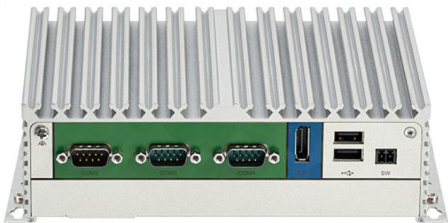
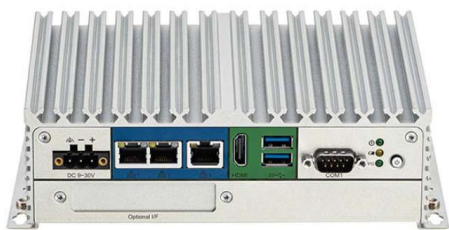


ECM S110 Series

EtherCAT Master Controller
Intel® Celeron® processor N97 Quad Core 3.6GHz



Main Features

- EtherCAT technology with NexECM, **Class A** EtherCAT Master
- EtherCAT communication cycle up to 250 μ s
- Support high-level API for CiA 402 profile
- Powerful & flexible EtherCAT configuration tool NexECM Studio
- Support NexRTOS (A real-time verified Linux system)
- Fanless design, supports wide temperature range of 0°C to 60°C
- Dual independent display from HDMI and DP
- 2 x USB 2.0, 2 x USB 3.2, 2 x RS232, 2 x RS232/422/485
- 3 x Intel® I226-IT GbE LAN ports
- 1 x mini-PCIe socket for optional Wi-Fi/4G LTE modules
- Support 9-30V DC-in

Product Overview

Powered by Intel® processor N97 (formerly codenamed "Alder Lake-N"), ECM S110 presents intelligent PC-based EtherCAT controller for machine automation. It integrates NexCOBOT's EtherCAT Master, NexECM, to perform real-time communication with cycle time up to 250 μ s. ECM S110 also provides API for CiA 402 profile and built-in EtherCAT configuration tool to speed up development time for automation users.

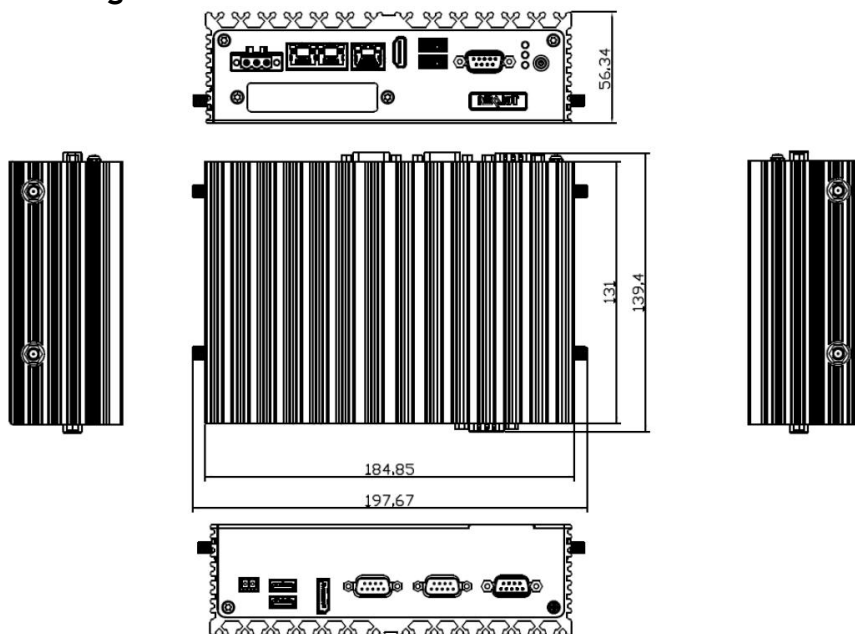
Software Specifications

Catalog	Specifications
EtherCAT Master Performance & Utility	■ EtherCAT Compliance : EtherCAT Standard Class A ■ Maximum Number of Slave Modules : Up to 64 ■ Cycle Time : As low as 250 μs ■ Protocol Support: Compliant with the CiA 402 standard protocol ■ EtherCAT Configuration Tool : NexECM Studio
EtherCAT Master Standard Function	■ Process data (PDO) ■ CoE / FoE ■ Distributed Clock (DC) ■ ESI / ENI file ■ Slave to Slave
EtherCAT Master Advanced Function	■ Cable redundancy ■ CiA402 servo stack ■ Hot connect ■ Remote control
INtime (ECM S110A01-I)	■ INtime7 : 7.1.24270
NexRTOS (ECM S110A01-X)	■ Ubuntu : 20.04 ■ Linux Kernel : 5 ■ Realtime Package : Xenomai

