



## Main Features

- EtherCAT technology with NexECM, Class A EtherCAT Master
- EtherCAT communication cycle up to 250  $\mu$ s
- Support high-level API for CiA 402 profile
- Onboard Intel® Atom™ processor E3826 Dual Core 1.46GHz
- 1 x DVI display output or 1 x VGA converted from DVI-I
- 1 x USB 2.0 & 1 x USB 3.0
- 2 x RS232/422/485 with 2.5KV isolation protection
- 1 x mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE/Fieldbus module
- Support -20~70 °C extended operating temperature

## Product Overview

Powered by Intel® Atom™ processor E3826 (formerly codenamed "Bay Trail-H"), NET 101-ECM presents intelligent PC-based EtherCAT controller for machine automation. It integrates NEXCOM's EtherCAT Master, NexECM, to perform real-time communication with cycle time up to 250  $\mu$ s. NET 101-ECM also provides API for CiA 402 profile and built-in EtherCAT configuration tool to speed up development time for automation users.

Beside EtherCAT communication, NET 101-ECM has high integration ability with optional mini-PCIe module and 2 x COM ports with Isolation 2.5kv protect, which makes it a flexible controller to connect with optional GBE LAN, Wi-Fi, 3.5G/4G LTE module. NET 101-ECM is a compact yet powerful controller for your EtherCAT control system.

## Specifications

### EtherCAT Master

- Slave module no.: up to 64
- Cycle time: up to 250 $\mu$ s
- Synchronization error:  $\pm$ 50ns
- Support CiA 402 standard protocol

### CPU Support

- Onboard Intel® Atom™ processor E3826 Dual Core 1.46GHz

### Main Memory

- 1 x DDR3L 4GB RAM

### Display Option

- 1 x DVI display output
- 1 x VGA display output (converted from DVI-I to VGA adapter)

### I/O Interface-Front

- ATX power on/off switch
- LEDs for power status, HDD access, battery low, 2 x programing LEDs, 4 x Tx/Rx LEDs
- 1 x External CFast socket
- 1 x SIM card holder
- 1 x EtherCAT port, 1 x Intel® I210IT GbE LAN port
- 1 x DVI-I display output
- 1 x USB 3.0 (900mA per each)
- 1 x USB 2.0 (500mA per each)
- 2 x RS232/422/485 with 2.5KV isolation protection, support Auto

### Flow Control

- Jumper-free setting on RS232/422/485
- Support RI function on COM2
- 1 x 2-pin remote power on/off switch
- 1 x 3-pic DC input, typical 24V DC input with  $\pm$ 20% range

### Storage Device

- 1 x CFast (SATA 2.0)
- 1 x 2.5" SSD (SATA 2.0)

### Expansion Slot

- 1 x mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE

### Power Requirement

- Typical 24V DC input with  $\pm$ 20% range
- 1 x Optional 24V, 60W power adapter

### Dimensions

- 58mm (W) x 135.5mm (D) x 192.5mm (H)

