AX58200
Product Brief
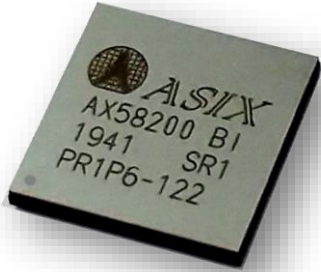
2/3-Port EtherCAT Slave Controller SoC

The AX58200 is a 2/3-port EtherCAT Slave Controller SoC equipped with ARM® Cortex®-M4F core with DSP extension runs up to 192 MHz and EtherCAT Slave Controller (ESC) with two integrated Fast Ethernet PHYs. AX58200 also supports additional communication interfaces such as 10/100Mbps Ethernet MAC with RMII and hardware cryptography accelerator, HS USB OTG, SPI/UART/I2C/I2S/CAN/PWM, etc.
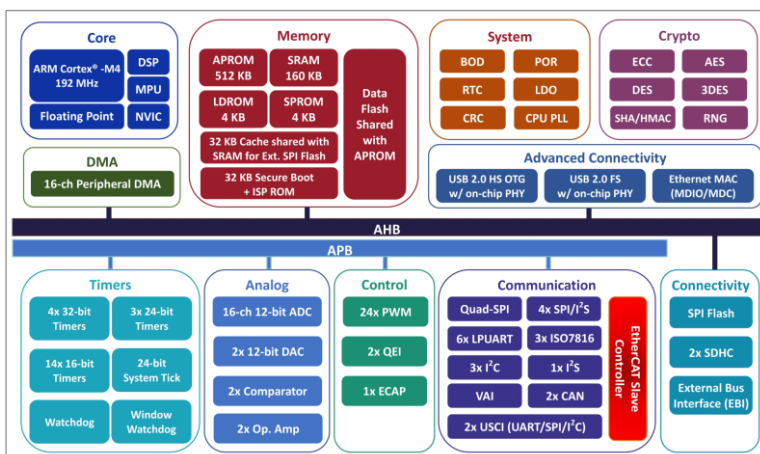
The AX58200 is interoperable with all EtherCAT systems with standard EtherCAT protocols such as CoE, FoE, VoE, etc. and is suitable for motor/motion control, digital I/O control, sensors data acquisition, robotics, EtherCAT IO-Link master, EtherCAT Junction slave module, etc. industrial automation fieldbus applications.

The AX58200 is available in small 144-pin HSFBGA 10x10 mm, 0.8 mm pitch, RoHS compliant package and in operating temperature range from -40 to 85°C, -40 to 105°C.

Key Features
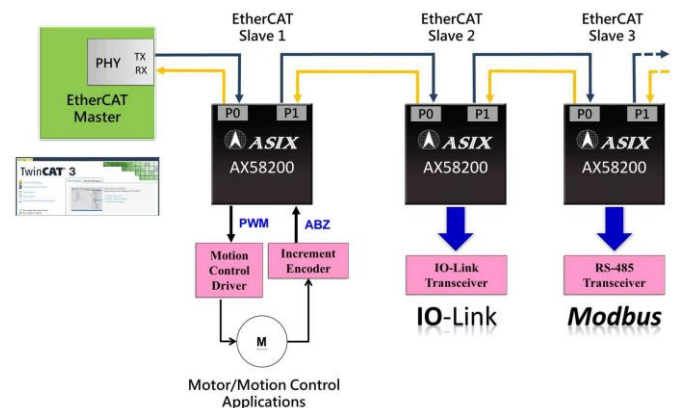
- **ARM® Cortex®-M4F processor, running up to 192 MHz**
  - Dual bank 512 KB Flash size (APROM) and 160 KB SRAM
  - 32 KB secure boot loader
  - 4 KB on-chip Flash for user-defined loader (LDROM)
  - 4 KB non-readable Security Protection ROM (SPROM)
- **EtherCAT Slave Controller (ESC)**
  - 2 Integrated Fast Ethernet PHYs
  - 3rd Ethernet MII Port for flexible EtherCAT network configuration
  - 9KB RAM, 8 FMMUs and 8 Sync Managers
  - 64-bit Distributed Clock
- **Communication/Control Interfaces**
  - One USB 2.0 High Speed OTG
  - One 10/100Mbps Ethernet MAC with RMII
  - Six Low Power UARTs (LPUART) and three ISO-7816-3
  - One Quad-SPI controller with Master/Slave mode
  - Three I2C and one I2S with Master/Slave mode

- Two USCI, configured as UART, SPI or I2C function
- Two CAN 2.0B controllers
- One SPI Master for external SPI Flash (max. 32MB)
- Two SDHC (Secure Digital Host Controllers) for SD Memory Card Spec. V2.0.
- Up to 76 GPIOs
- One 16-ch, 12-bit ADC and two 12-bit DAC
- Two Analog Comparators and two Operational Amplifiers
- Four 32-bit timers and 24 sets of 16-bit PWM counters
- Two QEI and one ECAP
- **Supports Hardware ECC, AES, DES, 3DES, SHA, HMAC accelerator cryptography engineers**
- **Supports Real-Time Clock (RTC)**
- **One built-in Die Temperature Sensor (DTS)**
- **144-pin HSFBGA 10x10 mm, 0.8 mm pitch, RoHS Compliant Package**
- **Operating Temperature Range: -40 to +85°C, -40 to +105°C**

Block Diagram

Target Applications

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

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