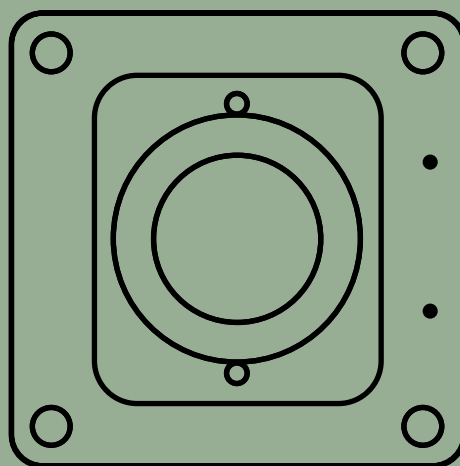


# \*ZED X One Core

# Monocular Camera Overview

The ZED X One Core is a compact, barebone monocular camera designed for OEMs who need a vision module that fits effortlessly into small enclosures and tightly integrated robotic systems.

Its native MIPI interface connects to a capture card for low-latency acquisition, supporting up to four cameras. The capture card is compatible with the NVIDIA Jetson AGX Thor through the NVIDIA Holoscan Sensor Bridge, enabling efficient deployment of advanced edge-AI pipelines. It also supports the NVIDIA Jetson AGX Orin Developer Kit.



# \*ZED X One Core Main Features & General Specifications



## Barebone OEM integration

The ZED X One Core is a compact, lightweight camera module designed for seamless OEM integration. Its minimal footprint fits easily into embedded enclosures and tightly integrated robotic systems.

## Thor-ready MIPI interface

The native MIPI interface provides deterministic, low-latency data transfer for robotics. Combined with NVIDIA Holoscan and Jetson Thor compatibility, it streamlines edge-AI deployment for advanced perception pipelines.

## Multi-camera synchronization

Hardware synchronization for multiple connected cameras at frame-level within microseconds. Capture images of the machine surroundings with multiple cameras all triggered at the same time.

## Global Shutter HD 60fps

The global shutter sensor delivers distortion-free imaging with smooth Full HD capture at 60fps. It ensures sharp detail and reliable performance in fast-moving, high-dynamics applications.

## High-performance IMU

The integrated IMU combines a 16-bit triaxial accelerometer and gyroscope with vibration resistance and ultra-low noise for precise motion tracking in dynamic environments.

## Versatile lens options

Choose from fisheye, wide or narrow lenses to match your field-of-view needs, from fisheye ultra-wide coverage to precise, focused inspection.

### Camera

**Sensor Type** 1/2.6" 2.3MP CMOS - Global Shutter

**Output Resolution** 1920x1200 @60fps  
1920x1080 @60fps  
960x600 @120fps

**Image Format** 16/10

**Output Format** Raw 10 / YUV 4:2:2 (Argus)

#### Field of View

**Fisheye lens** Max. 195°(H) x 115°(V) x 220°(D)

**Wide lens** Max. 110°(H) x 80°(V) x 120°(D)

**Narrow lens** Max. 80°(H) x 52°(V) x 91°(D)

#### Focal Length

**Fisheye lens** 1.38mm (0.054")

**Wide lens** 2.2mm (0.086")

**Narrow lens** 3.8mm (0.150")

#### Aperture

**Fisheye lens** f/2.0

**Wide lens** f/2.2

**Narrow lens** f/1.8

#### Distortion

**Fisheye lens** +18.8% f-theta

**Wide lens** < 4.39%

**Narrow lens** < 6.9%

#### Interface

MIPI

Micro I-PEX cable

### Sensors

**Image** RGB Global Shutter Sensor

**Motion** BOSCH BMI088 IMU

### Physical Specifications

#### Dimensions

**Fisheye lens** 27 x 27 x 29.72 mm (1.06 x 1.06 x 1.17")

**Wide lens** 27 x 27 x 34.52 mm (1.06 x 1.06 x 1.34")

**Narrow lens** 27 x 27 x 33.61 mm (1.06 x 1.06 x 1.32")

#### Mounting

4x 2.2mm diameter holes

#### Weight

**Fisheye lens** 17g (0.04 lb.)

**Wide lens** 19g (0.04 lb.)

**Narrow lens** 14g (0.03 lb.)

#### Operating Temp.

-20°C to +60°C (-4°F to 140°F)

#### Power

**consumption** Power via MIPI  
240mA @ 5VDC max.

#### Warranty

2-year warranty

### System Requirements

**System** NVIDIA Jetson

#### OS

Jetson Linux (L4T) v35.1 or newer

# \*ZED X One Core Detailed Specifications

## Image Sensor

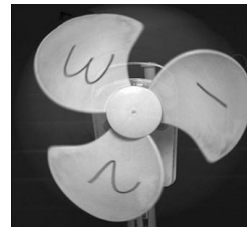
The ZED X One Core sensor delivers 2.3MP clarity and great low-light capabilities, ideal for capturing crisp and distortion-free footage of fast moving objects in robotics applications.

