NET 200-ECM

Front-Access EtherCAT Controller

Main Features

- EtherCAT technology with NexECM, Class A EtherCAT Master
- EtherCAT communication cycle up to 250 µs
- Support high-level API for CiA 402 profile
- Onboard Intel® Celeron® processor J1900 Quad Cord 2.0GHz
- Dual independent display from DP and DVI-I
- 3 x USB 2.0 & 1 x USB 3.0
- 2 x RS232/422/485
- 2 x mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE/Fieldbus modules
- Support -5~55 °C operating temperature

Product Overview

Powered by Intel® Celeron® processor J1900 (formerly codenamed "Bay Trail-D"), NET 200-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 µs. NET 200-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 200-ECM has high integration ability with two optional mini-PCIe modules and two COM ports, which makes it a flexible controller to connect with optional GbE LAN, Wi-Fi, 3.5G/4G LTE module or other fieldbus devices. With the provided features, NET 200-ECM is an ideal controller for your EtherCAT control system.

Specifications

EtherCAT Master

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

CPU Support

- Onboard Intel® Celeron® processor J1900 Quad Cord 2.0GHz

Main Memory

- 4GB RAM (2 x DDR3L)

Display Option

- Dual independent display
  - DVI-I and DP

I/O Interface-Front

- ATX power on/off switch
- LEDs for HDD LED, batty LEDs, power LED, COM port TX/RX, 5 x Programmable GPO LEDs
- 1 x External SD card
- 1 x SIM card holder
- 1 x EtherCAT port, 1 x Intel® I210IT GbE LAN port
- 1 x DP display output
- 1 x DVI-I display output
- 1 x USB 3.0 (900mA per each)
- 3 x USB 2.0 (500mA per each)
- 2 x RS232/422/485 support Auto Flow Control
  - Jumper-free setting on RS232/422/485
  - Support 2.5KV isolation protection on COM1
- 1 x 3-pic DC input, typical 24V DC input with ±20% range

Storage Device

- 1 x 2.5" SSD/HDD (SATA 2.0) --front accessible
- 1 x SD card (data storage only)
- 1 x mSATA

Expansion Slot

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

Power Requirement

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

Dimensions

- 85mm (W) x 157mm (D) x 214mm (H)

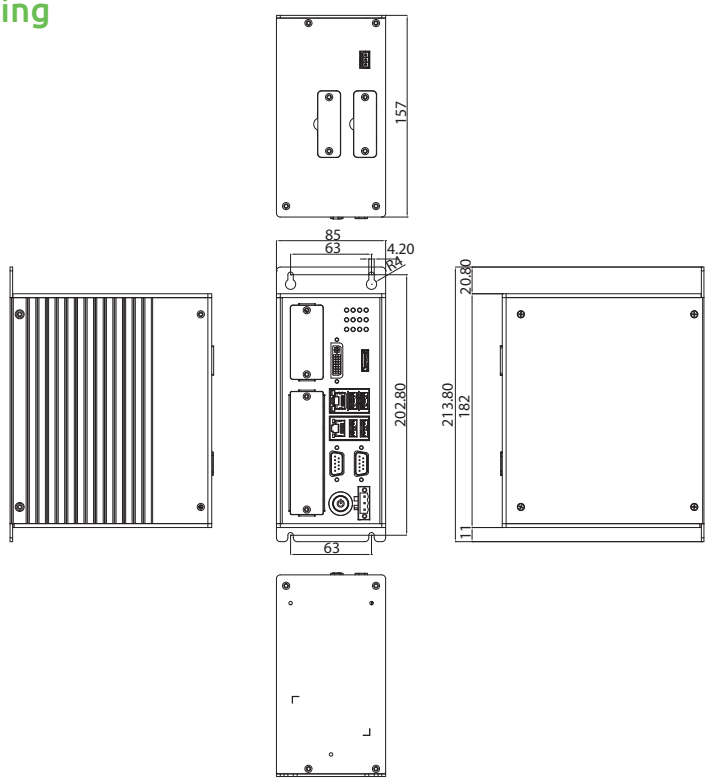
Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature:
  Ambient with air flow: -5°C to 55°C
  (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)

Dimension Drawing



- Storage temperature: -20°C to 80°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
Basic Features		
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
Process Data Exchange		
Cyclic PDO	Cyclic process data exchange	V
Network Configuration		
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
Mailbox Support		
Support Mailbox	Main functionality for mailbox transfer	V
Mailbox polling	Polling mailbox state in slaves	V
CAN Application Layer Over EtherCAT (CoE)		
SDO Up/ Download	Normal and expedited transfer	V
Complete Access	Transfer the entire object (with all sub-indices) at once	V
Distributed Clocks		
DC	Support of distributed clock	V

Ordering Information

- **NET 200 (P/N: A0J10020003X0)**
  Front-access EtherCAT controller

  Image Selection

  NET 200-ECM WES7 32-bit & RTX2012 (P/N:88J10020000X0)
  NET 200-ECM WES7 32-bit & RTX2016 (P/N:88J10020001X0)
  NET 200-ECM WES7 64-bit & RTX2014 (P/N:88J10020002X0)
  NET 200-ECM WES7 64-bit & RTX64 3.0 (P/N:88J10020003X0)

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