Hardware Specifications

Catalog	Specifications
CPU Support	■ Onboard Intel® N97 Quad Core 3.60 GHz
Memory	■ DDR5 8GB
Storage	■ M.2 128GB SSD
I/O Interface-Front	■ ATX power on/off switch ■ LED indicator: power status, RTC battery low, programmable ■ 3 x Intel i225-IT 2.5Gbe (one for EtherCAT) ■ 2 x USB 3.2 ports ■ 1 x HDMI port ■ 1 x DB9 for COM1, support RS232 only ■ 1 x Optional I/F opening for optional function output or module interface use ✓ 1 x or 2x RS232 ✓ 1 x 4I4O GPIO ✓ 1 x or 2x 1/2.5GbE LAN ports (M.2 or miniPCIe) ✓ 1 x 8I8O DIO ✓ 2 x USB 2.0 ■ 1 x 3-pin DC input, support +9 to 30V DC input with ±20% range
I/O Interface-Real	■ 2 x USB2.0 ports ■ 1 x 2-pin remote power on/off switch ■ 1 x Display port ■ 1 x DB9 for COM2, support RS232 only ■ 2 x DB9 for COM3 & COM4, support RS232/422/485 with auto flow control, BIOS setting
I/O Interface-Internal	■ 4 x GPI and 4 x GPO (5V, TTL type) ■ 1 x NANO-SIM holder ■ TPM2.0 (optional) ■ Mic-in / Line-out (optional)
Expansion Slot	■ 1 x mini-PCIe socket support mSATA, optional Wi-Fi/4G LTE modules
Power Requirement	■ Typical 9 - 30V DC input with ±20% range, with reverse polarity protection ■ 1 × Optional 24V, 60W power adapter
Dimensions / Weight Information	■ 185mm (W) x 131mm (D) x 56mm (H) ■ 3.1kg
Construction	■ Aluminum and metal chassis with fanless design
Environment	■ Operating temperature : Ambient with air flow: 0° C to 60° C (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14) ■ Storage temperature: -20° C to 85° C
Certifications	■ CE approval ✓ EN61000-6-2 ✓ EN61000-6-4 ■ FCC Class A ■ UL

Dimension Drawing



Software Architecture



Microsoft

OS Layer

NexECM Studio
Remote Runtime

User's Application

Realtime Layer
(RTOS)

User's Realtime
Motion Control Program

nexECM EtherCAT Master Software

Hardware Layer

EtherCAT Master Controller

EtherCAT



Pre-Installed Software Package

ECM S110A01-I

- Operating System: **Win10 IOT 21H2**
- Real-Time Package: **INTime 7.x**

ECM S110A01-X

- Operating System: **Ubuntu 22.04**
- Linux Kernel: **6.6.48-rt40**
- Real-Time Package: **PREEMPT_RT**

ECM S110A01-I / ECM S100A01-X

- EtherCAT Master: **NexECM**
- Realtime Performance : **Class A (< 50us)**

Ordering Information

ECM S110A01-I (P/N: 98EMS110I01XF)

EtherCAT Master Controller, NexECM bundle INtime 6 runtime.
Intel® N97 With DDR5 8GB, 128G 3DTLC SSD, Win10 License,
Without Adapter.

ECM S110A01-X (P/N: 98EMS110X01XF)

EtherCAT Master Controller, NexECM bundle NexRTOS.
Intel® N97 With DDR4 8GB, 128G 3DTLC SSD,
Without Adapter.