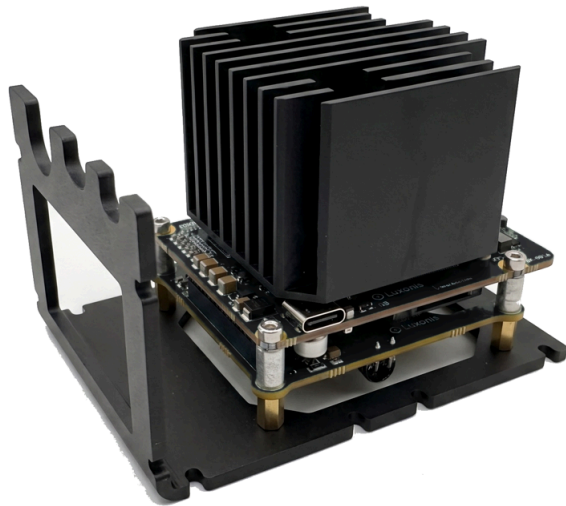




Developer Kit and Barebone
Cameras sold separately

OAK 4 SERIES · RVC4

OAK 4 FFC

A modular vision platform for custom robotics and embedded systems. Choose supported cameras, set their placement and stereo baseline, and run perception on board.

5 ports

FFC camera connections

52 TOPS

Total compute

8 / 128

RAM / storage, GB

70 × 53

Carrier footprint, mm

LUXONIS

**The Perception
Platform
for Physical AI**

5

Physical FFC camera ports

6 cores

ARM CPU

2.5 Gbps

Ethernet, up to

5 Gbps

USB-C, up to

COMPUTE AND PLATFORM

Compute module	OAK 4 SoM, based on RVC4
CPU and operating system	6-core ARM CPU; Linux-based Luxonis OS
Memory and storage	8 GB RAM; 128 GB onboard storage
AI accelerator	48 TOPS INT8 / 12 TOPS FP16
GPU	4 TOPS FP16
Camera interface	5 × FFC connectors; 5 × MIPI CSI D-PHY, 4 lanes
Motion sensors	LSM6DSV 6-axis gyroscope/accelerometer; AK09919C 3-axis magnetometer
Status and recovery	User-programmable status LED; reset button and external reset connection

COMPATIBLE OAK-FFC V2 CAMERA MODULES

Sensor family	Resolution / color	Shutter	Module options
IMX586	48 MP color	Rolling	Standard and wide; focus varies by module
OV9282	1 MP monochrome	Global	Standard and wide
OG05	5 MP color or monochrome	Global	Standard and wide

Camera modules are sold separately. Select modules specified for OAK 4 FFC; compatibility with other FFC cameras must not be assumed.

VISION AND STEREO DEPTH

Stereo geometry	Select a supported camera pair and baseline for the working distance
Processing	Stereo depth, filtering, RGB-depth alignment, image transformation, feature tracking and neural-network inference
Calibration	Factory-calibrated module intrinsics; assembled rig geometry must be calibrated
Development	DepthAI v3 in Python or C++; OAK Viewer for stream inspection and supported configurations

Supported concurrent streams, resolutions, frame rates and processing features depend on the sensors, firmware and DepthAI pipeline. Depth range and accuracy depend on optics, baseline, resolution, lighting, scene texture and calibration.

INTERFACES

Ethernet	Up to 2.5 Gbps
USB-C	Up to 5 Gbps; host and device
Auxiliary I/O	Debug UART / GPIO, FSYNC / STROBE, USB 2.0 host, 5 V output
Expansion	SPI / I2C / UART, GPIO / I2S, CAN and SD card slot

Available functions depend on board revision, pin multiplexing and software configuration.

POWER

DC input	6 to 32 V DC
USB-C PD	15 W minimum; 30 W recommended
PoE+	IEEE 802.3at via PoE module; up to 25 W
Peak compute budget	25 W without USB/M8 accessories; 20 W with 5 W allocated to accessories
Power outputs	Auxiliary: 5 V at 1 A, up to 5 W. USB-C source: up to 5 W

Peripheral power shares the system budget. Peak power is not a guaranteed continuous operating point.

CONNECTOR CONFIGURATIONS

Connection	Developer Kit	Barebone
Ethernet	8-pin M12	Hirose DF50A-10P-1H(51)
Auxiliary	8-pin M8	Hirose DF50A-8P-1H(51)
DC input	4-pin M8	Hirose DF50A-4P-1H(51)

Use the release-specific pinout and cable orientation. Disconnect power before changing camera modules.

