



LEOPARD
IMAGING

LI-AR2020-MIPI-079H



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INTRODUCTION

The LI-AR2020-MIPI-079H is a MIPI CSI-2 camera equipped with ON Semiconductor 1/1.8-inch 20 Mp CMOS sensor AR2020 which features advanced 1.4 μm pixel stacked BSI technology and enhanced NIR response on 850 nm and 940 nm wavelength. This camera outputs 10-bit RAW data.

SPECIFICATIONS

Frame Rate	30 fps @ 5120 x 3840
Output Format	10-bit RAW data
Sensor	ON Semiconductor 20 Mp CMOS sensor AR2020
Optical Format	1/1.8"
Color / Mono	Color
Resolution	5120 (H) x 3840 (V) (active pixels)
Pixel Size	1.4 μm Back Side Illuminated (BSI)
xDR (Extended Dynamic Range)	Support
ISP	Not included
EEPROM Memory Size	64Kbit
Interface	1 $\times$ 4-lane MIPI (Driver ready) ; 2 $\times$ 4-lane MIPI
Power Consumption	Approximate 435 mW
Operating Temp	-30°C ~ +85°C
Storage Temp	-30°C ~ +85°C
Weight	~ 25 g

APPLICATIONS

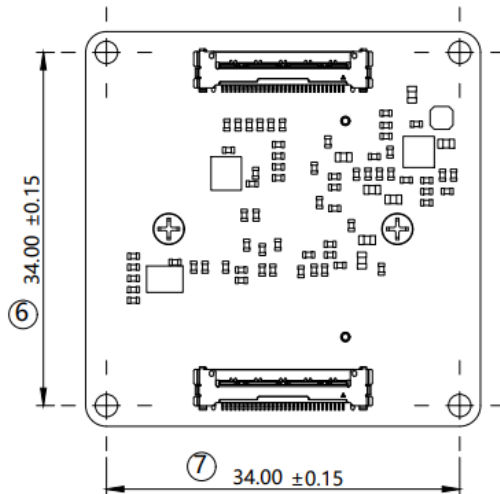
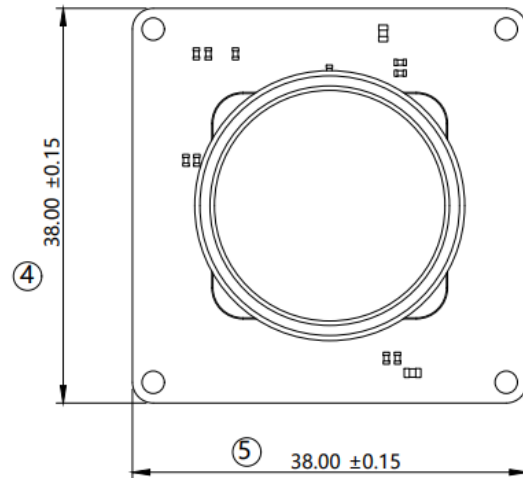
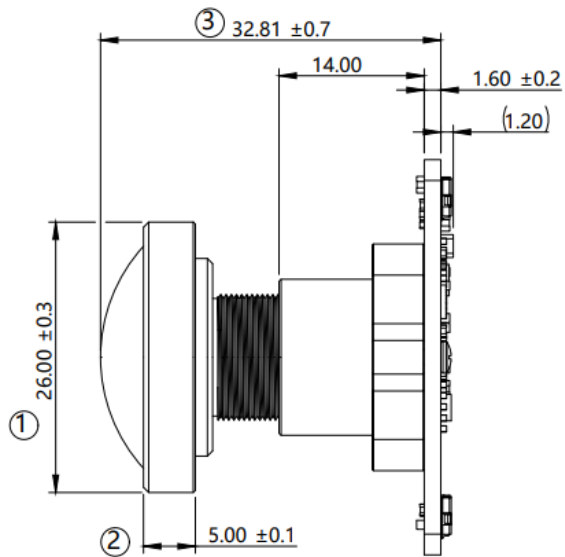
- Surveillance Camera
- Video Conferencing
- Machine Vision
- 3D and Stereo Imaging