Sensor Type	1/2.6" 2.3MP CMOS
Array Size	1928 x 1208 pixels
Pixel Size	3 $\mu$ m x 3 $\mu$ m
Shutter	Electronical synchronized global shutter
Output Resolution	1920x1200 @60fps 1920x1080 @60fps cropping mode 960x600 @120fps binning mode
Output Format	RAW10 (v4l2) / NV21 (Argus)
Max S/N Ratio	38dB
Dynamic Range	71.4dB
Sensitivity	22.3Ke/Lux*s
Camera Control	Exposure, analog & digital gain, gamma, white balance, saturation, sharpness, denoising, brightness, contrast

## Distortion free images of fast moving objects



Rolling Shutter



Global Shutter

## Motion Sensor BMI088 IMU

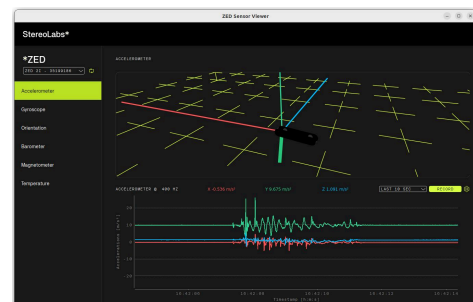
The integrated IMU is a high-performance 6-axis inertial sensor with a 16-bit triaxial accelerometer and gyroscope, providing precise orientation and motion detection of our cameras. Offering high vibration robustness and excellent temperature stability, it's ideal for harsh industrial robotics environments.

Motion Sensor	BOSCH BMI088 IMU
Accelerometer Range	+/- 12G
Accelerometer Resolution	0.36 mg
Accelerometer Noise Density	3.2 mg
Gyroscope Range	+/- 1000 dps
Gyroscope Resolution	0.03 dps
Gyroscope Noise Density	0.10 dps
Sensitivity Error	+/- 0.5%
Output Data Rate	400 Hz

## Sensors API

You can access these sensors and acquire sensor data by using the Sensors API.

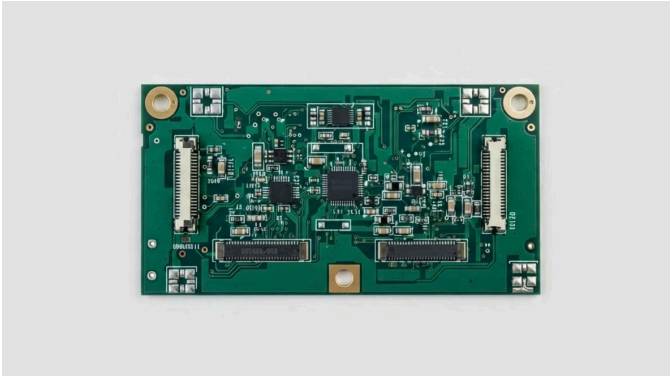
Please visit [stereolabs.com/docs](https://stereolabs.com/docs) for tutorials.



