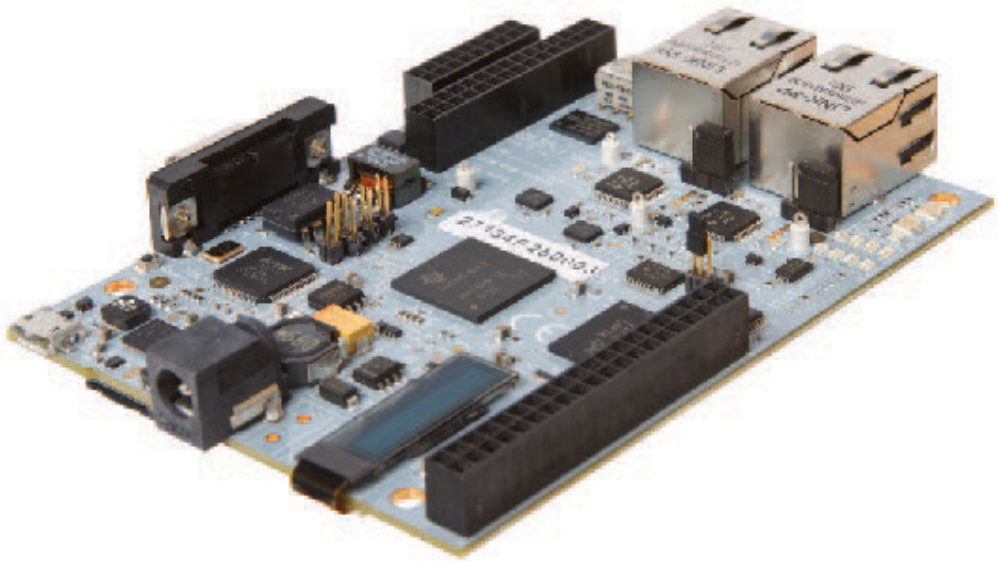


Texas Instruments

AM3359 Industrial Communications Engine for Industrial Automation

The Industrial Automation Quick Start Guide for the AM3359 Industrial Communications Engine (ICE) is comprised of the following steps:

Hardware setup

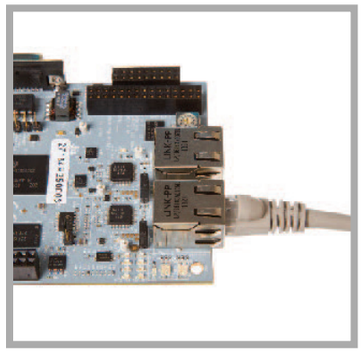
- Connect network cable between the PC and EtherCAT® port.
- Connect 24V to the board.
- Power up EVM (after the Software setup).

Software setup

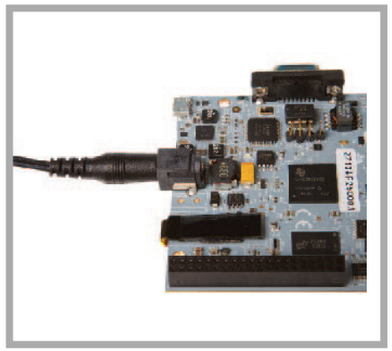
- Install TwinCAT (one-month evaluation is available for free download from www.beckhoff.de/tcatweb/twincat_download_e.aspx – select PLC mode for installa-tion and check the I/O drivers box .
- Copy sdk\examples\ethercat\esi\TiEtherCATLib.xml to <Drive>:\TwinCAT\Io\EtherCAT folder.
- Start TwinCAT system manager.
- Go to Options > Show Real Time Ethernet Compatible Devices and install the RT Ethernet Adapter connected to the ICE.
- • Connect the CAT5 Ethernet cable from TwinCAT PC to ECAT IN/Port0 (J2) of the ICE. If you have multiple ICEs in a chain, please connect from ECAT OUT/Po
- Go to I/O – Confi guration > I/O Devices – right click and select Scan Device. You will see a list of Ethernet adapters on your system, with a tick next to the adapter connected to the ICE. Choose OK. Device n (EtherCAT) will be added to I/O devices.
- Choose “Yes” in response for “Scan for boxes”.
- Box n (TIESC-001) will be detected automatically.
- Choose “Yes” in response for “Activate Free Run”.
- Now select Device1 (EtherCAT) and go to Actions > Select Set/Reset TwinCAT to Confi g Mode or use shortcut Shift-F4.
- A dialog will pop up asking Load I/O Devices. Select Yes.
- The next dialog asks for confi rmation to Activate Free Run. Select Yes. This will put TI ESC into OP mode.
- Now the user can control digital out LEDs using TwinCAT. Select Box n (TIESC-001) >RxPDO > 32Bit Output. The LEDs are controlled by the least signifi cant byte on the 32-bit output. Open Online tab, and click the Write button to control the LEDs.
- Additional information is available at www.ti.com/am335x_twincat.

Setup for EtherCAT Operation

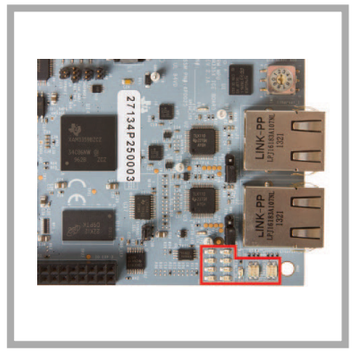
Quick start instructions are provided below. For detailed instructions and troubleshooting, please refer to www.ti.com/am335x_twincat.



