華凌光電股份有限公司
WINSTAR WINSTAR Display Co., Ltd.

SMART DISPLAY SPECIFICATION



Think good, Do good, Be good !

SPECIFICATION

CUSTOMER	WINSTAR
MODEL NO.	WL0F00088000BGXAANA00
CURRENT VERSION	B
RELEASE DATE	2026/11/16

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1. Smart Display Classification Information

W	L	0F	000880	00B	G	X	AA	N	A	00
1	2	3	4	5	6	7	8	9	10	11

1	W: WINSTAR products			
2	Type: L:Standard K:Customization			
3	Display Type:	Standard:	0H: Character STN 0X: Graphic STN (TAB/COF) 0F: TFT EH: Character OLED EX: OLED (TAB/COF)	0G: Graphic STN 0P: Graphic STN (COG) EG: Graphic OLED EP: OLED (COG)
		Customization:	DH: Character DN: Graphic ED: OLED	DG: Graphic STN 0J: TFT
4	Display size: (diagonal) / Display format: (resolution)	Character STN: Graphic STN:	e.g., 8x1: 000801 16x2: 001602 24x4: 002404 e.g., 128x64: 012864 320x240: 320240	
		TFT Size (inch):	000096-0.96” / 000350-3.5” / 000430-4.3” / 000570-5.7” 000700-7.0” / 000800-8.0” / 001020-10.2” / 001210-12.1” (The last two digits are two digits after the decimal point)	
		OLED:	e.g., 128x64: 012864 Customization: 0001XX	
5	Serial No:	0A1 ~ 0ZZ	Customization STN: 000	
6	Touch Panel Type:	N: Without TP T: RTP G: CTP		
7	Model Interface:	A: CAN B: Bluetooth C:Controller Specified D: RS485 E: RS232 F: USART	G: Logic I/O H: HDMI R: Memory Specified N: Ethernet J: Analog I/O K: USB	L: WIFI M: Zigbee X: Combined Y: Proprietary interface
8	Interface Serial No.:	AA ~ ZZ		
9	Control Category:	S: Smart Display E: Entry N: Non-specified		
10	Special Code:	A → Generic B → Industrial C →Automotive D →Medical K → With Housing		
11	Model code:	00 ~ ZZ		

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2. Summary

8.8" Bar-Type HMI Powered by STM32N657, one of the most powerful ST MCU. It allows real-time AI object/human detection inference via MIPI CSI-2 camera interface directly on the device without needing a cloud connection.

Unique bar type design is perfect for space-constrained environments such as smart home appliance, off-highway vehicle dashboard, or narrow industrial control panels.

Ideal for edge AI vision applications that requires anomaly detection, object recognition, human detection, and much more edge inferencing features.

- Neural-ART NPU: up to 600 GOPS @ 1 GHz
- Communication Interface: CAN FD, RS485, RS232, Ethernet, USB-C, UART, SPI, I2C, GPIO
- Camera interface: MIPI CSI-2 / Parallel
- Brightness: 450 nits
- Touch: PCAP (Capacitive)
- wide voltage 9-36V
- 64 MB external flash
- Operating temp: -20 ~ 70 °C
- Storage temp: -30 ~ 80 °C
- Support ST TouchGFX

AI function: Combined with camera unit (B-CAMS-IMX), it can perform visual recognition.