# \*ZED X One Core Accessories

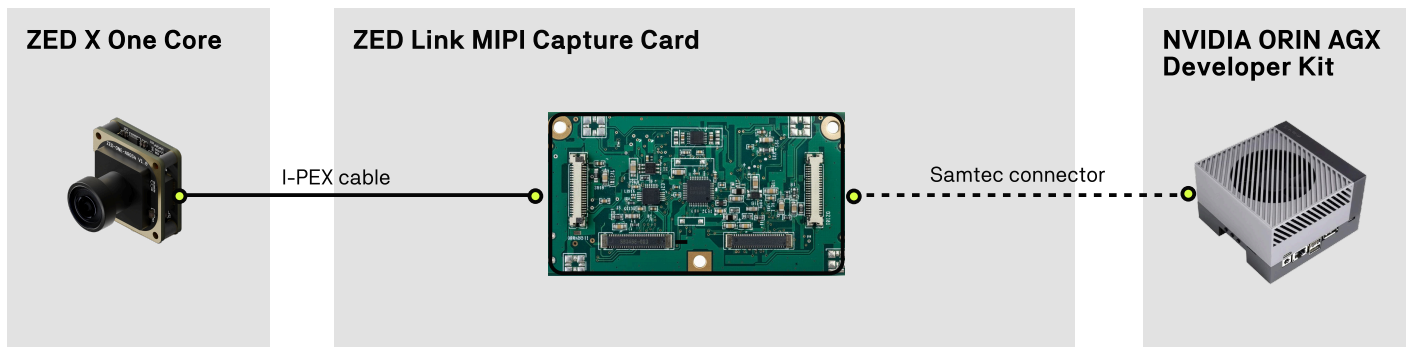
## Capture Card

To capture the ZED X One Core on NVIDIA Jetson Thor, use ZED Link MIPI capture card that connects to NVIDIA Holoscan sensor bridge. For Orin AGX platform, our MIPI capture card that connects directly to the Jetson's CSI port.

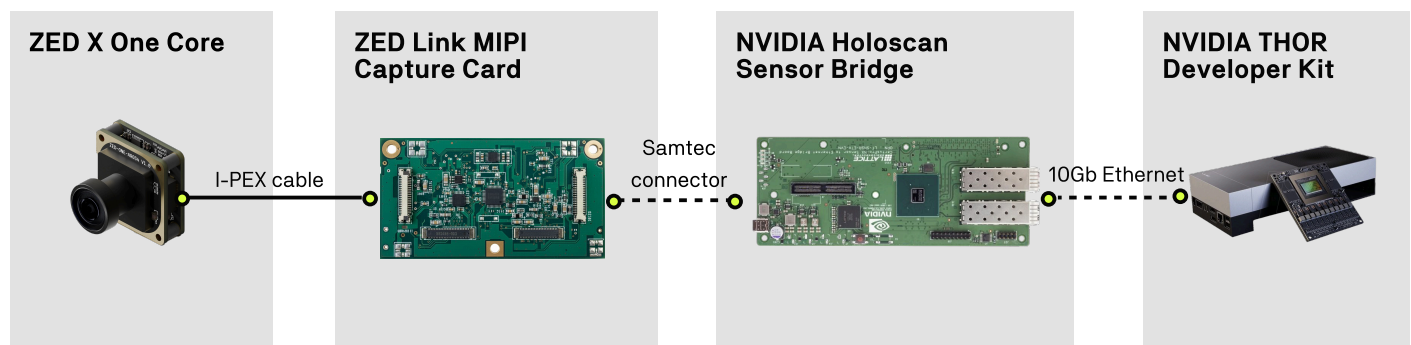


Model	ZED Link MIPI Capture Card
Compatibility	NVIDIA Jetson AGX Orin Developer Kit (J12) NVIDIA Holoscan Sensor Bridge
Max. number of cameras	Capture 4x MIPI camera input in SD/HD, up to 1920x1200@60fps
Size	75 x 40 mm

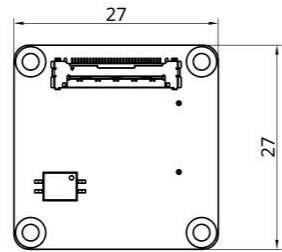
## Workflow overview with NVIDIA Jetson AGX Orin Developer Kit



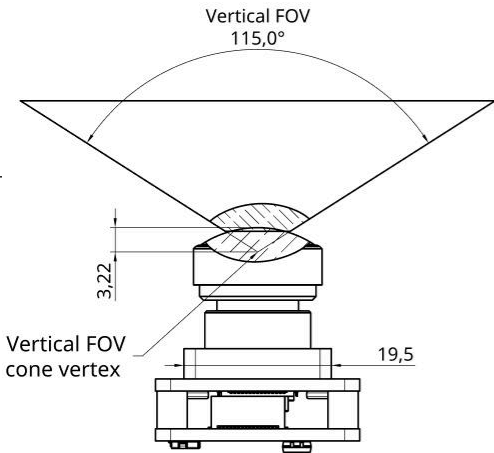
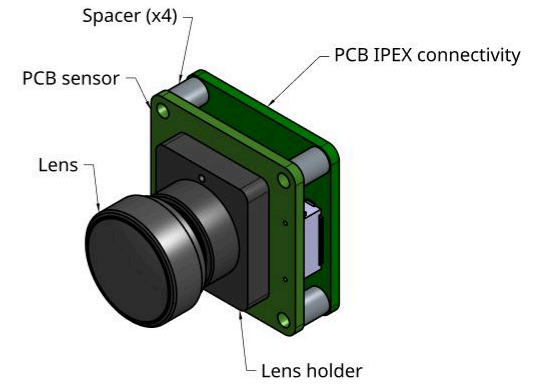
## Workflow overview with NVIDIA Holoscan and Jetson Thor



