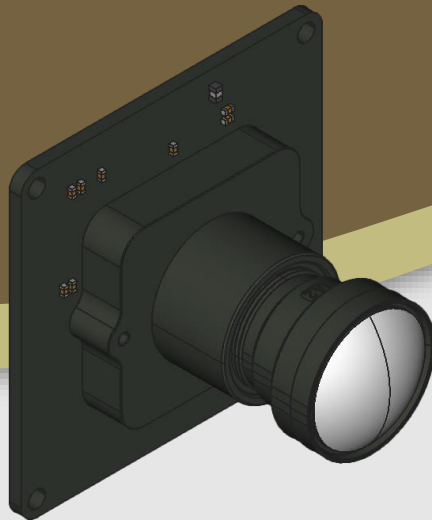




LEOPARD
IMAGING

LI-AR2020M-MIPI-080H



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INTRODUCTION

The LI-AR2020M-MIPI-080H 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

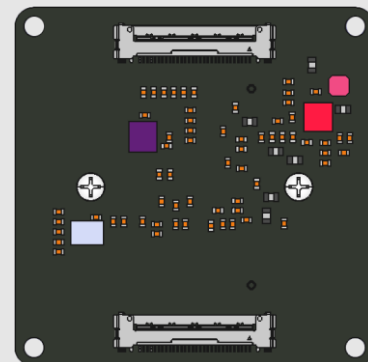
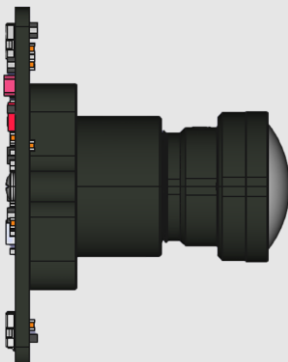
Frame Rate	30 fps @ 5120 x 3840
Output Format	10-bit RAW data
Sensor	ON Semiconductor 20 Mp CMOS sensor AR2020
Optical Format	1/1.8"
Color / Mono	Mono
Resolution	5120 (H) x 3840 (V) (active pixels)
Pixel Size	1.4 μm Back Side Illuminated (BSI)
xDR (Extended Dynamic Range)	Support
ISP	Not included
EEPROM 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	TBD

APPLICATIONS

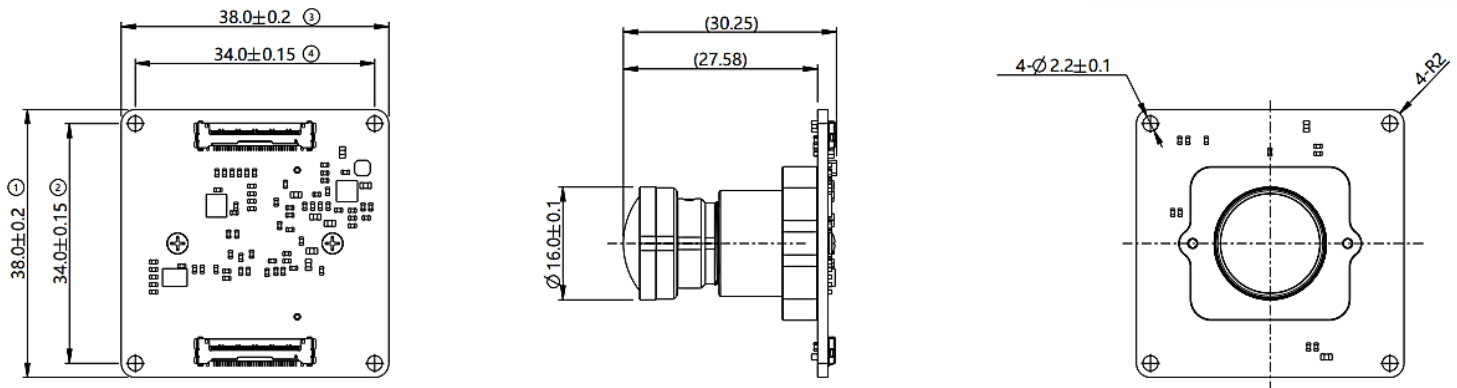
- Surveillance Camera
- Video Conferencing
- Machine Vision
- 3D and Stereo Imaging