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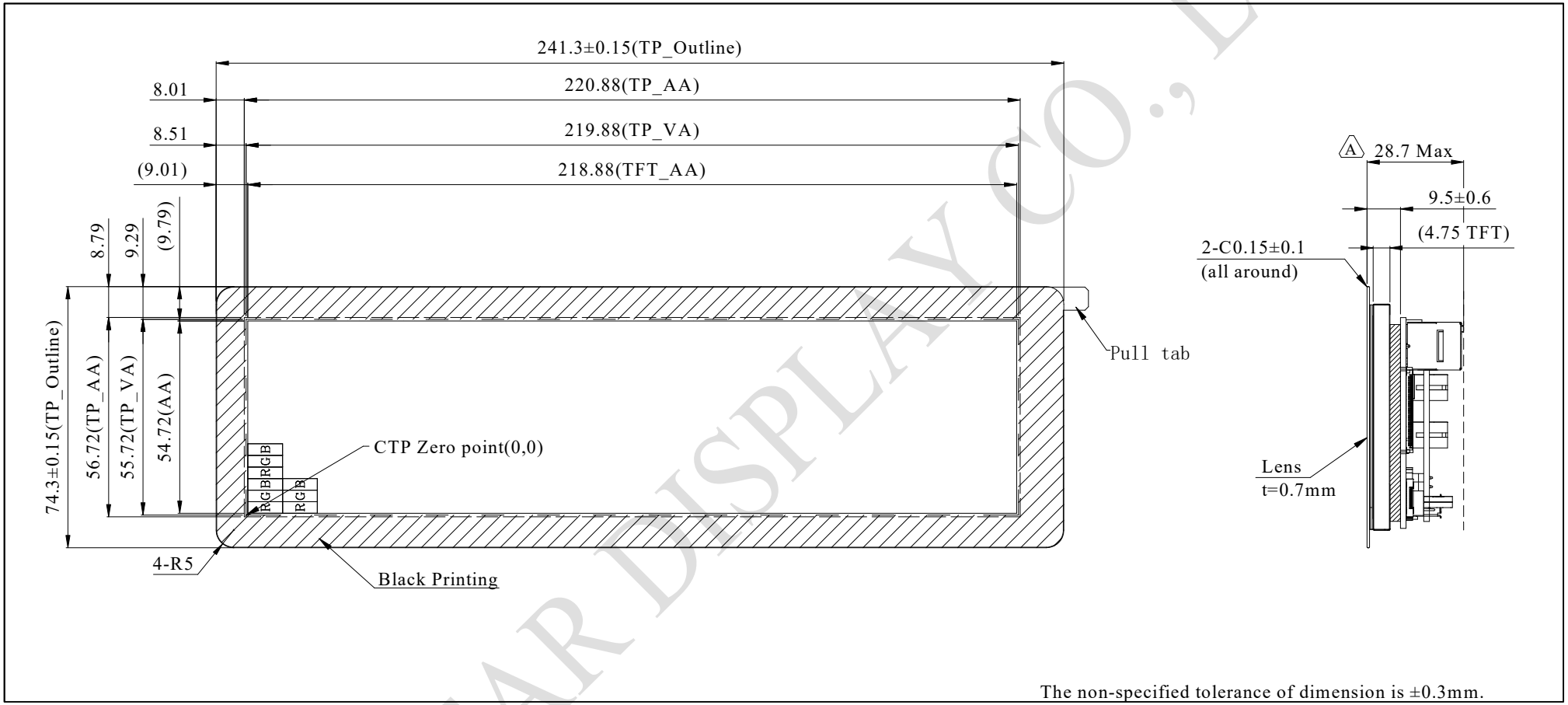
3. Product Information

