

EtherCAT SubDevice Controller



The AX58101/AX58102 is an EtherCAT SubDevice Controller (ESC) that integrates two Fast Ethernet PHYs and two MII network interfaces, supporting port 0 and port 2 swapping for flexible network topology. It supports the Local Bus and SPI Slave PDI interfaces to simplify microprocessor connection, and provide a variety of communication and control interfaces including PWM, ABZ/Hall encoder, SPI master, and digital I/O.

The AX58201(2) is interoperable with all EtherCAT systems using standard EtherCAT communication protocols such as CoE, FoE, and VoE. It is suitable for motor/motion control, digital I/O control, sensors data acquisition, robotics, EtherCAT to IO-Link gateways and EtherCAT Junction modules applications.

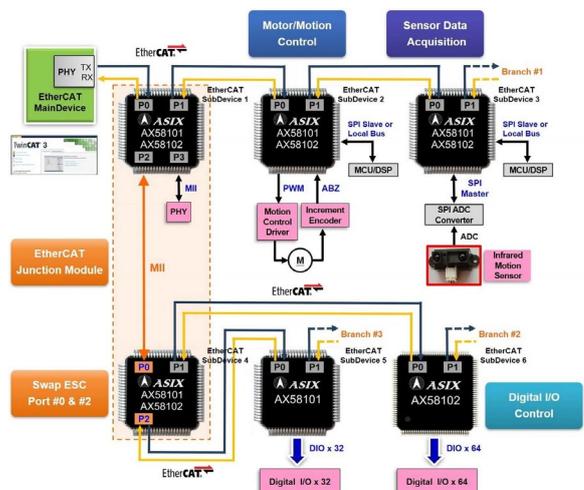
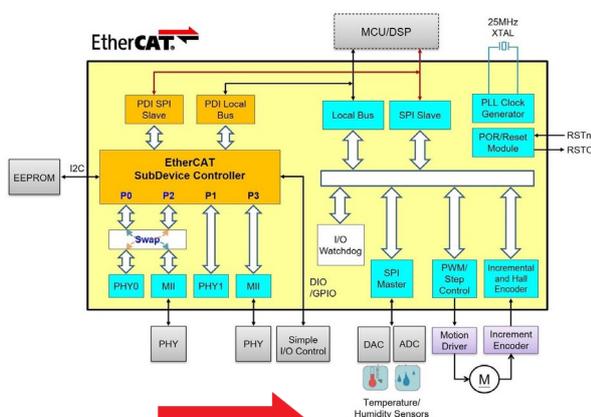
Key Features

- **EtherCAT SubDevice Controller (ESC)**
 - Integrates 2 Fast Ethernet PHYs and 3rd & 4th MII Ports for Flexible Network Topology
 - Supports Port 0 and Port 2 Swapping
 - 8KB RAM, 8 FMMUs and 8 Sync Managers
 - 64-bit Distributed Clock
- **Support up to 32(AX58101)/64(AX58102) DIO/GPIOs**
 - Individually configurable IOs, directly mapped to FMMU
- **Local Bus Interface**
 - Supports 8-bit or 16-bit Data Bus Width
 - Supports Asynchronous Local Bus
 - Supports BHE with 16-bit Data Bus Width
- **SPI Slave Interface**
 - Supports SPI Mode 3 Timing
 - Supports MSB First Transfer Fashion
- **SPI Master Interface**
 - Programmable SPI Clock Frequency up to 50MHz
- Supports 4 SPI Timing Modes
- Supports MSB/LSB First Transfer Fashion
- Supports up to 8 SPI Devices Selection and 8 SPI Channels
- Supports ADC Data Ready and DAC Data Loaded Indication
- Supports Periodic Data Acquisition
- Supports Late Sample for High Latency Device
- Supports External Interrupt Input
- **Communication/Control Interfaces**
 - 3-Channel PWM Controller
 - Stepper & Direction Controller
 - Incremental and Hall Encoder Interface
 - Emergency Stop Input
 - Configurable Watchdog for I/O Monitoring
 - One I2C Master Interface
- **Integrates On-chip Power-on Reset Circuit**
- **80-pin(AX58101)/128-pin(AX58102) LQFP RoHS Package**
- **Operating Temperature Range: -40 to +105°C**

Target Applications

- Motor/Motion Control
- Digital I/O Control
- Robotics
- Sensors Data Acquisition
- EtherCAT to IO-Link Gateway
- EtherCAT Junction Module
- Communication Module
- Operator HMI Interfaces

Block/Application Diagrams




EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

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