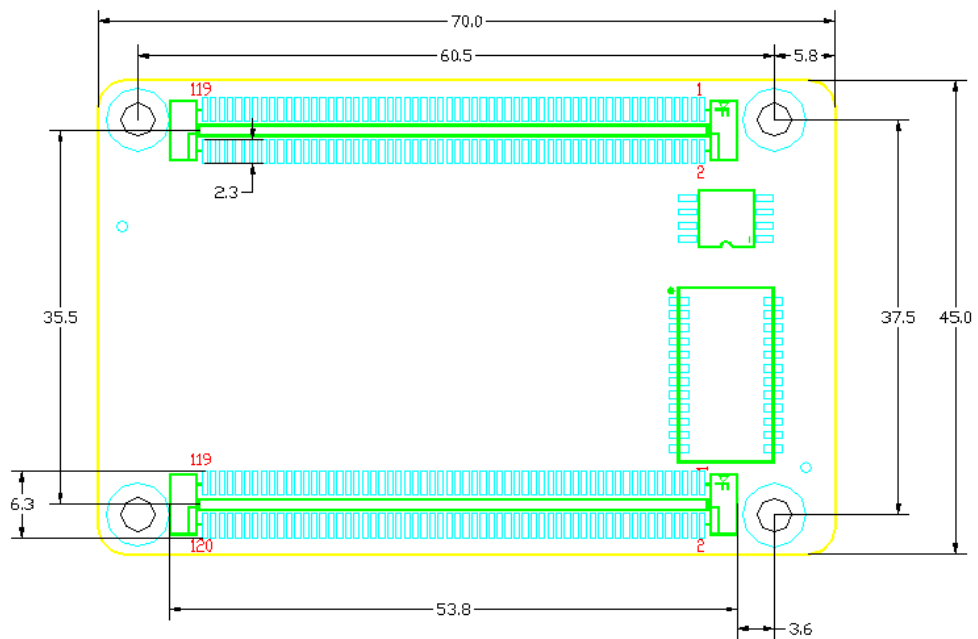
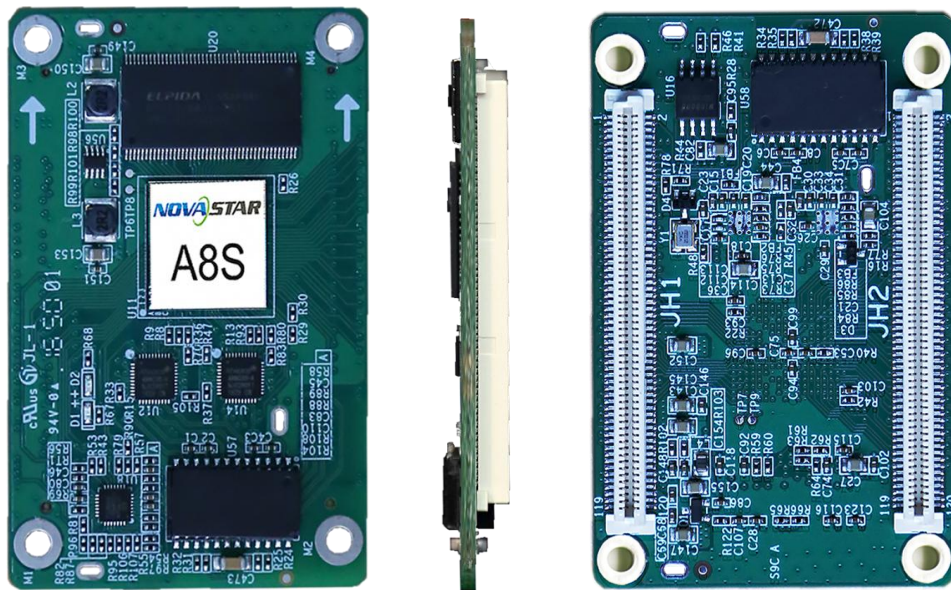


Fig. 1 Front view dimensions (mm)



# Appearance



**Note:** Locating hole has been connected to GND.

Fig. 2 Front and back view of A8s

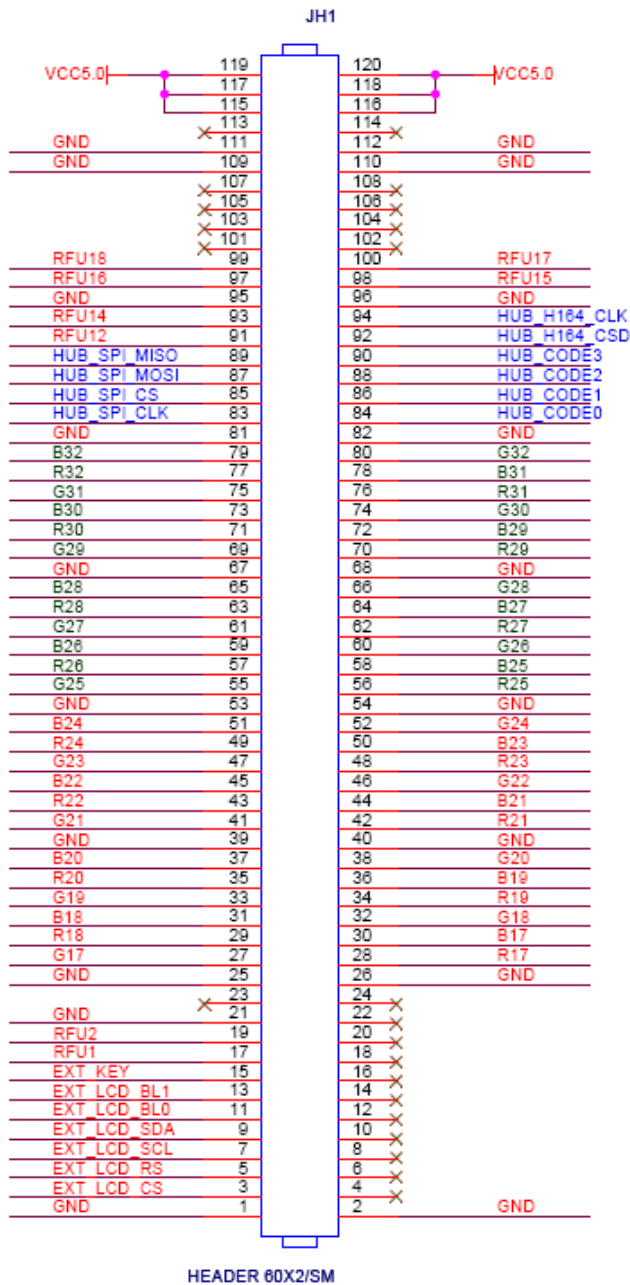
**Statement:** The board will be upgraded later. The functions are basically the same and the appearances have a little difference.

# Specifications

<b>Storage and transportation temperature</b>	-40°C ~ 100°C
<b>Operating temperature</b>	-25°C ~ 70°C
<b>Input voltage</b>	DC 3.3V~6V
<b>Rated current</b>	0.5 A
<b>Rated power consumption</b>	2.5W
<b>Net weight</b>	18.1g
<b>Size ( L*W )</b>	70X45mm

# Appendix

## Reference design for the flash interface



## Reference design for the smart module