General information

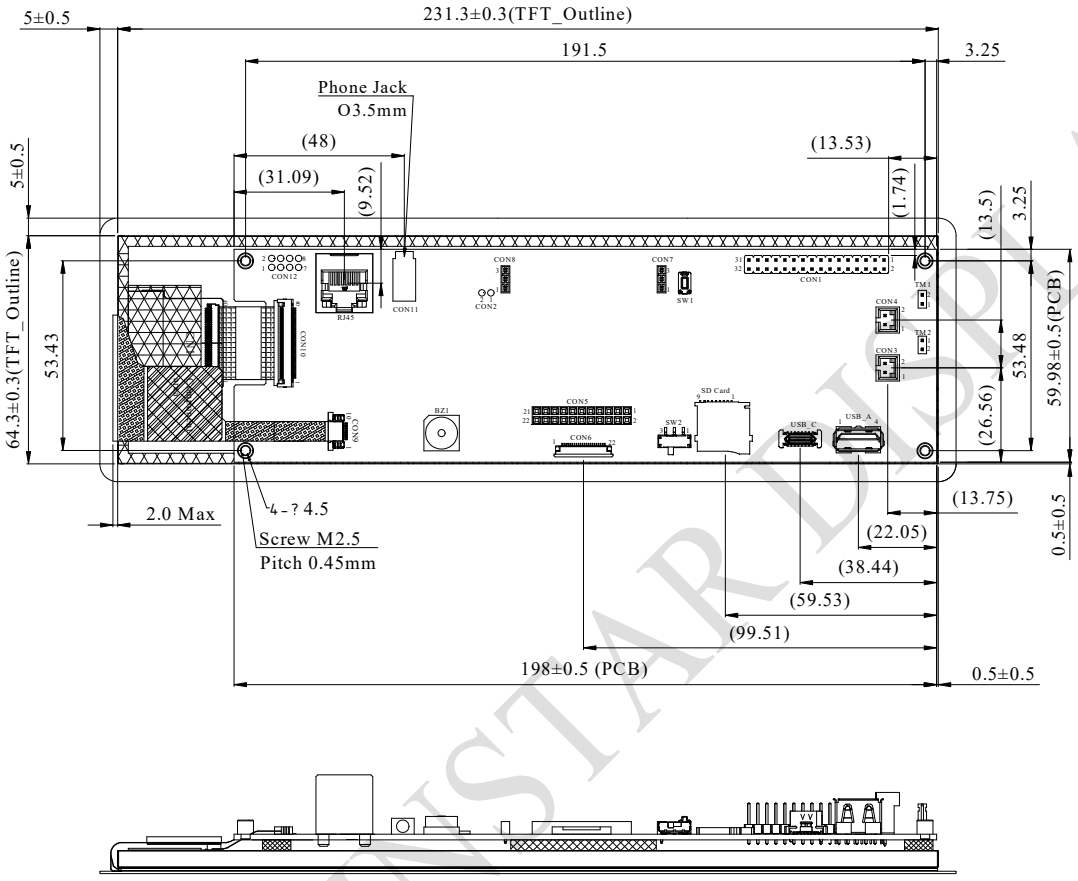
Item	Standard Value	Unit
Operating voltage	9V~36V dynamic	Vdc
Communication Interface	CANFD / RS485 / RS232 / UART / LAN / SPI / I2C / USB	N/A
MCU	STM32N657	N/A
RAM	32	MB
Flash Memory	64	MB
LCD display size	8.8	inch
Dot Matrix	1920 x RGBx480(TFT)	dot
Module dimension	241.3(W) x 74.3(H) x 28.7(D)	mm
Active area	218.88 (H) x 54.72(V)	mm
Pixel pitch	0.114(W) x 0.114(H)	mm
Brightness	Min:350; Typ:450	
LCD type	TFT, Normally Black, Transmissive	
View Direction	85/85/85/85	
Aspect Ratio	1:4 (Bar Type)	
With /Without TP	With CTP	
Surface	Glare	

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4. Contour Drawing



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CON1			
PIN	SYMBOL	PIN	SYMBOL
1	VIN	2	+3V3
3	VIN	4	SWCLK
5	GND	6	GND
7	GND	8	SWDIO
9	SPI_CS	10	NRST
11	SPI_CLK	12	BOOT0
13	SPI_MOSI	14	IO_0
15	SPI_MISO	16	IO_1
17	IC2_SDA	18	IO_2
19	I2C_SCL	20	IO_3
21	UART1_TX	22	IO_4
23	UART1_RX	24	IO_5
25	UART2_TX	26	IO_6
27	UART2_RX	28	IO_7
29	RS232_TX	30	IO_8
31	RS232_RX	32	IO_9

CON2	
PIN	SYMBOL
1	RTC+
2	RTC-

CON3	
PIN	SYMBOL
1	CAN_H
2	CAN_L

CON4	
PIN	SYMBOL
1	RS485_A
2	RS485_B

CON7	
PIN	SYMBOL
1	VCC
2	VCC
3	VCC

CON8	
PIN	SYMBOL
1	GND
2	GND
3	GND

CON5			
SYMBOL	PIN	PIN	SYMBOL
GND	22	21	GND
CSI_D0_CON_N	20	19	CSI_D0_CON_P
GND	18	17	GND
CSI_D1_CON_N	16	15	CSI_D1_CON_P
GND	14	13	GND
CSI_CLK_CON_N	12	11	CSI_CLK_CON_P
GND	10	9	GND
I2C2_SCL	8	7	I2C2_SDA
IMU_INT1	6	5	IMU_INT2
NRST_CAM	4	3	EN_MODULE
UART8_RX	2	1	UART8_TX

