ZED 2

ZED 2 Camera and SDK Overview

The **ZED 2** is a stereo camera that provides high definition 3D video and neural depth perception of the environment. It has been designed for the most challenging applications, from autonomous navigation and mapping to augmented reality and 3D analytics.

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ZED 2 Overview

Spatial Object Detection

Detect and track object with spatial context. By combining AI and 3D the ZED 2 localizes the objects in space and provides the tools to create the next-generation spatial awareness.

All-Aluminium Case

The ZED 2 comes with a more robust all-aluminium enclosure with thermal control that compensates focal length and motion sensors biases.

Camera Control

The ZED 2 is a UVC video camera with low level access to the device. It provides control over all the camera parameters such as exposure, gain, sharpness, etc.

Neural Depth Sensing

The ZED 2 is the first stereo camera that uses neural networks to reproduce human vision, bringing stereo parception to a new level.

Built-in Sensor Stack

The most extensive sensor stack is avaialable on ZED 2. Togheter with inertial data, the ZED 2 also captures elevation and magnetic field in real-time.

Cloud Connected

Monitor and control your camera remotely. Using the dedicated cloud platform, capture and analyze spatial data anywhere in the world. Manage your application remotely and update you camera at an time.
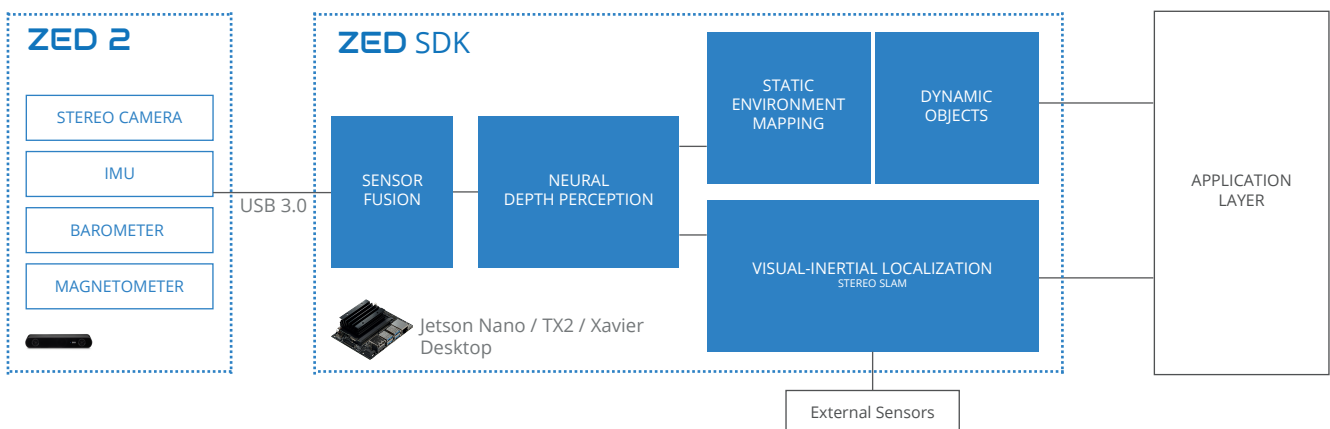
General Specifications

Camera

Output Resolution	Side by Side 2x (2208x1242) @15fps
	2x (1920x1080) @30fps
	2x (1280x720) @60fps
	2x (672x376) @100fps
Field of View	Max. 110°(H) x 70°(V) x 120°(D)
Interface	USB 3.0/2.0 - Integrated 1.2m cable
Depth Range	0.3 m to 20 m (1 to 65.6 ft)
Depth Accuracy	< 1% up to 3m
	< 5% up to 15m

Sensors

Motion	Gyroscope, Accelerometer Magnetometer
Environmental	Barometer Temperature

Physical

Dimensions	175 x 30 x 33 mm (6.89 x 1.18 x 1.3")
Weight	166g (0.36 lb)
Operating Temp.	-10°C to +45°C (14°F to 113°F)
Power	380mA / 5V USB Powered