LENS SPECIFICATIONS

Effective Focal Length	4.4 mm
Aperture, F/#	2.0 $\pm$ 5%
Field of View (FOV)	93.5° @ 8.96mm diagonal
	79.6° @ 7.168mm horizontal
	63.6° @ 5.376mm vertical
Optical Distortion	-4.1% @ 8.96mm
IR Filter	N/A
Lens Mount	M12 x P0.5



DIMENSIONS



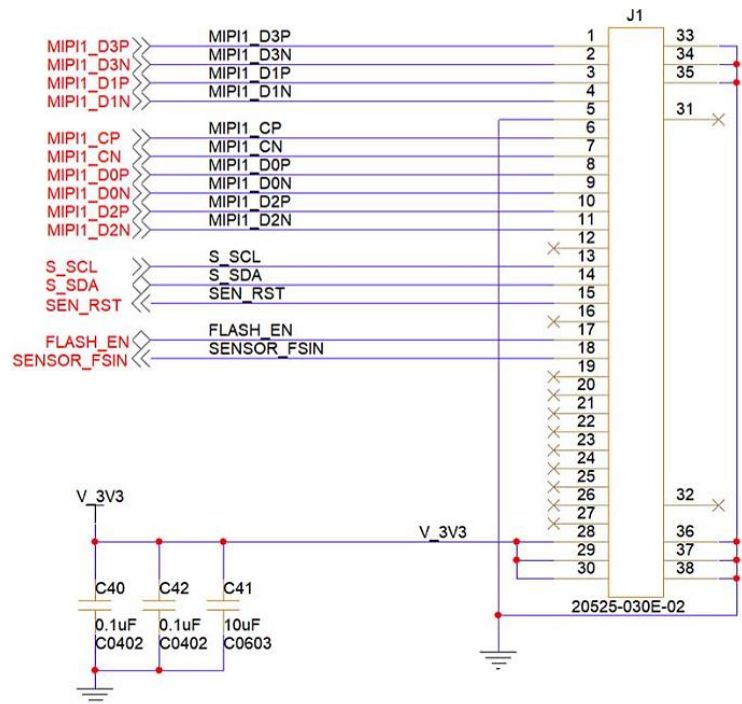
NOTE:

- $\otimes$ marked are important sizes.
- Tolerances for the unmarked – refer to the Tolerance table.
- Unit: mm

TOLERANCE TABLE					
LENGTH TOLERANCE		CHAMFER TOLERANCE		ANGLE TOLERANCE	
Size X	Tolerance	Size X	Tolerance	Size X	Tolerance
$0.5 < X \leq 3$	± 0.1	$0.5 < X \leq 3$	± 0.2	$X \leq 10$	$\pm 1^\circ$
$3 < X \leq 6$	± 0.1	$3 < X \leq 6$	± 0.5	$10 < X \leq 50$	$\pm 30'$
$6 < X \leq 30$	± 0.2	$6 < X \leq 30$	± 1	$50 < X \leq 120$	$\pm 20'$
$30 < X \leq 120$	± 0.3	$X > 30$	± 2	$120 < X \leq 400$	$\pm 10'$
$120 < X \leq 400$	± 0.5			$X > 400$	$\pm 5'$
$400 < X \leq 1000$	± 0.8				
$X > 1000$	± 1.2				