MECHANICAL AND OPERATING CONDITIONS

Carrier footprint	70 × 53 mm
Weight	36 g Barebone; 215 g Developer Kit without packaging
Mounting	4 × M3-sized PCB mounting holes
Operating range	-20°C to 50°C with appropriate thermal management
Enclosure	Embedded board platform, without a sealed enclosure

DEVELOPER KIT

OAK-4-FFC-DEVKIT

- Carrier board with OAK 4 SoM
- PoE+ module and panel-mount connector set
- Passive heatsink and thermal interface material
- L-bracket and mounting hardware

BAREBONE

OAK-4-FFC-BAREBONE

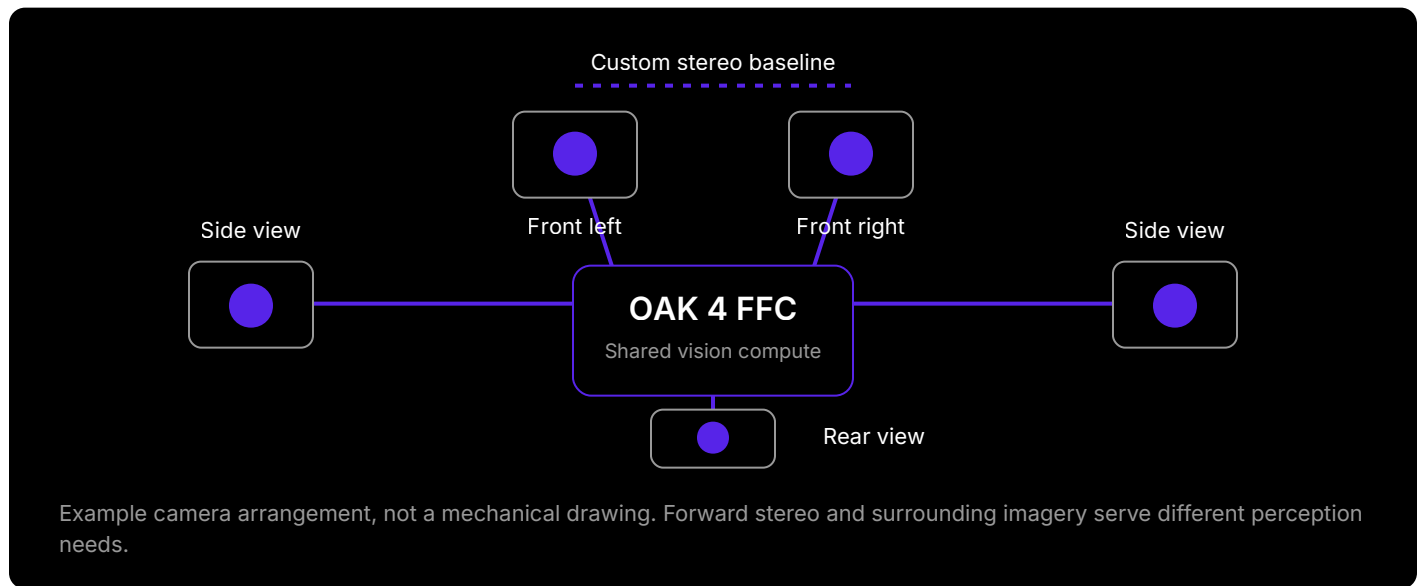
- Carrier board with OAK 4 SoM
- Thermal interface material and mounting screws
- Application-specific cooling and cabling required
- Connector set, PoE+ and cooling accessories separate

Camera modules are not included in either configuration. Validate power, cooling and sustained performance in the final assembly. The integrator is responsible for the finished system's enclosure sealing and certification.

BUILT AROUND YOUR MACHINE

Place the cameras where your robot needs to see

Choose supported sensors, fields of view and camera positions around a humanoid, drone, mobile robot or automated machine. One compute platform connects the views to a common vision pipeline.



01 / CUSTOM STEREO GEOMETRY

Match depth sensing to the working distance

Select a supported camera pair and set the baseline to suit your enclosure and target distance. DepthAI handles stereo processing, filtering and RGB-depth alignment within the configured pipeline.

02 / NATURAL-SCENE STEREO CALIBRATION

Calibrate the assembled rig without a printed target

Supported OAK-FFC V2 modules arrive with factory-calibrated intrinsics. Enter the measured camera translations and initial orientation, then use Dynamic Calibration on overlapping views to refine alignment from a natural scene.

Rig geometry and metric scale still require user input. Recalibrate after changing the baseline, replacing modules or remounting cameras, then validate depth quality.

