

NET 3140P2E-ECM

EtherCAT Controller with PCI and PCIe Expansion Slots



Main Features

- Support Intel® Core™ 2 Duo/Celeron® processor
- EtherCAT technology with NexECM, Class A EtherCAT Master
- EtherCAT communication cycle up to 250 µs
- Support CoE protocol
- Support high-level API for CiA 402 profile
- Build-in full function EtherCAT application configurator
- Dual VGA or VGA/DVI independent display
- 3 x RS232 and 1 x RS232/422/485 with auto direction control
- One external locked CF socket
- Onboard DC to DC power design to support +16 to 30V_{DC} power input

Product Overview

Utilizing the Intel® GM45 chipsets, NET 3140P2E-ECM is highly scalable supporting a wide variety of Intel® Core™ 2 Duo and Celeron® processors. With pre-installed NexECM EtherCAT Master software, NET 3140P2E-ECM delivers exceptional performance with notable stability. NET 3140P2E-ECM supports dual independent displays through 2 x VGA, DVI or LVDS outputs. Housed in a robust aluminum chassis, its fanless design offers noise-free, ultra reliable operating in the demanding industrial environment. NET 3140P2E-ECM offers comprehensive and easy-to-use application configurator for system development and debugging to speed up development period.

Specifications

EtherCAT Master

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

CPU support

- Support Intel® Core™ 2 Duo P8400

Main Memory

- 2 x 2GB DDR3 SDRAM

Chipset

- Intel® GM45 graphics and memory controller hub
- Featuring the mobile Intel® graphics media accelerator 4500MHD
- Intel® 82801IBM (ICH9M) I/O controller hub

I/O Interface-Front

- ATX power on/off switch
- HDD access/power status LEDs
- 1 x Front access CF card socket
- 2 x USB 2.0 ports

I/O Interface-Rear

- 2-pin remote power on/off switch
- +16 to 30V_{DC} input
- 1 x PS/2 for keyboard/mouse
- 1 x DB25 parallel port (optional GPIO or LVDS interface)

- 1 x DB44 serial port for 4 x RS232 (COM2: RS232/422/485 with auto flow control)
- 2 x GbE LAN ports (support WoL & LAN teaming)
- 4 x USB 2.0 ports
- 1 x DB15 VGA port
- 1 x DVI-I port (DVI-D + VGA)
- 1 x Line-out and 1 x Mic-in

Device

- 1 x 2.5" SATA HDD drive bay
- 1 x External locked CF card socket
- Optional power adapter

Expansion

- Add-on card length support:
 - Max. 169mm x1 and 240mm x1 (with 2.5" HDD installed)
 - Max. 240mm x2 (without 2.5" HDD installed)

Power Requirements

- ATX power mode
- Onboard DC to DC power support from +16 to 30V_{DC}

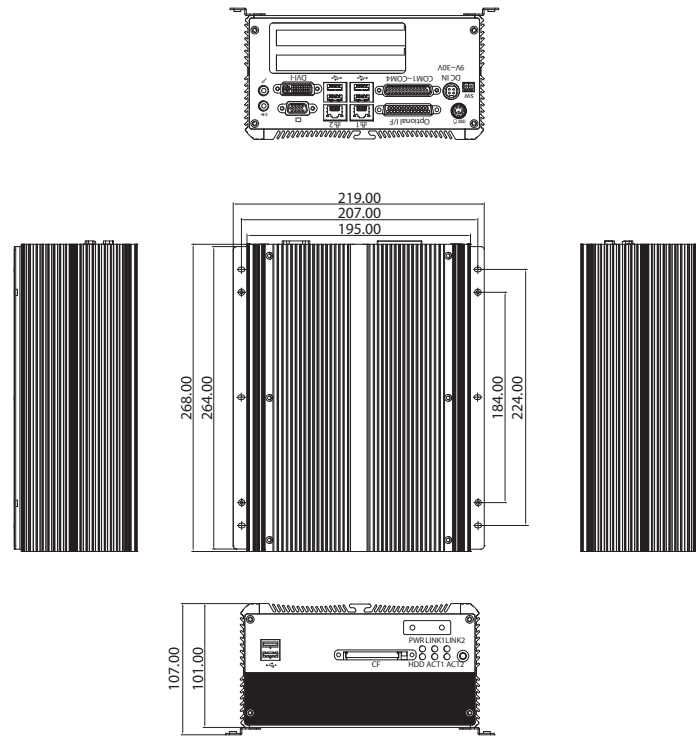
Dimensions

- 195mm (W) x 268mm (D) x 101mm (H) (7.7" x 10.5" x 3.98")

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 93% (non-condensing)
- Shock protection:
 - HDD: 20G, half sine, 11ms, IEC60068-2-27
 - CF: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection w/ HDD condition
 - Random: 0.5Grms @ 5~500Hz according to IEC60068-2-64
 - Sinusoidal: 0.5Grms @ 5~500Hz according to IEC60068-2-6

Certifications

- CE approval
- FCC Class B

Pre-Installed Software Package

- Operating system: Windows Embedded Standard 7
- Real-time extension:
 - RTX2012/RTX2016 for 32-bit OS
 - RTX2014 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 | √ |
| 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 routines 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 | √ |
| Distributed Clocks | | |
| DC | Support of distributed clock | √ |

Ordering Information

- **NET 3140P2E-ECM (P/N: 10J10314000X0)**
EtherCAT controller with PCI and PCIe expansion slots
- **19V, 120W AC/DC power adapter w/o power cord (P/N: 7410120002X00)**