Intel® RealSense™ Update for ROS-I Community Meeting

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Why Intel® RealSense™ Technology?

Industry-leading Depth-sensing Technology

12+ years — Developing and selling vision processing technology

3M+ units — Shipped and designed into working solutions

Intel® RealSense™ Technology

- Multiple stereo-based products to align to your specific needs
- On-board vision processor for calculation of depth
- High quality, competitively priced depth cameras
- Designed into thousands of products worldwide

Intel® RealSense™ Software

- **Intel® RealSense™ SDK 2.0** is cross-platform open-source software supporting all of our cameras
- ROS 1 & ROS 2 wrappers
- Easy integration with 3rd party software providers

Two Paths to Market

Intel® RealSense™ Depth Camera D400 Series

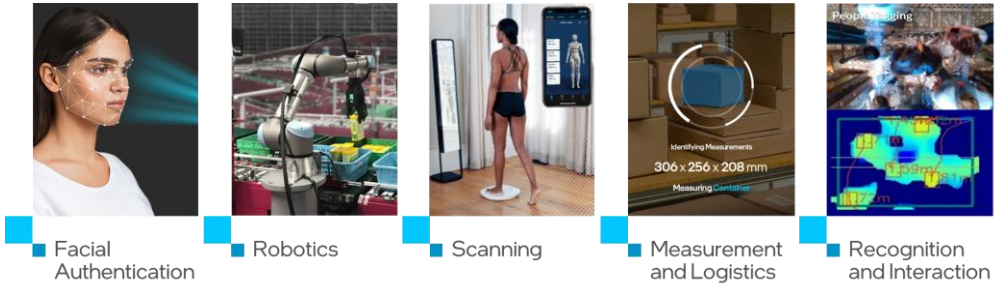
Recommended for: **Evaluators, Makers, Education, Interchangeability, Volumes <10Ku**

Intel® RealSense™ Depth Module D400 Series with Intel® RealSense™ Vision Processor D4 Board

Recommended for: **Lowest cost, Blend camera into ID, Volumes >10Ku**

Refocused on Robotics Market

- Intel leadership decided to realign the Computer Vision resources to a robotics focus
- In aligning to the new strategy, the decision was made to stop development in LiDAR, Facial Authentication, and Tracking technologies
- We discontinued LiDAR, Facial Authentication, and Tracking products and shifted our development focus to Stereo depth cameras



Camera Roadmap

Ideal Operating Ranges	2022	2023	2024+
Range (50cm – 10m)			Next Gen
	D455 Derivatives		
Range (50cm – 6m)	D455: WFOV, 1MP Global Shutter Depth & RGB		
	D450: WFOV, 1MP Global Shutter Depth & RGB		
		D435 Derivatives	
	D435f: WFOV, Global Shutter Depth, 2MP RGB, with IR Pass Filters		
Range (50cm – 3m)	D435: WFOV, Global Shutter Depth, 2MP RGB		
	D435i: WFOV, Global Shutter Depth, 2MP RGB, IMU		
	D430: WFOV, Global Shutter		
	D415: Rolling Shutter, 2MP RGB		
	D410: Rolling Shutter		
	D415: Rolling Shutter, 2MP RGB		
Range (7cm – 50cm)	D405/D401: Short Range <50cm, 1MP Global Shutter Depth & RGB		

New Products

In Development

intel

Intel RealSense ROS2 support

	Foxy	Galactic	Humble
	Dec 2020	Jul 2021	Dec 2022 (with MD)
ROS2 Wrapper	3.1.3 → 4.51	3.2.2 → 4.51	4.53
LibRealSense2	2.41 → 2.51	2.41 → 2.51	2.53

- Full ROS2 with MetaData for Humble will be added by EOY 2022, including dynamic kernel module support (DKMS) for Ubuntu 22.0
- Moving forward, with RealSense focus on AMR, feature enhancements will be addressed for ROS2, available at https://github.com/intelrealsense/realsense-ros/tree/ros2-beta

Main features introduced in ROS2 beta

- Efficient inter-process communication (zero copy)
- Enable / disable of sensors in runtime (i.e., stop / start)
- Enable / disable of filters in runtime (i.e., pointcloud, depth alignment, etc)

Start seeing the world in 3D today

intel® REALSENSE™