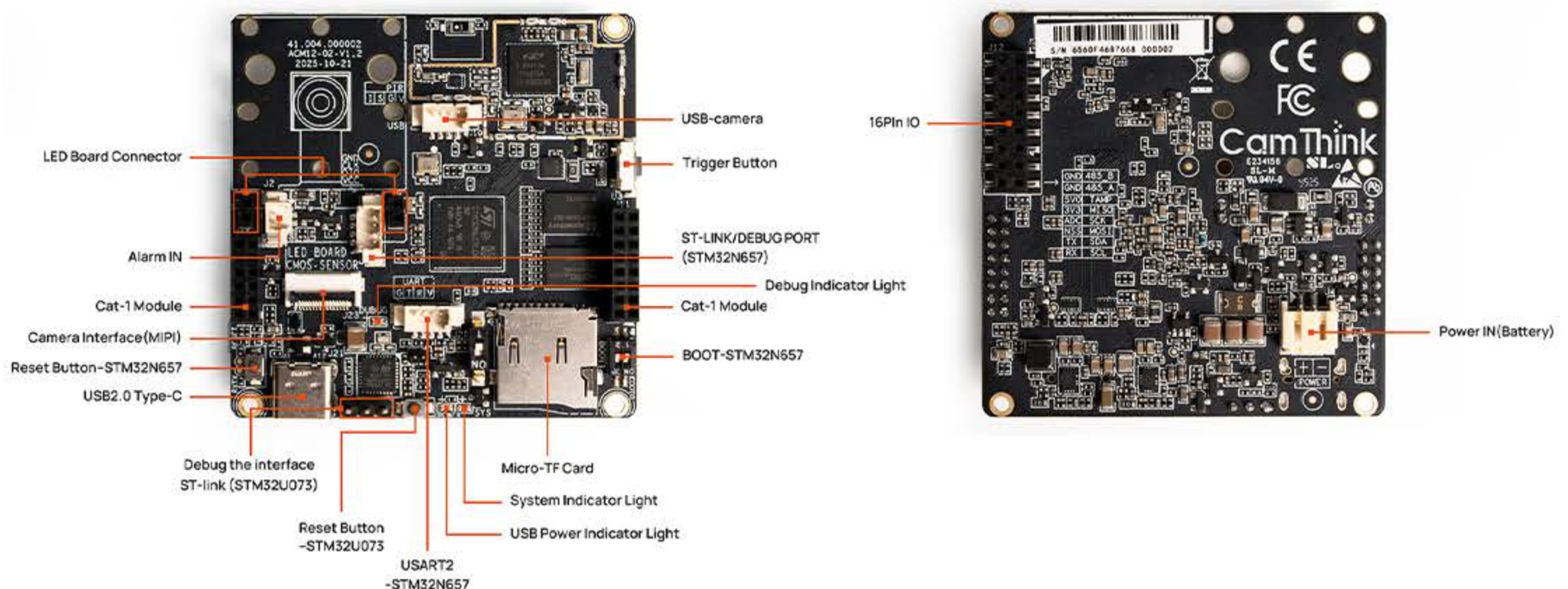


development board User NE300-MB01



Overview

The NeoEyes NE300-MB01 Development Board is a highly integrated edge Ai camera development board designed for rapid hardware prototyping and industrial deployment. Built around the STM32N6 Ai microcontroller and a low-power Cortex-M0+ coprocessor, the mainboard provides an exceptional balance of compute capability and ultra-low power consumption. Designed with modularity in mind, the board offers comprehensive physical I/O routing for communication modules, external sensors, alarms, and dual-power options.



Highlights

Dual-Core Processing Architecture

- Primary MCU (AI & Compute): STM32N6 AI microcontroller featuring Arm Cortex-M55 (up to 800 MHz) with Arm Helium (M-Profile Vector Extension) and an integrated Neural-ART™ Accelerator (up to 0.6 TOPS).
- Secondary MCU (Always-on & Power Control): Arm Cortex-M0+ (STM32U073KBU6) designed for fine-grained localized power management, continuous peripheral monitoring, and millisecond-level wake-up triggers.
- Power Efficiency: Minimal standby current ($\sim 7\mu\text{A}$) for deep low-power sleep states.

High-Bandwidth Interfaces

- Camera Interfaces: Native MIPI CSI-2 standard interface for high-performance CMOS sensors (up to 4MP, H.264 engine available on SoC), plus a 4-pin USB header for secondary imaging.
- Memory: 4.2 MB internal SRAM on the MCU, supplemented by 128 MB external PSRAM for heavy data/inference caching, alongside 64 MB Flash.

Detailed Expansion Interfaces

The NE300-MB01 development board breaks out essential pins and protocols to simplify hardware integration.

Core I/O and Peripheral Connectors

Communication Expansion Bus:

- 12-pin + 16-pin specialized header.

Industrial Multi-protocol Header:

- 1× UART
- 1× RS485
- 1× I2C
- 2× General Purpose I/O (GPIO)
- 1× VOUT (3.3V/5V software-controllable power output for external sensors)
- 2× GND

Trigger & Alarm Interfaces:

- 1× Hardware Alarm Input
- 1× Hardware Alarm Output
- Supports direct interfacing with 4-pin smart PIR sensors.

System Debugging & Control

Debugging & Console:

- 1× USB Type-C (Primary data / debug console)
- 1× 4-pin UART (Dedicated serial debug console)

Onboard Button:

- 1× Multi-function micro-switch (Hardware reset / Wake-up interrupt).

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Technical Specifications

Compute & Memory	
Primary Processor	Arm Cortex-M55 @ 800 MHz
Secondary Processor	Arm Cortex-M0+ (STM32U073KBU6)
NPU Accelerator	Neural-ART™ Accelerator @ 1GHz (Up to 0.6 TOPS)
Onboard Memory	4.2 MB internal SRAM, 128 MB external PSRAM, 64 MB Flash
Local Storage	MicroSD / SDHC / SDXC card slot (up to 2TB)
Cooling	Passive / Fanless design
Compute & Memory	
Power Inputs	1× USB Type-C (5V DC) 1× 2-pin Power input (3.6V - 6.4V range)
Operating Temp	-20°C to 50°C





FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .

This transmitter must not be co - located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with minimum distance 20cm between the radiator&you body.

This development board cannot be directly integrated into the end product. If it is to be used in the end product, retesting is required.