Functional SDK Diagram

ZED 2: STEREO CAMERA, IMU, BAROMETER, MAGNETOMETER

USB 3.0

ZED SDK: SENSOR FUSION → NEURAL DEPTH PERCEPTION → STATIC ENVIRONMENT MAPPING / DYNAMIC OBJECTS / VISUAL-INERTIAL LOCALIZATION STEREO SLAM

Jetson Nano / TX2 / Xavier Desktop

External Sensors

APPLICATION LAYER

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ZED 2 Detailed Specifications

Dual Image Sensors

Sensors

Sensor Type	1/3" 4MP CMOS
Array Size	2688 x 1520 pixels
Pixel Size	2μm x 2μm
Shutter	Electronic synchronized rolling shutter

Output Resolution (Side by side)

2x (2208x1242) @15fps	cropping mode
2x (1920x1080) @15/30fps	cropping mode
2x (1280x720) @15/30/60fps	binning 2x2 mode
2x (672x376) @15/30/60/100fps	binning 4x4 mode

Output Format	YUV 4:2:2 - UYVY (8bits)
Max S/N Ratio	38.3 dB
Dynamic Range	64.6 dB
Sensitivity	1900 mV/Lux-sec

Lenses

Baseline	120 mm (4.7")
Focal Length	2.12mm (0.08")
Field of View	Max. 110°(H) x 70°(V) x 120°(D)
Aperture	f/1.8
TV Distortion	5.07%

System Requirements

Supported OS
Windows 10 - 64 bit
Ubuntu 16.04/18.04 - 64 bit
Debian, CentOS (via Docker)
Jetson L4T

CPU
Dual-core ≥ 2.4GHz processor
Minimum 4GB RAM

GPU
NVIDIA GPU ≥ 2GB Memory
NVIDIA Compute capability ≥ 3.0
Compatible with:
• NVIDIA Jetson Nano
• NVIDIA Jetson TX2
• NVIDIA Jetson Xavier

Motion/Environmental Sensors

Inertial Measurement Unit

Accelerometer Range	+/- 8G
Accelerometer Resolution	0.244 mg
Accelerometer Noise Density	3.2 mg
Gyroscope Range	+/- 1000 dps
Gyroscope Resolution	0.03 dps
Gyroscope Noise Density	0.16 dps
Sensitivity Error	+/- 0.4%
Output Data Rate	400 Hz

Magnetometer

Magnetic Field Range	+/- 2500 μT (z) +/- 1300 μT (x,y)
Magnetic Field Resolution	0.3 μT
Output Data Rate	50 Hz

Barometer

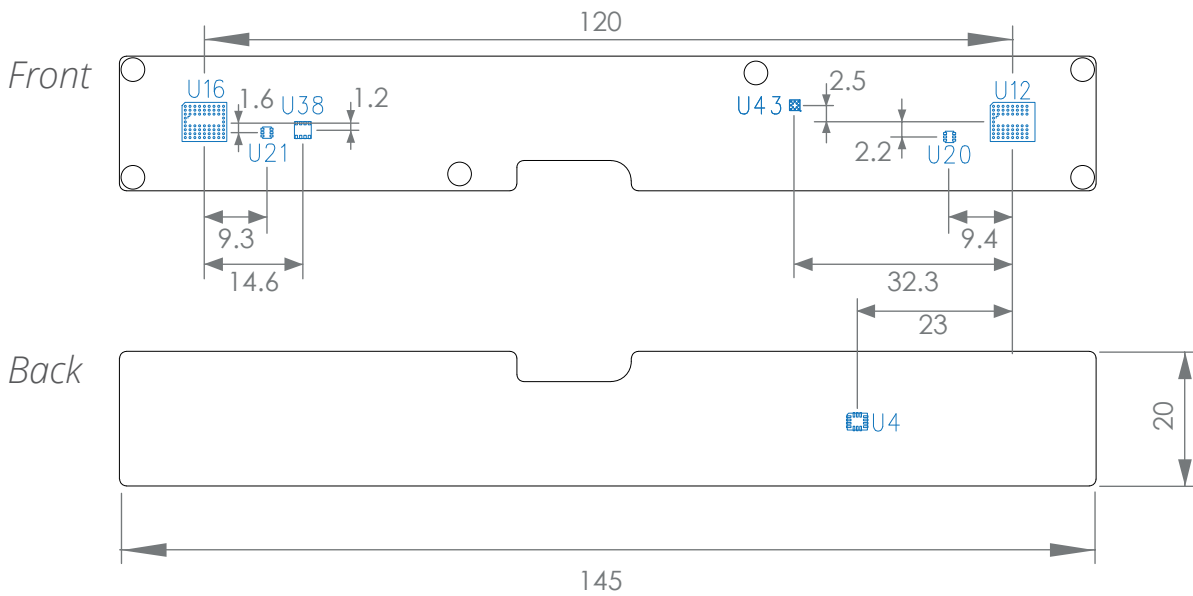|	
Pressure Range	300 to 1100 hPa
Pressure Resolution	0.18 Pa
Relative Pressure Accuracy	0.12 hPa
RMS Noise	0.2 Pa
Output Data Rate	25 Hz

