



LEOPARD
IMAGING

LI-AR2020-MIPI-079H



Address:

910 Auburn Ct
Fremont, CA 94538
USA



Phone:

+1 (408)263-0988

Fax:

+1 (408)217-1960



Sales:

sales@leopardimaging.com

Support:

support@leopardimaging.com

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" |
| 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 |
| Interface | 1x 4-lane MIPI (Driver ready) ; 1x 8-lane MIPI |
| Power Consumption | Approximate 435 mW |
| Operating Temp | -30°C ~ +85°C |
| Storage Temp | -30°C ~ +85°C |
| Weight | ~ 25 g |

Ordering Information

| No | Description | Part# |
|----|--------------|----------------------|
| 1 | Color camera | LI-AR2020-MIPI-079H |
| 2 | Mono camera | LI-AR2020M-MIPI-079H |



APPLICATIONS

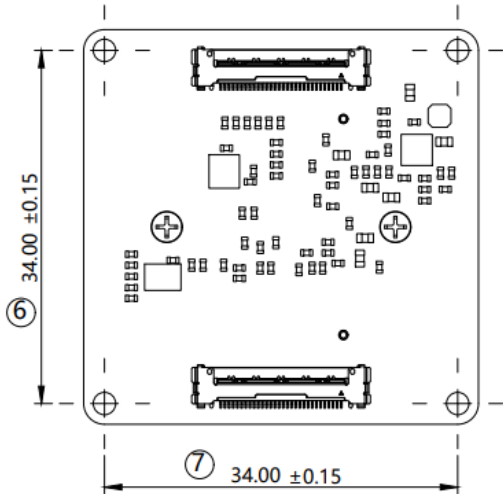
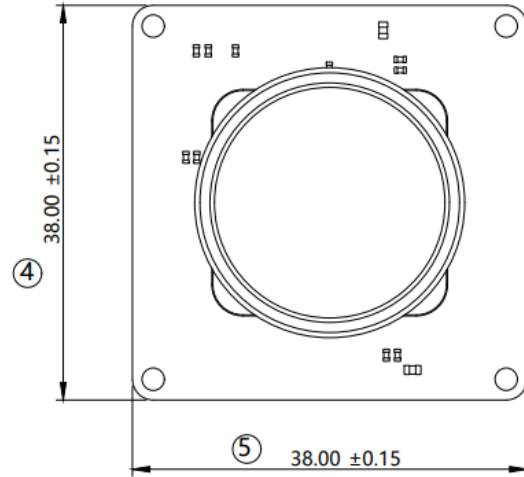
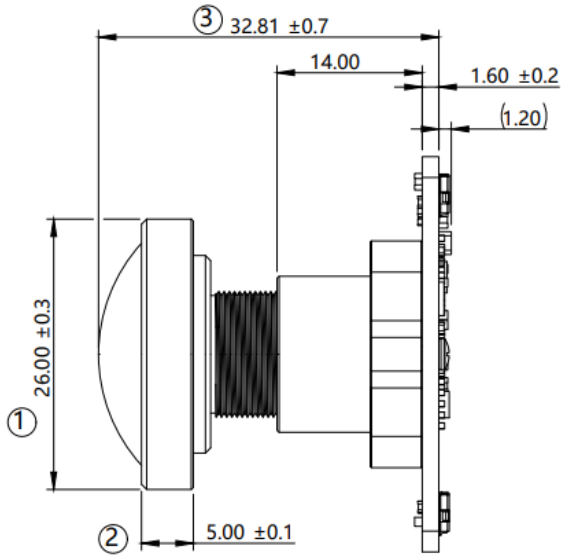
- Surveillance Camera
- Video Conferencing
- Machine Vision
- 3D and Stereo Imaging

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 (Only for color camera) | 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 | | | | |

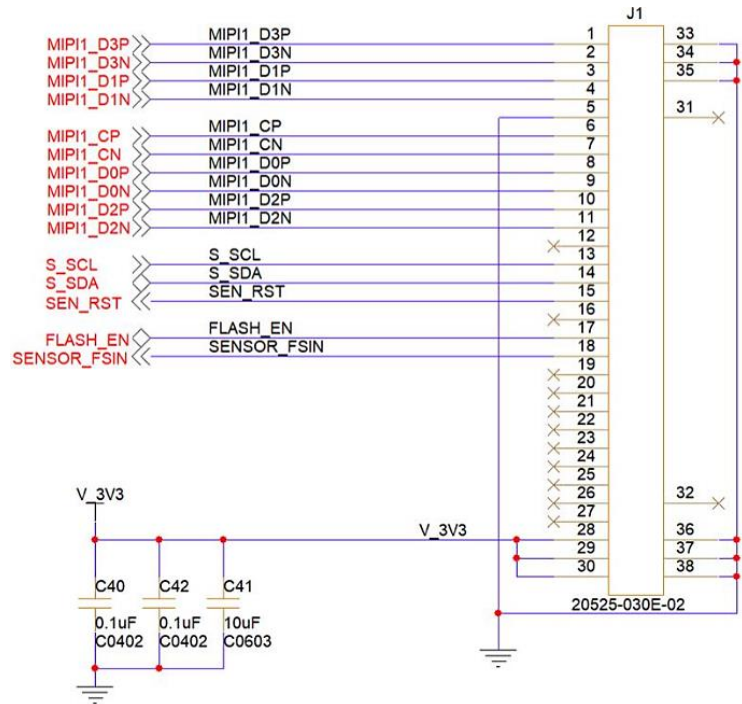
NOTE:

