ECM-110F

EtherCAT Master Controller
Intel® Celeron® processor J1900 Quad Cord 2.0GHz

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"), ECM-110F 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 µs. ECM-110F also provides API for CiA 402 profile and built-in EtherCAT configuration tool to speed up development time for automation users.

Beside EtherCAT communication, ECM-110F 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, ECM-110F 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)

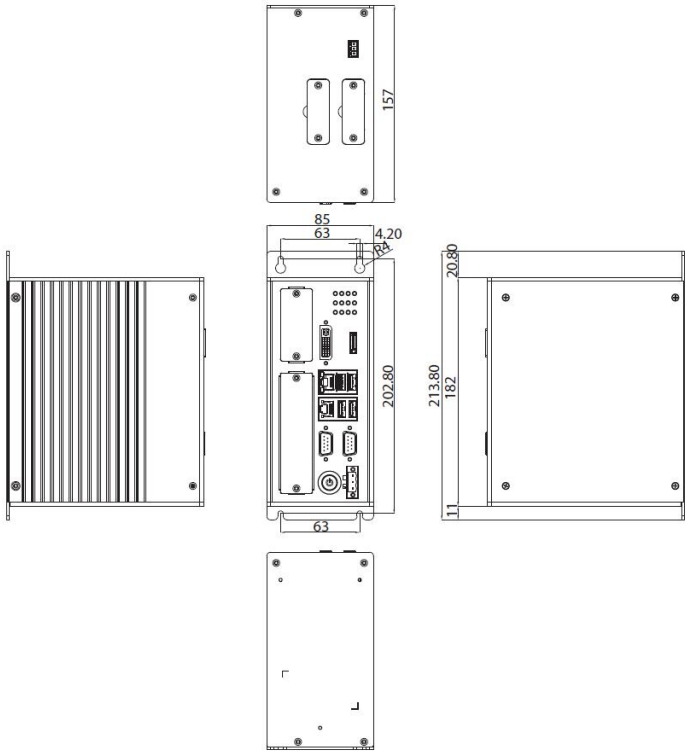
Construction

- 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

Pre-Installed Software Package

- Operating system: Windows Embedded Standard 7
- Real-Time OS
- EtherCAT Master Software: NexECM

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

Certifications

- CE
- FCC Class A

Ordering Information

ECM-110F (P/N: 98ECM110F000F)

EtherCAT Master Controller