

NET 300-ECM

High-performance EtherCAT Master Controller,
Intel® 6th Core TM i5-6500TE processor



Main Features

- EtherCAT technology with NexECM, Class A EtherCAT master
- EtherCAT communication cycle up to 250 us
- Support high-level API for CiA 402 profile
- Support Intel® 6th processor

- Intel® Q170 PCH
- 1 x DVI-D, and 1 x HDMI for dual independent display
- 1 x front access 2.5" SATA HDD tray
- 2 x mini PCIe socket support optional modules and mSATA device

Product Overview

NET 300-ECM is a high-performance EtherCAT controller, built-in 6th generation Intel® Core™ i5-6500TE processor (Skylake-S). Based on a real-time operating system, NET 300-ECM's communication cycle time can be up to 250 µs, and also offers EtherCAT distributed clocks functions. The EtherCAT controller supports up to 64 slave modules which could be a wide variety of third-party devices, such as servo motors/drives and I/O modules.

NET 300-ECM is the ideal intelligence system for machine applications. Its front-access I/O Design simplifies the wiring, and it provides expansion mini PCIe slot which can integrate other Fieldbus devices for more application possibilities.

Specifications

NexECM Runtime

- Slave module no.: up to 64
- Cycle time: up to 250 us
- Synchronization error: ± 50 ns
- Support CiA 402 standard protocol

NexECM Studio

- Powerful configuration tool:
Verification EtherCAT slave hardware configuration
Setting parameter for EtherCAT protocol
Setting parameter for EtherCAT slave
Control EtherCAT slave

CPU/Chipset

- Intel® 6th Core TM i5-6500TE, 2.3 GHz
- Intel® Q170 Chipset

Main Memory

- 4 GB DDR4 2400 SO-DIMM

Storage

- 256 GB 2.5" SATA3 MLC SSD

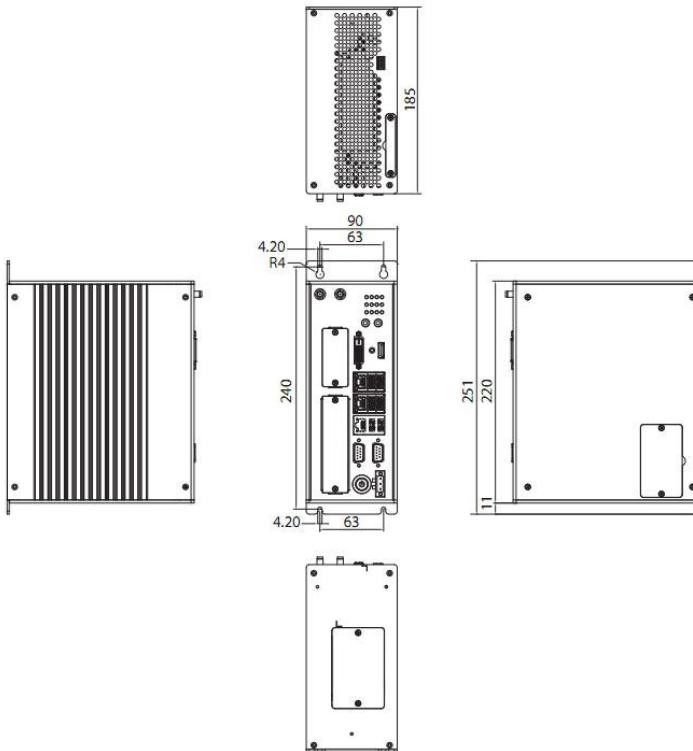
Display

- Dual independent display (HDMI, DVI-D)

NexECM Function List

| Feature Name | Short Description |
|---|---|
| Basic Features | |
| Service Commands | Support of all commands |
| IRQ Field in Datagram | Use IRQ information from slave in datagram header |
| Slaves with Device Emulation | Support slaves with and without application controller |
| EtherCAT State Machine | Support of ESM special behavior |
| Error Handling | Checking of network or slave errors, e.g. working counter |
| Process Data Exchange | |
| Cyclic PDO | Cyclic process data exchange |
| Network Configuration | |
| Reading ENI | Network configuration taken from ENI file |
| Compare Network Configuration | Compare configured and existing network configuration during boot-up |
| Explicit Device Identification | Identification used for Hot Connect and prevention against cable swapping |
| Station Alias Addressing | Support configured station alias in slave, i.e. enable 2nd address and use it |
| Access to EEPROM | Support functions to access EEPROM via ESC register |
| Mailbox Support | |
| Support Mailbox | Main functionality for mailbox transfer |
| Mailbox Polling | Polling mailbox state in slaves |
| CAN Application Layer Over EtherCAT (CoE) | |
| SDO Up/ Download | Normal and expedited transfer |
| Complete Access | Transfer the entire object (with all sub-indices) at Once |
| SDO Info Service | Services to read object dictionary |
| Emergency Message | Receive emergency messages |
| Distributed Clocks | |
| DC | Support of distributed clock |

Dimension Drawing



I/O Interface- Front

- 1 x ATX power on/off switch
- 1 x HDMI and 1 x DVI-D
- 4 x USB 3.0 ports (900mA per each)
- 2 x USB 2.0 ports (500mA per each)
- 1 x Line-out and 1 x Mic-in
- 2 x Antenna holes for WI-FI/ GSM
- 1 x Front access 2.5" HDD tray
- 1 x Mini-Pcie expansion support optional modules
- 2 x RS232/422/485 auto with 2.5KV Isolation
- 3 x Intel® I210IT GbE LAN ports, support WOL, teaming and PXE

I/O Interface-Top

- 1 x 3-pin remote switch
- 1 x CFast expansion
- 1 x SIM card

Storage Device

- 1 x CFast (SATA 3.0)1 x 2.5" HDD (external, SATA 3.0)
- 1 x 2.5" HDD (internal, SATA 3.0)
- 1 x mSATA (via internal Mini-Pcie socket)

Expansion Slots

- 2 x mini-Pcie socket for optional Wi-Fi/3.5G/4G
LTE/Fieldbus modules

Power requirement

- AT/ ATX power mode (default with ATX power mode)
- Power input: typical +24 VDC ±20%

Dimensions

- 90 mm(W) x 185mm (D) x 251mm (H)

Environment

- Operating temperature: Ambient with air flow:
-5°C to 55°C (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 85°C
- Relative humidity: 10% to 93% (non-condensing)
- Shock protection:
HDD: 20G, half sine, 11ms, IEC60068-27
CFast: 50G, half sine, 11ms, IEC60068-27
- Vibration protection w/HDD condition:
Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-64

Certifications

- CE/FCC Class A

Pre-installed Software Package

- Operating system: Windows Embedded Standard 7
(32-bit, 64-bit)
- Real-time OS
- EtherCAT Master Software: NexECM

Ordering Information

NET 300-ECM (32-bit) (P/N: 98J10030007XF)

High-performance EtherCAT Master Controller (32-bit)

NET 300-ECM (64-bit) (P/N: 98J10030008XF)

High-performance EtherCAT Master Controller (64-bit)