LENS SPECIFICATIONS

Effective Focal Length	4.5 mm
Aperture, F/#	1.8
Field of View (FOV)	90° diagonal
	79° horizontal
	63° vertical
Optical Distortion	-2.8%
Relative Illumination	> 50%
IR Filter	650 nm IR cut filter
Lens Mount	M12 x P0.5



DIMENSIONS



TOLERANCE TABLE

LENGTH TOLERANCE		CHAMFER TOLERANCE		ANGLE TOLERANCE	
Size X	Tolerance	Size X	Tolerance	Size X	Tolerance
0.5 < X ≤ 3	±0.1	0.5 < X ≤ 3	±0.2	X ≤ 10	±1°
3 < X ≤ 6	±0.1	3 < X ≤ 6	±0.5	10 < X ≤ 50	±30'
6 < X ≤ 30	±0.2	6 < X ≤ 30	±1	50 < X ≤ 120	±20'
30 < X ≤ 120	±0.3	X > 30	±2	120 < X ≤ 400	±10'
120 < X ≤ 400	±0.5			X > 400	±5'
400 < X ≤ 1000	±0.8				
X > 1000	±1.2				

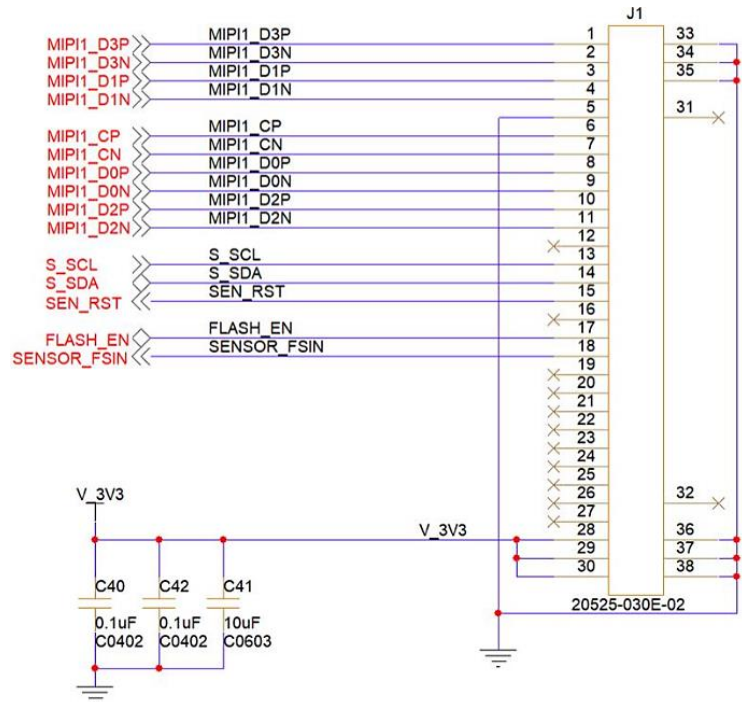
NOTE:

- ⊗ marked are important sizes.
- Tolerances for the unmarked – refer to the Tolerance table.

Unit: mm

INTERFACE J1

- Connector Part#: 20525-030E-02
- Number of Positions: 30
- Pitch: 0.4 mm
- Mating I-PEX Cable: FAW-1233
- Sensor I2C Address: 0x6C (8-bit)
- External Power Supply: 3.3V