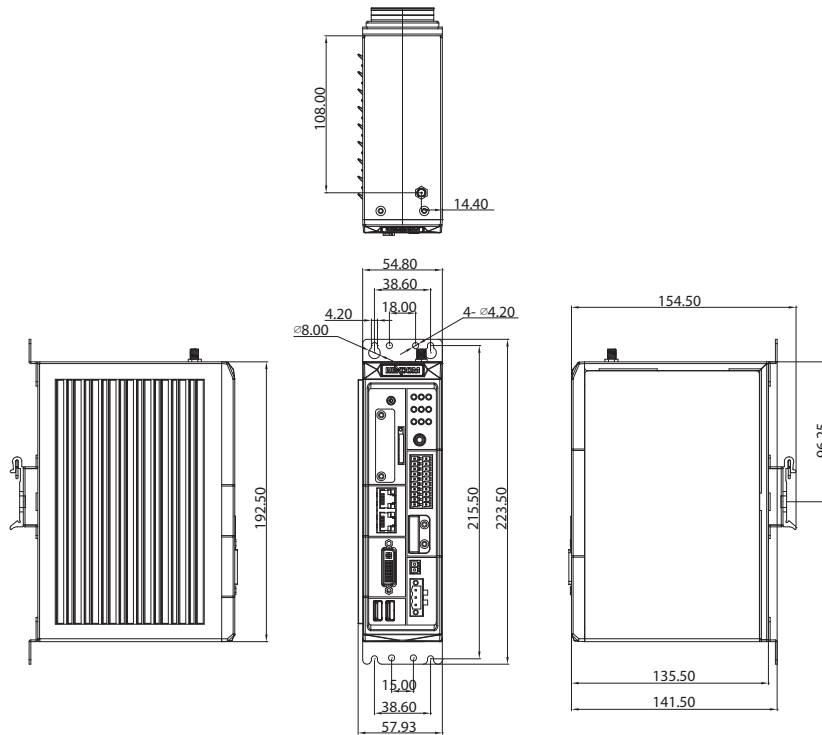
### Construction

- Aluminum and metal chassis with fanless design

### Environment

- Operating temperature:  
Ambient with air flow: -20°C to 70°C with industrial grade device  
(according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)

## Dimension Drawing



- Storage temperature: -30°C to 85°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
  - SSD: 20G, half sine, 11ms, IEC60068-2-27
  - CFast: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection w/ CFast & SSD condition:
  - Random: 2Grms @ 5~500Hz, IEC60068-2-64
  - Sinusoidal: 2Grms @ 5~500Hz, IEC60068-2-6

### Certifications

- CE
- FCC Class A

### Pre-Installed Software Package

- Operating system: Windows Embedded Standard 7
- Real-time extension
  - RTX2012/RTX2016 for 32-bit OS
  - RTX2014/RTX64 3.0 for 64-bit OS
- EtherCAT Master: NexECM
- EtherCAT configurator

### EtherCAT Support Table

Feature Name	Short Description	NexECMRtx
<b>Basic Features</b>		
Service Commands	Support of all commands	V
IRQ Field in Datagram	Use IRQ information from Slave in datagram header	V
Slaves with Device Emulation	Support Slaves with and without application controller	V
EtherCAT State Machine	Support of ESM special behavior	V
Error Handling	Checking of network or slave errors, e.g. working counter	V
<b>Process Data Exchange</b>		
Cyclic PDO	Cyclic process data exchange	V
<b>Network Configuration</b>		
Reading ENI	Network configuration taken from ENI file	V

Compare Network Configuration	Compare configured and existing network configuration during boot-up	V
Explicit Device Identification	Identification used for hot connect and prevention against cable swapping	V
Station Alias Addressing	Support configured station alias in slave, i.e. enable 2nd Address and use it	V
Access to EEPROM	Support routines to access EEPROM via ESC register	V
<b>Mailbox Support</b>		
Support Mailbox	Main functionality for mailbox transfer	V
Mailbox polling	Polling mailbox state in slaves	V
<b>CAN Application Layer Over EtherCAT (CoE)</b>		
SDO Up/Download	Normal and expedited transfer	V
Complete Access	Transfer the entire object (with all sub-indices) at once	V
<b>Distributed Clocks</b>		
DC	Support of distributed clock	V

## Ordering Information

- **NET 101 (P/N: A0J1001010X0)**  
Front-access compact EtherCAT controller

### Image Selection

- NET 101-ECM WES7 32-bit & RTX2012 (P/N:88J10010100X0)
- NET 101-ECM WES7 32-bit & RTX2016 (P/N:88J10010101X0)
- NET 101-ECM WES7 64-bit & RTX2014 (P/N:88J10010102X0)
- NET 101-ECM WES7 64-bit & RTX64 3.0 (P/N:88J10010103X0)

- **24V, 60W AC/DC power adapter w/o power cord (P/N: 7400060024X00)**

### Optional din rail kit

88J70010000X0	NIFE 100/101 series din rail kit	@shock 20G
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