CON6	
PIN	SYMBOL
1	GND
2	CSI_D0_N
3	CSI_D0_P
4	GND
5	CSI_D1_N
6	CSI_D1_P
7	GND
8	CSI_CLK_N
9	CSI_CLK_P
10	GND
11	TOF_LPn
12	TOF_INT
13	GND
14	IMU_INT1
15	IMU_INT2
16	GND
17	CAM_NRST
18	CAM_EN
19	GND
20	CAM_SCL
21	CAM_SDA
22	VDD_CAM

The non-specified tolerance of dimension is ±0.3mm.

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5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	℃
Storage Temperature	TST	-30	—	+80	℃

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

6. Electrical Characteristics

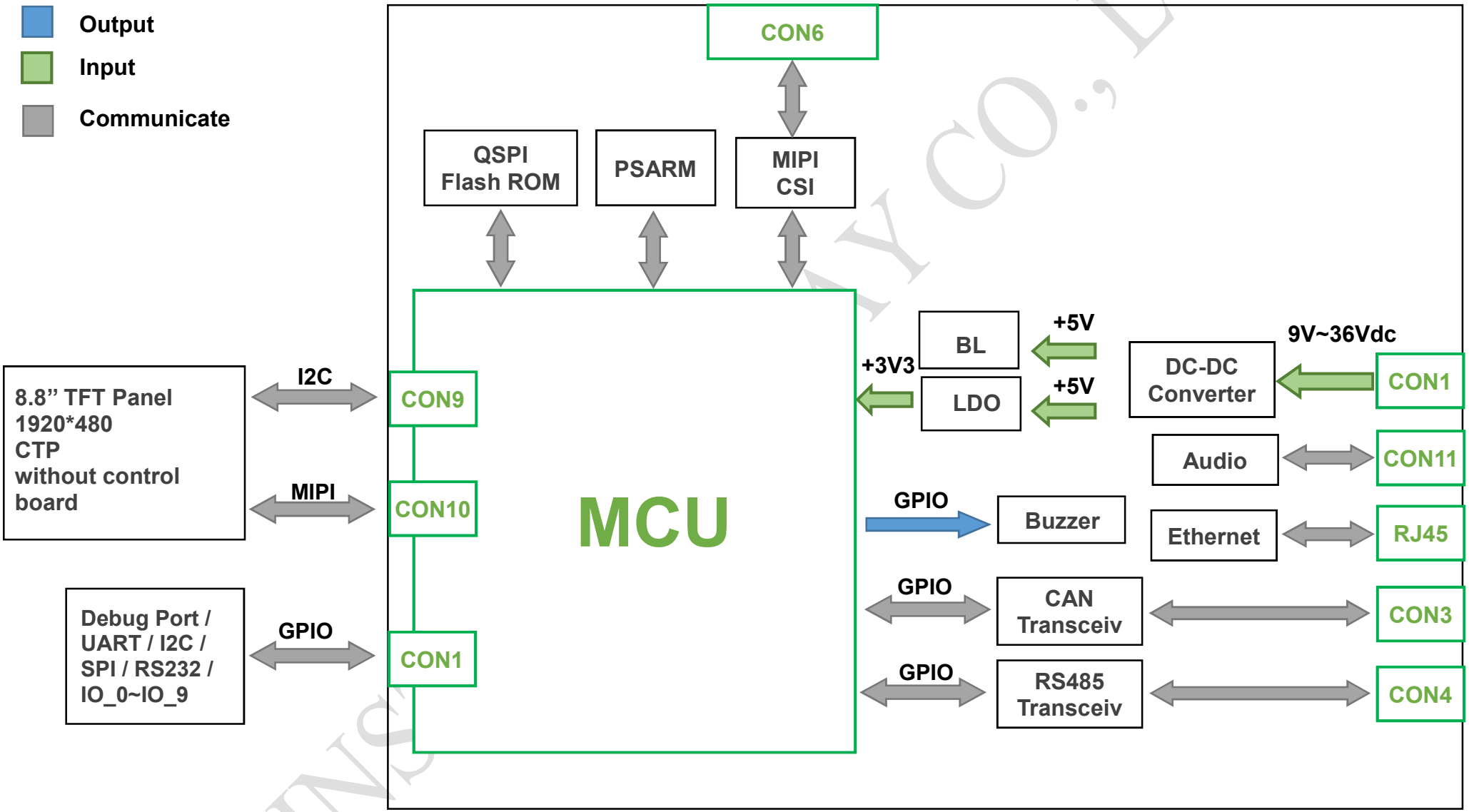
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage	VIN	—	9	12	36	V
Supply LCM current	I(mA)	VIN=12V	280	300	350	mA