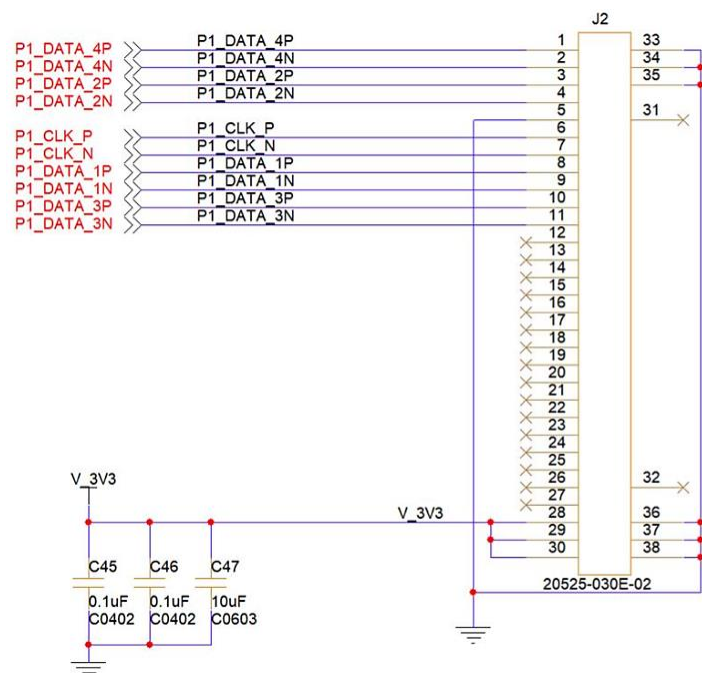
MIPI Connector Pinout

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	MIPI_D3P	OUTPUT	MIPI Clock Data3 Differential Pair +	MIPI DPHY
2	MIPI_D3N	OUTPUT	MIPI Clock Data3 Differential Pair -	MIPI DPHY
3	MIPI_D1P	OUTPUT	MIPI Clock Data1 Differential Pair +	MIPI DPHY
4	MIPI_D1N	OUTPUT	MIPI Clock Data1 Differential Pair -	MIPI DPHY
5	GND	-	-	-
6	MIPI_CP	OUTPUT	MIPI Clock Lane Differential Pair +	MIPI DPHY
7	MIPI_CN	OUTPUT	MIPI Clock Lane Differential Pair -	MIPI DPHY
8	MIPI_D0P	OUTPUT	MIPI Clock Data0 Differential Pair +	MIPI DPHY
9	MIPI_D0N	OUTPUT	MIPI Clock Data0 Differential Pair -	MIPI DPHY
10	MIPI_D2P	OUTPUT	MIPI Clock Data2 Differential Pair +	MIPI DPHY
11	MIPI_D2N	OUTPUT	MIPI Clock Data2 Differential Pair -	MIPI DPHY
12	-	-	-	-
13	S_SCL	INPUT	1.8V IO Camera I2C SCL signal (With 1.5K pull up resistor in camera board)	1.8V

Pin No	Signal Name	Pin Type	Description	Voltage Level
14	S_SDA	I/O	1.8V IO Camera I2C SDA signal (With 1.5K pull up resistor in camera board)	1.8V
15	S_RST	INPUT	1.8V IO camera reset signal (With 10K pull up resistor in camera board)	1.8V
16	-	-	-	-
17	FLASH_EN	OUTPUT	General purpose I/O (GPIO1)	1.8V
18	SENSOR_FSIN	INPUT	Frame sync trigger signal (GPIO0)	1.8V
19	-	-	-	-
20	-	-	-	-
21	-	-	-	-
22	-	-	-	-
23	-	-	-	-
24	-	-	-	-
25	-	-	-	-
26	-	-	-	-
27	-	-	-	-
28	3V3	POWER	3.3V power supply	3.3V
29	3V3	POWER	3.3V power supply	3.3V
30	3V3	POWER	3.3V power supply	3.3V

● INTERFACE J2 (Not Used)

- Connector Part#: 20525-030E-02
- Number of Positions: 30
- Pitch: 0.4 mm
- Mating I-PEX Cable: FAW-1233
- External Power Supply: 3.3V



MIPI Connector Pinout

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	MIPI_D4P	OUTPUT	MIPI Clock Data4 Differential Pair +	MIPI DPHY
2	MIPI_D4N	OUTPUT	MIPI Clock Data4 Differential Pair -	MIPI DPHY
3	MIPI_D2P	OUTPUT	MIPI Clock Data2 Differential Pair +	MIPI DPHY
4	MIPI_D2N	OUTPUT	MIPI Clock Data2 Differential Pair -	MIPI DPHY
5	GND	-	-	-
6	MIPI_CP	OUTPUT	MIPI Clock Lane Differential Pair +	MIPI DPHY
7	MIPI_CN	OUTPUT	MIPI Clock Lane Differential Pair -	MIPI DPHY
8	MIPI_D1P	OUTPUT	MIPI Clock Data1 Differential Pair +	MIPI DPHY
9	MIPI_D1N	OUTPUT	MIPI Clock Data1 Differential Pair -	MIPI DPHY
10	MIPI_D3P	OUTPUT	MIPI Clock Data3 Differential Pair +	MIPI DPHY
11	MIPI_D3N	OUTPUT	MIPI Clock Data3 Differential Pair -	MIPI DPHY
12	-	-	-	-
13	-	-	-	-
14	-	-	-	-
15	-	-	-	-
16	-	-	-	-
17	-	-	-	-
18	-	-	-	-
19	-	-	-	-
20	-	-	-	-
21	-	-	-	-
22	-	-	-	-
23	-	-	-	-
24	-	-	-	-
25	-	-	-	-
26	-	-	-	-
27	-	-	-	-
28	3V3	POWER	3.3V power supply	3.3V
29	3V3	POWER	3.3V power supply	3.3V
30	3V3	POWER	3.3V power supply	3.3V