- ⊗ 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



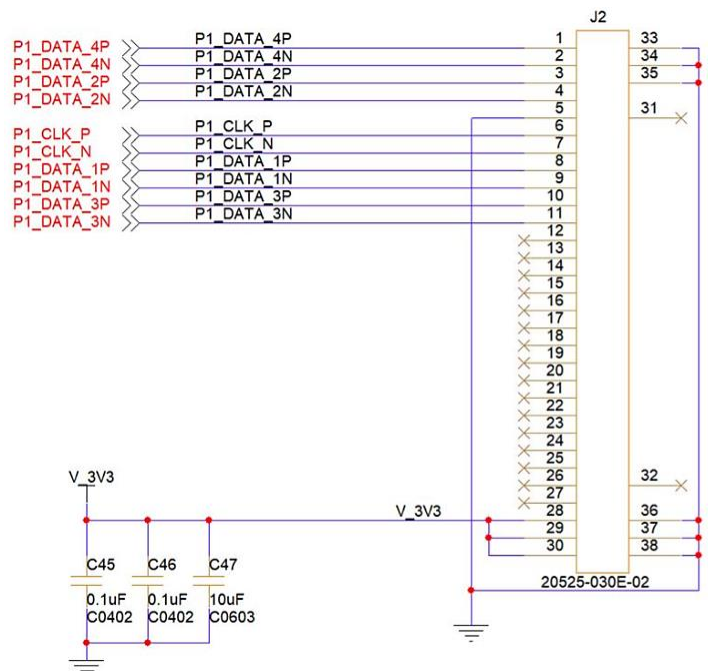
MIPI Connector Pinout

| 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

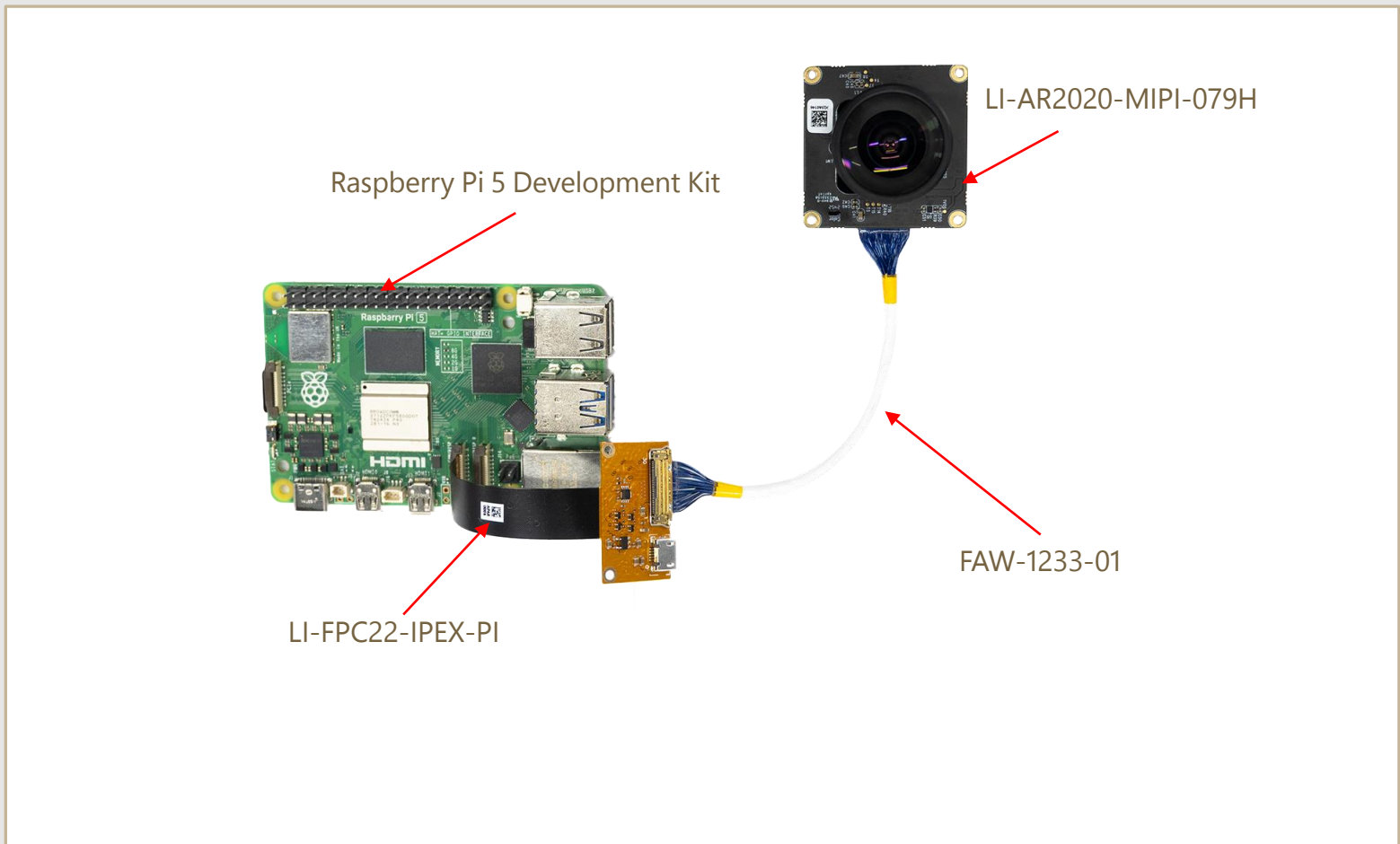
Mono: LI-RPI-AR2020M-MIPI-079H

BOM

| # | Items | QTY |
|---|--|-----|
| 1 | LI-AR2020-MIPI-079H / LI-AR2020M-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 |

910 Auburn Ct, Fremont, CA 94538, USA

Phone: +1-408-263-0988

Fax: +1-408-217-1960

Email: sales@leopardimaging.com

Website: www.leopardimaging.com

