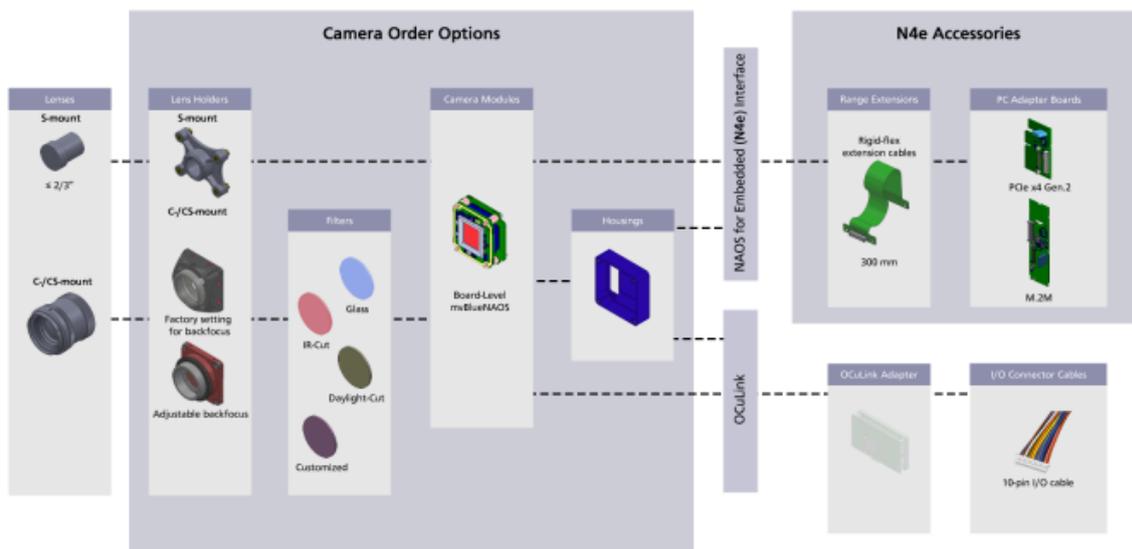


Our NAOS for Embedded (N4e) Module Kit

NAOS for Embedded (N4e) Vision Module Kit



_ PCIe Embedded Vision Module Kit

On the basis of our new interface **NAOS for Embedded (N4e)**, we offer a flexible and modular interface concept with a suitable embedded vision modular system. This means that you can custom-assemble the right components for your project, your installation situation and your computer connection using several options. The **NAOS for Embedded (N4e)** interface provides the following data transfer and communication possibilities:

- 4 digital inputs
- 4 digital outputs
- 1 UART interface for serial communication
- 1 serial I²C two wire serial interface
- PCI Express

The **NAOS for Embedded (N4e)** modular system enables the combination of a wide product range of board cameras for various embedded boards, which can additionally be separated from the camera thanks

to flex cable extensions. Customer-specific connector boards can be developed as needed—and the design possibilities are truly unlimited. For example, the options include connector boards to GPU boards, other plugs or plug orientations, etc.

Embedded Vision products with NAOS for Embedded (N4e) Interface

- [mvBlueNAOS2](#) - PCI Express camera module series

About PCI Express

In 2003, the PCI Express Standard, which regulates the connection of peripheral devices with the chipset of the mainboard, was introduced. With PCI Express, there is a point-to-point connection with up to 16 lanes per connection, whereby this simple rule applies: the more lanes, the greater the available bandwidth. PCI Express interfaces are included on every "normal" motherboard, and the availability for embedded boards, whether native or via a separate add-on board, is continually growing. A significant advantage of PCI Express is that data can be directly transferred to the memory (DMA - direct memory access) with almost zero latency and without any overhead or diversions via additional interfaces. A large part of the **gross bandwidth of 16 GBit/s** can thus be used and the interface is suitable for embedded vision applications

1. with high resolutions,
2. high image repetition rates and
3. short distance between camera and processor unit.

	USB 2.0	USB 3.2 Gen 1	PCI Express Gen.2
Gross bandwidth [MBit/s]	480	5000	16000 (x4 Lanes)
Net bandwidth [MB/s]	30	300 + x	1500 (x4 Lanes)
Max. cable length [m]	3.5	8 (100 with optical cables)	0.3
Introduction interface	2000	2010	2007
Introduction image processing standard	-	2013	-