03 / SYNCHRONIZED CAPTURE

Bring related views into the same moment

Coordinate supported camera streams for stereo and multi-camera processing. Synchronization behavior depends on the selected sensors, configuration and software release.

SEVERAL VIEWS, SHARED COMPUTE

Turn camera placement into a useful view of the world

Combine the views your application needs, process them close to the sensors and send useful outputs to the rest of the machine.

04 / MULTI-CAMERA PANORAMIC IMAGING

Build a wider visual field from overlapping cameras

Use calibrated views and DepthAI stitching tools to align supported camera streams into a panoramic image. Select the camera arrangement and overlap for your scene, then check the result at the distances and motion your application will encounter.

Panoramic imagery supports wider visual awareness. Stereo depth comes from configured, calibrated pairs; a stitched image does not imply a complete 360-degree depth map.

A DEDICATED PERCEPTION SUBSYSTEM

Supported cameras

Sensor choice
Placement and baseline
Overlapping or separate views



OAK 4 FFC

Depth and computer vision
Neural-network inference
Application logic



Your application

Detections and measurements
Selected images or streams
Events and decisions

05 / DEDICATED PERCEPTION COMPUTE

Give vision its own processing capacity

Run supported perception work on OAK 4 FFC while a central computer handles planning, manipulation or other application workloads. Define the outputs your host needs and keep camera processing in a self-contained subsystem.

For applications that fit the onboard resources, Luxonis OS also supports standalone deployment.



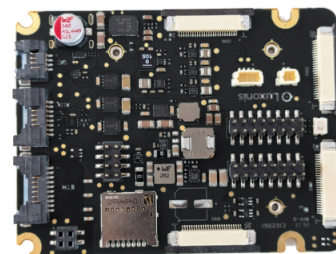
Developer Kit · Heatsink and bracket

06 / SAME CORE, DIFFERENT INTEGRATION

Move from the bench into your machine

The Developer Kit and Barebone configuration use the same carrier and OAK 4 SoM. Develop with the kit's heatsink, connectors and bracket, then integrate the same vision core and application with the cooling, cabling and mechanics your product needs.

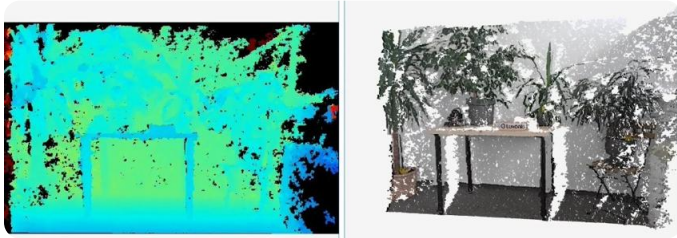
Changing the camera mounting or geometry still requires calibration and validation.



Barebone · Camera and expansion interfaces

FROM SETUP TO DEPLOYMENT

A common software foundation for your custom camera system



DEPTHAI AND OAK VIEWER

Build pipelines with DepthAI v3 in Python or C++. Inspect streams in OAK Viewer, configure supported camera arrangements and evaluate the calibration and perception outputs your application needs.



DEVELOPER TOOLS

Use Luxonis documentation, examples and the Agent Toolkit alongside your development workflow. Deploy applications to the Linux-based Luxonis OS and iterate on the same platform from evaluation through integration.

A PRACTICAL DEVELOPMENT PATH

1 Choose and assemble

Select supported modules, cable them to the correct ports and mount the cameras rigidly. Provide power and a thermal path for the full workload.

3 Build the pipeline

Combine image processing, depth and neural networks. Choose whether the application runs locally or exchanges outputs with a host.

2 Define and calibrate

Enter camera geometry, calibrate supported overlapping views and validate the stereo pair and any panoramic output.

4 Validate the installation

Test synchronization, accuracy, throughput, power and cooling in the final configuration and under realistic operating conditions.

ROOM TO EXPAND

Plan the next sensing capability

Thermal, Time-of-Flight and additional global-shutter modules are planned additions. Contact Luxonis to discuss future module options and your design-in requirements.

Future modules are separate from the launch camera lineup.

RESOURCES AND CONTACT

[DepthAI documentation and examples](#)
[OAK Viewer](#)
[Dynamic Calibration](#)
[Luxonis Agent Toolkit](#)
[OAK 4 FFC reference design](#)
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ABOUT LUXONIS

Luxonis builds the perception platform for physical AI, bringing cameras, compute and software together so developers can build machines that understand their surroundings.