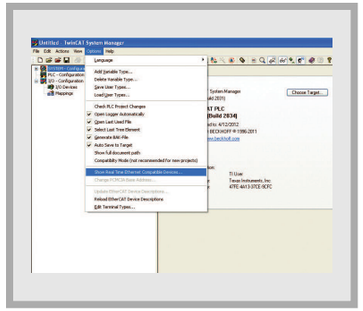
1 Connect the network cable between EtherCAT ports and the PC with TwinCAT installation.



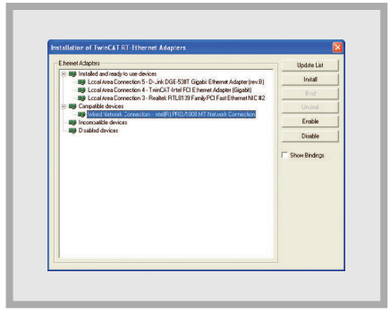
2 Power ICE board with 24V power supply. Once software installation on the PC with TwinCat has been completed, power up the board.



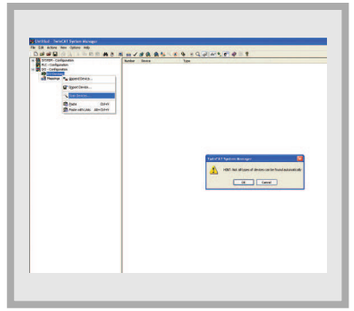
3 Observe the LEDs for a pattern to confi rm EtherCAT application has started.



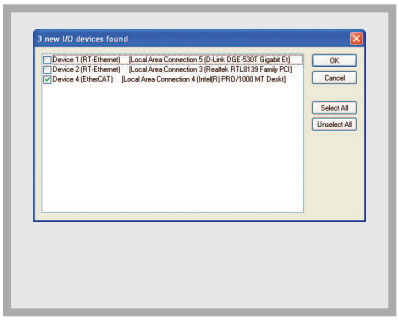
4 Start TwinCat for the first time you need to defi ne which Ethernet port will be used as the EtherCAT port.



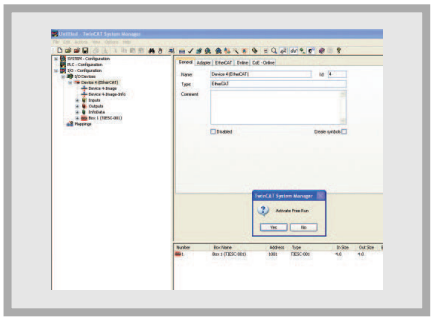
5 Select the ethernet port from the list of compatible devices, and press Install. This will install a Beckhoff EtherCAT driver. Once installed, the Ethernet port will show up as above.



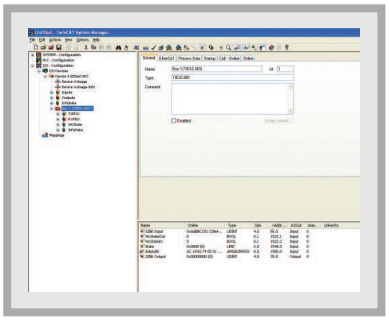
6 Right click on I/O devices and select Scan Device; Press OK in the next dia-log to start scanning for EtherCAT devices.



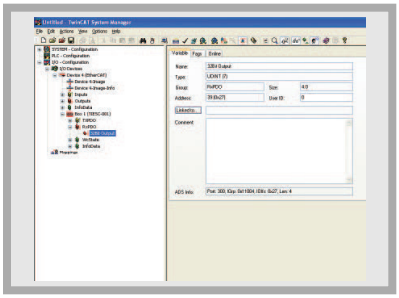
7 Once an EtherCat compatible device has been detected on this Ethernet port, the following dialog shows up. Note that there is a tick mark next to the adapter to which the ICE is connected. Press OK, and confi rm to start “Scan for boxes”.



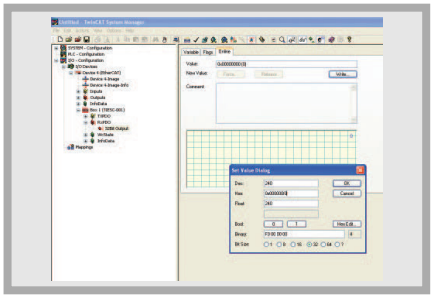
8 The TI device will be listed “Box n (TIESC-001)”. Press Yes to activate Free Run.



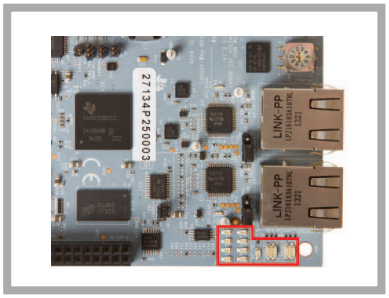
9 Expand the box to see Process Data Inputs (PDI) and Outputs (PDO).



10 Select 32-bit output from RxPDO node.



11 Select online tab on the right side panel and press Write. Enter the value in hexadecimal format, wher e each bit in LSB represents an



12 Changing the LED value will set/clear the appro-priate LED.

Get Started

Please visit www.ti.com/am3359ice2. Here you’ll fi nd instructions to begin programming the AM3359 Industrial Communications Engine, detailed information and resources.

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