

Orbbec Perceptor Dev Kit

An Out-of-the-Box AMR solution combining NVIDIA's robotics platform and Orbbec's 3D vision technology



The Orbbec Perceptor Dev Kit (OPDK) is an integrated development kit for accelerating AI development using NVIDIA Isaac Perceptor autonomous mobile robot (AMR) platform for the dynamic and unstructured environments found in warehouses and factories. Developed in collaboration with NVIDIA, the OPDK provides a powerful hardware+software system using AGX Orin and Orbbec Gemini stereo vision cameras with in-camera Depth+RGB processing.

OPDK System Specification

System FOV

HOFV: $349^{\circ} \pm 6^{\circ}$ @2m & $357^{\circ} \pm 6^{\circ}$ @4m

up to: 4x 1280*800@30fps (Nvblox)

Resolution & Frame Rate

4x 640*360@30fps (cuVSLAM + Nvblox)

Camera Power Consumption

Average: < 8 W (4x Gemini 335L)

Peak: < 19 W (4x Gemini 335L)

Dimensions

With Bracket: 174*168*155.8 mm

Without Bracket: 174*168*101.5 mm

Total Weight

2200 \pm 100g

Use Cases



Robotics Navigation

Developing SLAM-based navigation systems for mobile robots in industrial environments.



3D Mapping

Utilizing synchronized cameras to create real-time 3D maps of indoor and outdoor spaces.



Gemini 335L

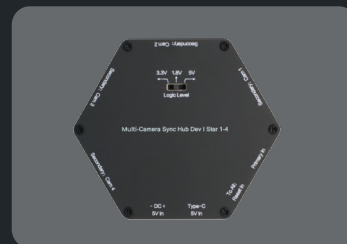
OPDK is preloaded with the latest multi-camera Isaac Perceptor software in a compact form factor for outdoor and indoor conditions, with four synchronized Gemini 335L Depth+RGB cameras for 360-degree vision, integrated with AGX Orin system. The in-camera depth processing enables AI applications to run at reduced power consumption and cost.

Note:[1] Theoretical maximum depth range up to 65meters.

Feature		RGB	
Operating Environment	Indoor/Outdoor	FOV	94°x 68°
Depth Range [1]	0.17 - 20m+	Resolution and Frame Rate	Up to: 1280 x 800 @ 60fps
Ideal Range	0.25 - 6m	Image Format	YUYV & MJPEG
IMU	Supported	Shutter Type	Global Shutter
Camera Driver	UVC	Electrical	
SDK	Orbbec SDK	Power Supply	DC 5V & ≥ 1.5A
Depth		Power Consumption	< 3 W
Technology	Active & Passive Stereo	Physical	
Baseline	95 mm	IR Filter Cover	N/A
Spatial Precision	≤ 0.8% (1280 x 800 @ 2m & 90% x 90% ROI) ≤ 1.6% (1280 x 800 @ 4m & 80% x 80% ROI)	Operating Environment	-10 ~ 50°C
FOV	90° x 65° @ 2m (1280 x 800)	Protection	IP65
Resolution and Frame Rate	Up to: 1280 x 800 @ 30fps	Dimensions	124 mm x 29mm x 27 mm
Shutter Type	Global Shutter	Weight	133g
		Connector	USB 3.0 & USB 2.0 Type-C
		Multi-device Sync Port	8-pin
		Installation	Bottom: 1x 1/4-20 UNC, Max Torque: 4.0 N.m Back: 2x M4, Max Torque: 0.4 N.m

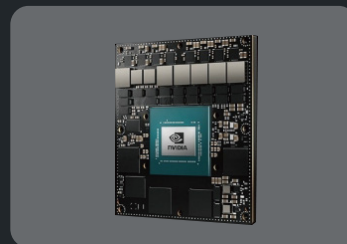
Sync Hub Dev

- Compact, dedicated versions for Star or Daisy Chain connections.
- One Primary and up to Four Secondary devices, extensible by connecting additional hubs.
- Uses 8-pin flat cables.



Nvidia Jetson AGX Orin (64GB) Dev Kit

- AI-powered compute engine with up to 275 TOPS of AI performance.
- Includes support for NVIDIA Jetpack, Isaac ROS, and Generative AI workflows.
- Allows robotics developers to access Jetson tools and libraries.



<https://www.nvidia.com/en-us/autonomous-machines/embedded-systems/jetson-orin/>

About Orbbec

Founded in 2013, Orbbec has been on a mission to democratize robotics and AI vision technology, offering products with exceptional performance and value spanning structured light, stereo vision and ToF technologies. Robotics vision AI developers and enterprises have deployed Orbbec products in thousands of robots, manufacturing, logistics, retail, 3D scanning, healthcare and fitness solutions.



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