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



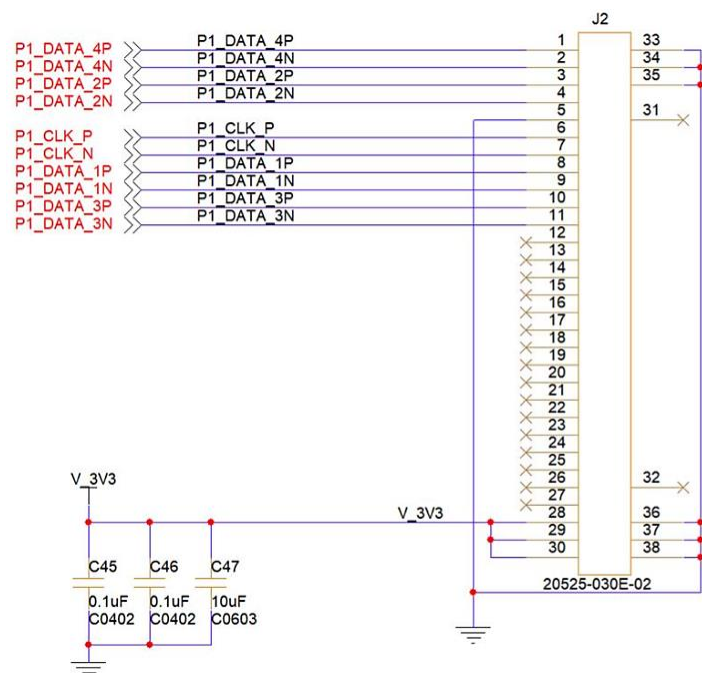
MIPI Connector Pinout

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-AR2020M-MIPI-080H

INTRODUCTION

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

P/N for kit connection:

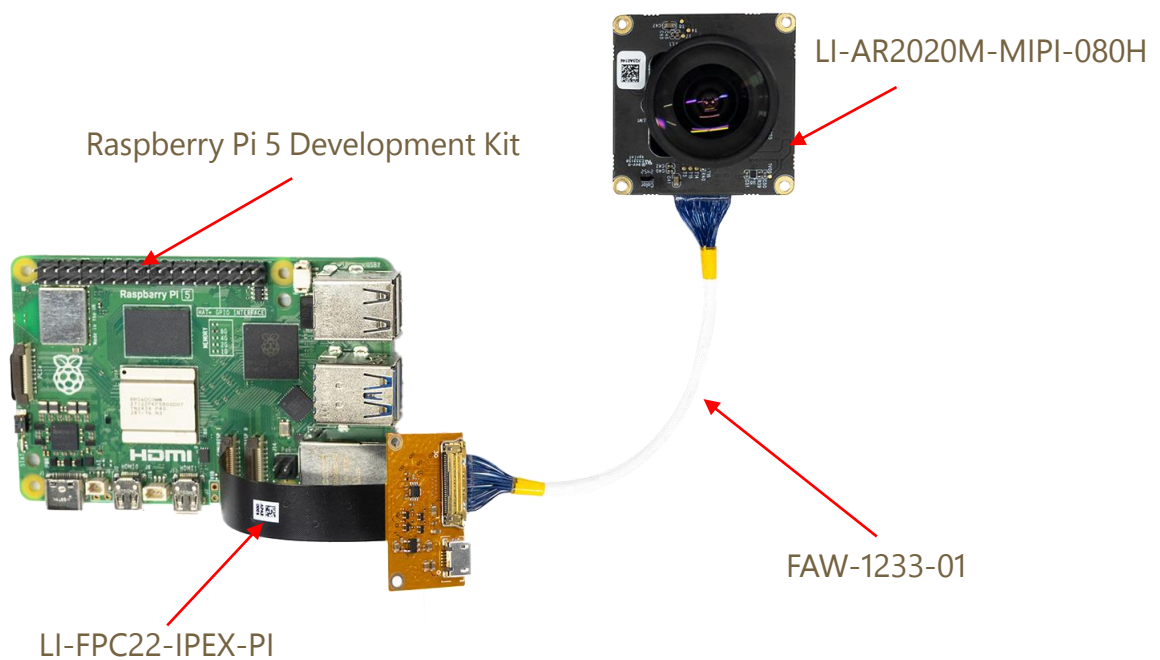
Color: LI-RPI-AR2020M-MIPI-080H

BOM

#	Items	QTY
1	LI-AR2020M-MIPI-080H	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
0.1	Initial draft.	14 Jul 2026

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