

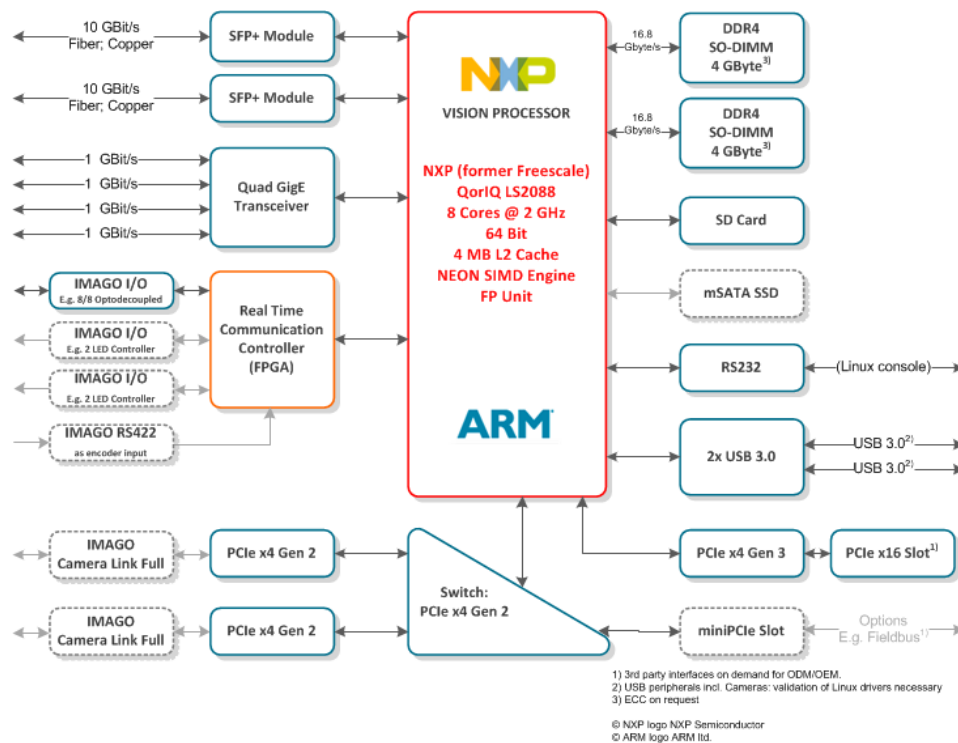
Embedded Industrial Vision & Automation Computer

The VisionBox LE MANS was invented as the world's first vision computer with an 8 core ARM Cortex-A72 processor inside. Equipped with several PCIe slots, the system can be used for vision, automation and other camera-based systems. IMAGO offers the LE MANS configuration composed with IMAGO's Real-Time Controller peripherals in combination with other IMAGO and qualified 3rd-party PCIe boards. Frame grabbers and/or other interface boards control up to multiple cameras. For matrix cameras, LED Controllers could provide sufficient illumination with their current-driven outputs. An alternative configuration could use up to two RS-422 interfaces for proper synchronization to encoders. Qualified 3rd-party PCIe boards for machine communication are also possible (e.g. fieldbus). As an option, we provide timing reports that show the behavior of e.g. trigger, grabbing of images, LED control, encoder and I/O.

The VisionBox LE MANS runs on the Linux OS and IMAGO offers a complete toolchain incl. the popular embedded Halcon vision library to develop applications efficiently.




Base configuration



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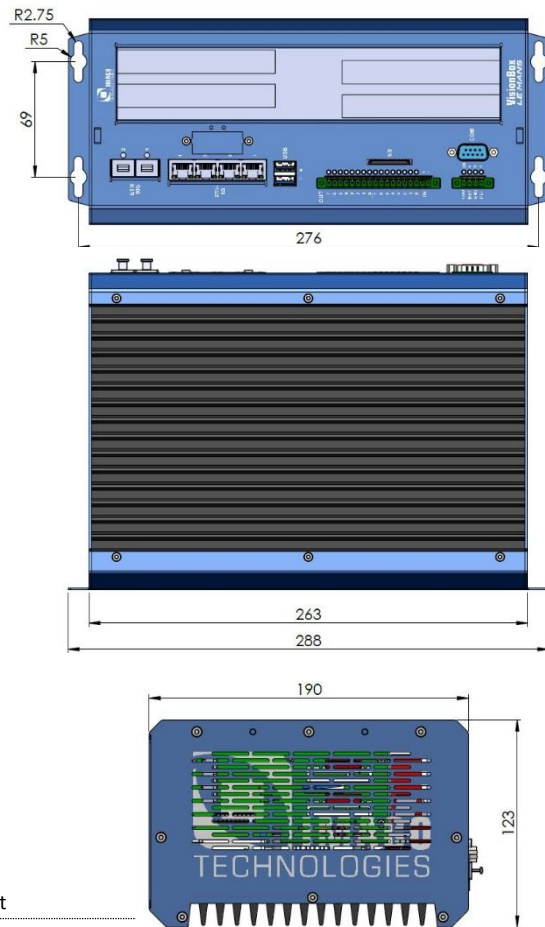
Key Features

- Computing power: 8 Core ARM Cortex-A72
- Real-Time Communication Controller 
- Linux OS (Debian 8 based IMAGO setup)
- IMAGO & qualified 3rd-party PCIe boards
- 8/8 digital In/Out with opto-isolators
- 2 × 10 GBit/s & 4 × 1 GBit/s Ethernet
- 2 × USB 3.0 & 1 × RS-232
- Fanless embedded system
- Planned availability until 2027

Optional Features for OEM/ODM:

- Quad GigE Vision with Trigger-over-Ethernet
- Dual Camera Link Base with PoCL
- Camera Link Deca with PoCL
- Dual LED Controllers with camera trigger out:
 Current-controlled: 6 A_{Peak} / ½ A_{continuous}
- RS-422 encoder input
- Other PCIe or mPCIe boards
- mSATA slot
- RT Linux
- Cooling fan

Dimensions



Technical Data

General

Processor Manufacturer & Type	NXP LS2088, 64 bit
Processor Frequency	2.0 GHz (continuously)
Processor Cores	8 Core ARM Cortex-A72
DDR4 – RAM (minimum)	2 × 4 GB
Transfer Rate DDR4	up to 33.6 GByte/s
Integrated SD card	min. 32 GB

Interfaces

Ethernet	2 × 10 GBit/s: Direct attach copper (<15m) or long-distance multi-mode fiber (300m)
As camera interface:	2 × 10 GBit/s GigE Vision (e.g. AIT exposure; Emergent)
Ethernet	4 × 1 GBit/s: RJ45
USB 3.0	2 × SuperSpeed, validation of Linux drivers required
Digital In/Out	8 × Input & 8 × Output, opto-isolated, 24V
RS-232	1 × (also used for Linux console)
PCIe Gen3 expansion	1 × PCIe x4 with x16 socket
PCIe Gen2 expansion	2 × PCIe x4 & 1 × miniPCIe

Mechanical / Electrical

Power Supply	18 V _{DC} – 30 V _{DC}
Power Consumption	up to approx. 40 W (without PCIe-boards)
Thermal Solution	Heat sink
Temperature Range	0...50 °C in standard configuration with full processor speed (w/o throttle)
Weight	3536 g
Dimensions (W × D × H) [w/ Mounting Plate]	263 [288]mm x 123mm x 190mm