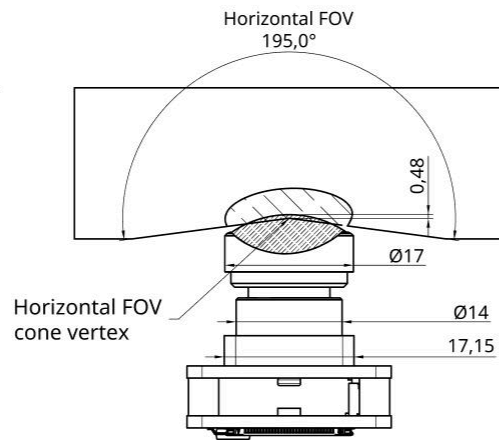
# \*ZED X One Core - Fisheye lens Technical Drawings



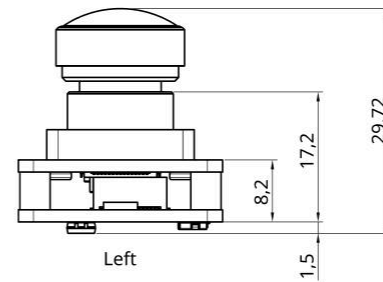
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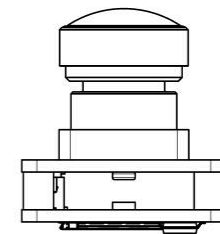
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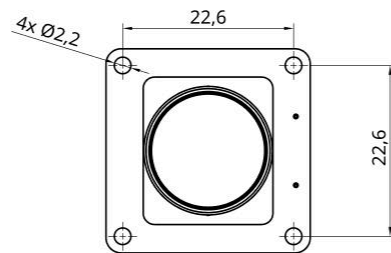
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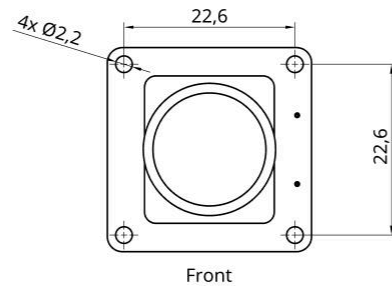
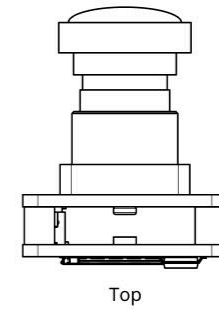
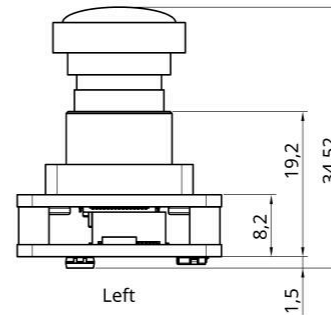
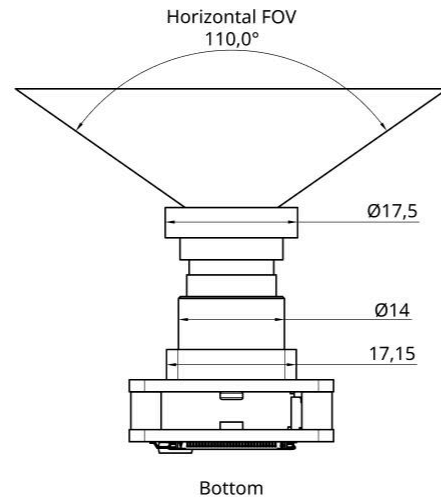
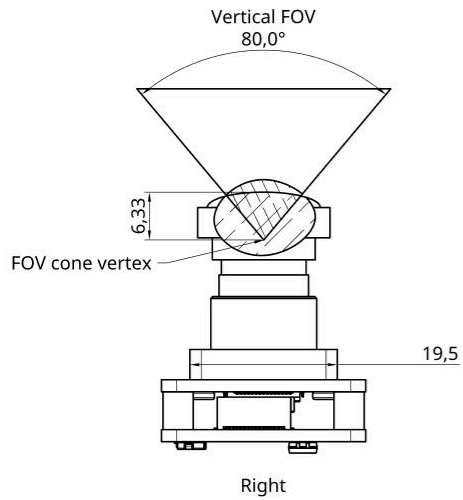
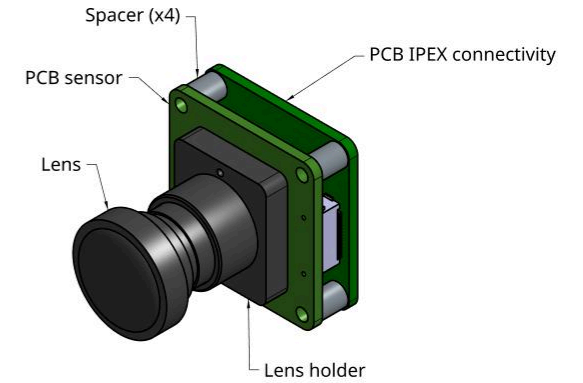
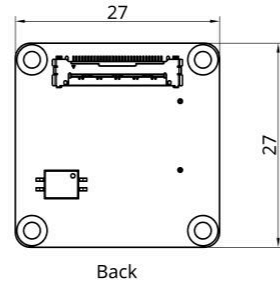