LI-RPI-AR2020-MIPI-079H

INTRODUCTION

When connecting AR2020 MIPI camera with Raspberry platform, following adaptor board and cables will be needed.

P/N for kit connection:

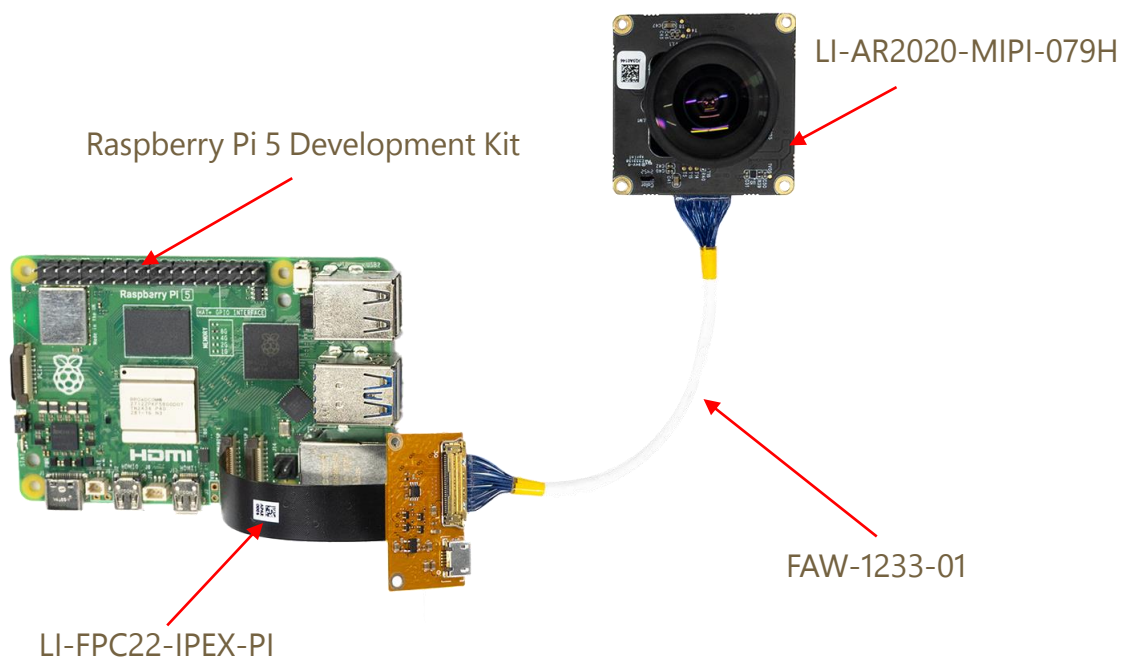
Color: LI-RPI-AR2020-MIPI-079H

BOM

#	Items	QTY
1	LI-AR2020-MIPI-079H	1
2	LI-FPC22-IPEX-PI	1
3	FAW-1233-01	1

NOTE: Raspberry Pi 5 Development Kit is **NOT** included.

Supported platform: Raspberry Pi 5 Development Kit



• REVISION HISTORY

Revision	Description	Release Date
1.0	First release.	28 Jul 2023
1.1	Updated Interface and logo.	16 Jan 2024
1.2	Added Mono camera and LI-RPI-AR2020-MIPI-079H info.	06 Dec 2025
1.3	Deleted USB2.0 cable for external power supply.	25 May 2026
1.4	Deleted the mono camera info.	14 Jul 2026
1.5	Corrected the interface features.	20 Jul 2026

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