7. BOM

Item	Description	Remark
LCM	WF88BTYA8MNG10#	
PCBA	PB4V0008R800BD661X00	

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8. Block Diagram



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9. Interface

CON1 definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply input V+	Input
2	+3V3	3.3V power for JTAG interface	Output
3	VIN	Power supply input V+	Input
4	SWCLK	CLK pin for JTAG interface	I/O
5	GND	Power supply GND input	GND
6	GND	Power supply GND input	GND
7	GND	Power supply GND input	GND
8	SWDIO	Data pin for JTAG interface	I/O
9	SPI_CS	SPI Chip select interface	Input
10	NRST	Reset pin for JTAG interface	Input
11	SPI_CLK	SPI Clock interface	I/O
12	BOOT0	Power supply GND input	Input
13	SPI_MOSI	SPI MOSI interface	Output
14	IO_0	Timer, Event, I/O	PB5
15	SPI_MISO	SPI MISO interface	Input
16	IO_1	ADC, Timer, Event, I/O	PA9
17	I2C_SDA	I2C SDA interface	I/O
18	IO_2	ADC, Timer, Event, I/O	PA10
19	I2C_SCL	I2C SCL interface	I/O
20	IO_3	ADC, Timer, Event, I/O	PB10
21	UART1_TX	UART TX interface	Output
22	IO_4	DAC, Timer, Event, I/O	PB3
23	UART1_RX	UART RX interface	Input
24	IO_5	PWM, Timer, Event, I/O	PE7
25	UART2_TX	UART TX interface	Output
26	IO_6	PWM, Timer, Event, I/O	PE8
27	UART2_RX	UART RX interface	Input
28	IO_7	PWM, Timer, Event, I/O	PE9
29	RS232_TX	RS232 TX interface	Output
30	IO_8	PWM, Timer, Event, I/O	PE10
31	RS232_RX	RS232 RX interface	Input

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32	IO_9	PWM, Timer, Event, I/O	PE12

CON3 definition:

Pin	Symbol	Function	Remark
1	CAN_H	CAN BUS High interface	I/O
2	CAN_L	CAN BUS Low interface	I/O

CON4 definition:

Pin	Symbol	Function	Remark
1	RS485_A	RS485 A interface	I/O
2	RS485_B	RS485 B interface	I/O

CON6 definition:

Pin	Symbol	Function	Remark
1	GND	Power GND	GND
2	CSI_D0_N	MIPI CSI D0 negative signal	I/O
3	CSI_D0_P	MIPI CSI D0 positive signal	I/O
4	GND	Power GND	GND
5	CSI_D1_N	MIPI CSI D1 negative signal	I/O
6	CSI_D1_P	MIPI CSI D1 positive signal	I/O
7	GND	Power GND	GND
8	CSI_CLK_N	MIPI CSI clock negative signal	I/O
9	CSI_CLK_P	MIPI CSI clock positive signal	I/O
10	GND	Power GND	GND
11	TOF_LPn	TOF LPn interface	I/O
12	TOF_INT	TOF INT interface	Input

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13	GND	Power GND	GND
14	IMU_INT1	IMU INT1 interface	Input
15	IMU_INT2	IMU INT2 interface	Input
16	GND	Power GND	GND
17	CAM_NRST	Camera Reset	Input
18	CAM_EN	Camera Enable	Input
19	GND	Power GND	GND
20	CAM_SCL	Camera SCL interface	I/O
21	CAM_SDA	Camera SDA interface	I/O
22	VDD_CAM	Power supply +3.3V	Input

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