Top

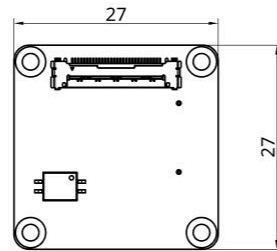


Front

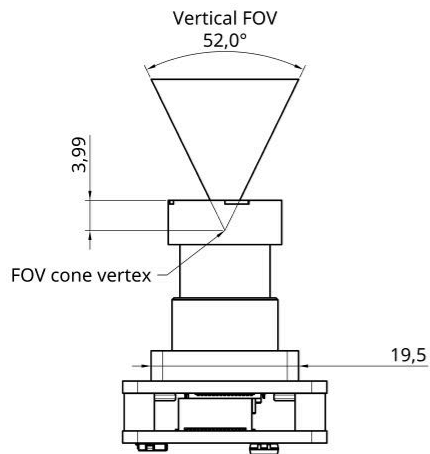
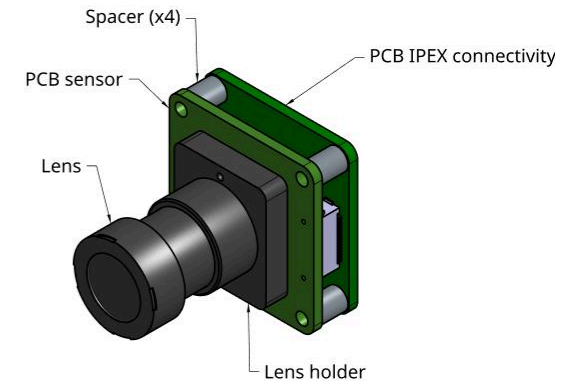
# \*ZED X One Core - Wide lens Technical Drawings



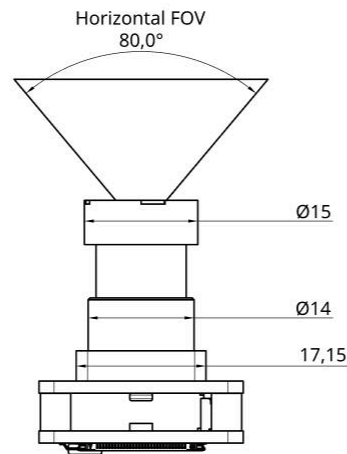
# \*ZED X One Core - Narrow lens Technical Drawings



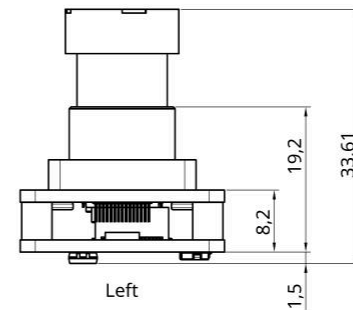
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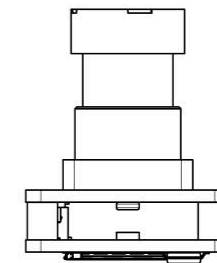
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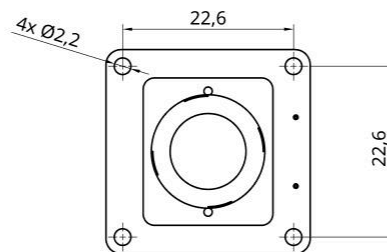
Bottom



Left



Top



Front

# \*ZED X One Core Part Number

## ZED X One Core Part Number

	ZED X One Core No lens	ZED X One Core Narrow lens	ZED X One Core Wide lens	ZED X One Core Fisheye lens
SKU	ZED-411013	ZED-412013	ZED-413013	ZED-414013