Temperature Sensors

Temperature Range	-40 to 125 °C
Abs. Temperature Accuracy	+/- 0.5 °C
Output Data Rate	25 Hz

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Dimensions are in mm

120

30

175

1/4"- 20 Thread

57.5

33

18.4

17.1

M3 Thread

Sensors Diagram

Front

120

U16   1.6 U38   1.2

U43   2.5

U12

U21

2.2 U20

9.3

9.4

14.6

32.3

23

Back

U4

20

145
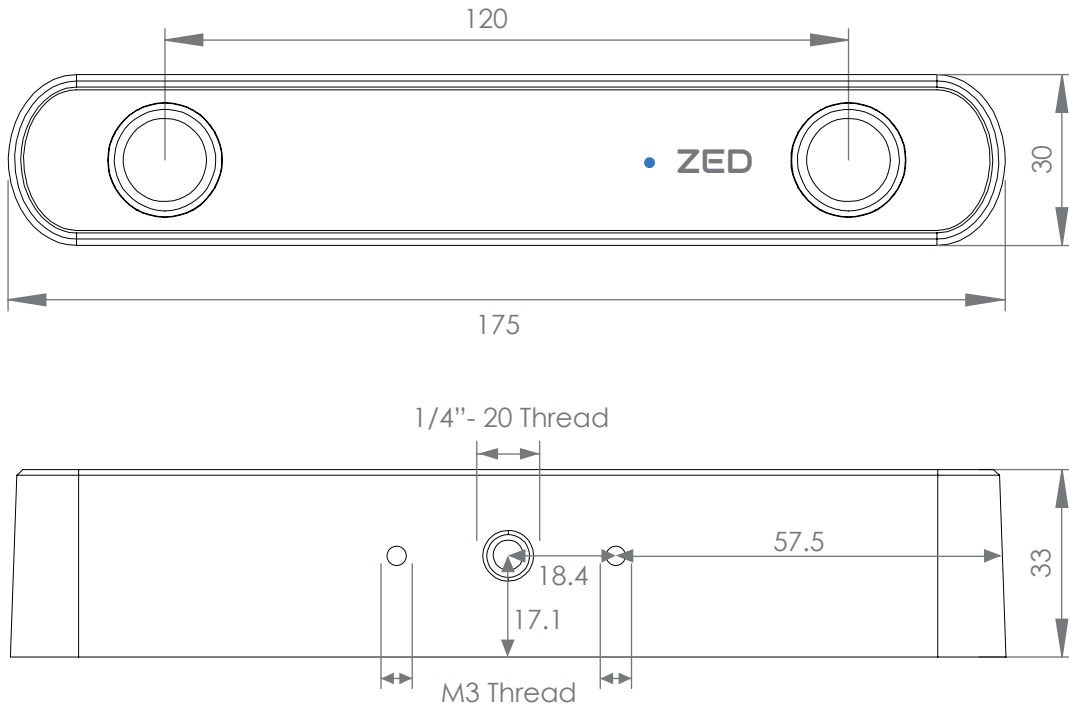
U4	IMU - Accelerometer Gyroscope		U21	Temperature Sensor Right
U12	Image Sensor Left		U38	Barometer
U16	Image Sensor Right		U43	Magnetometer
U20	Temperature Sensor Left			

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