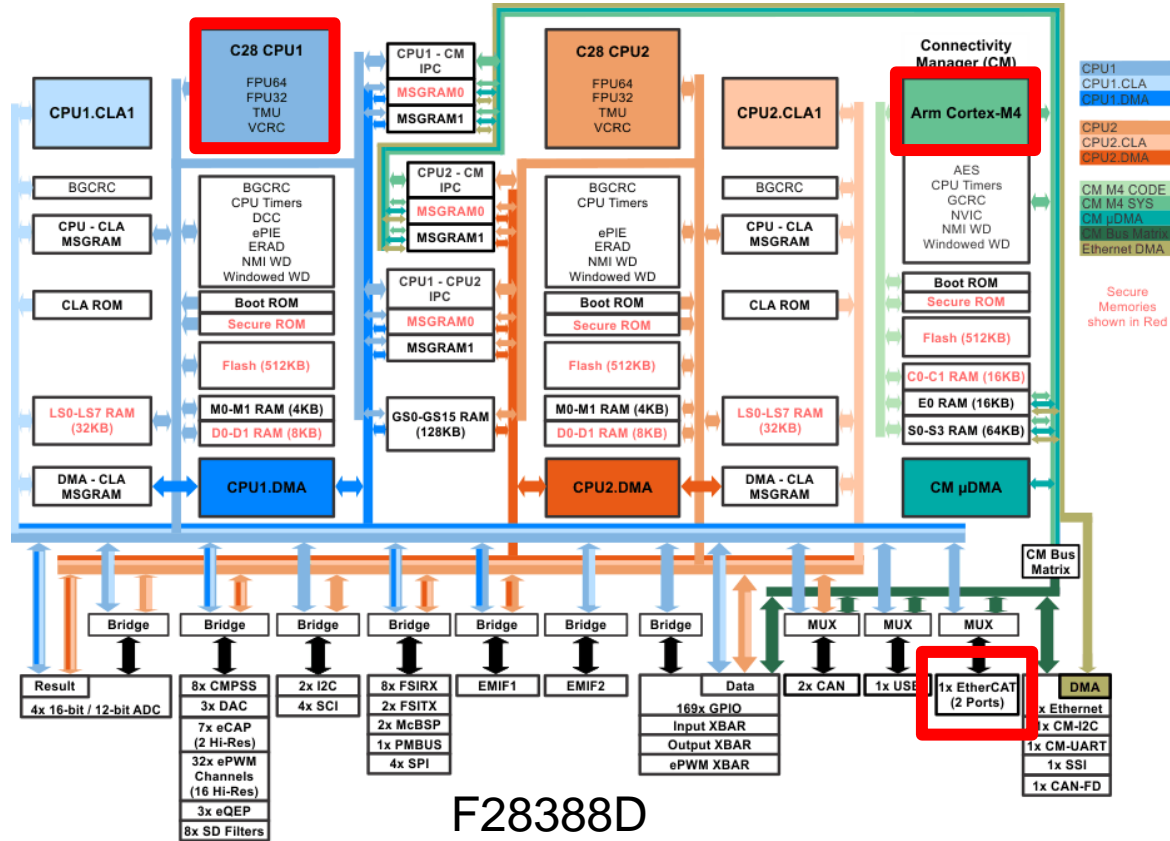
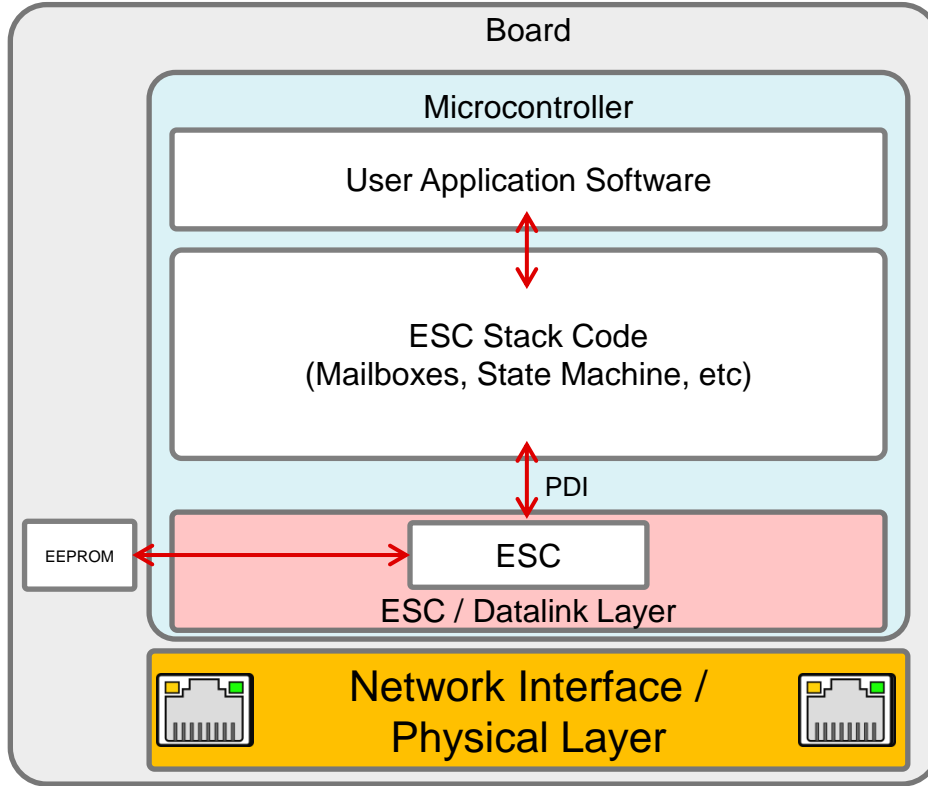


EtherCAT on F2838x

F2838x and EtherCAT



F2838x EtherCAT Slave Node



- F2838x is a slave node or EtherCAT Slave Controller (ESC)
- Supports 2 MII ports to connect to EtherCAT PHYs
- 16-bit ASYNC process data interface (PDI) for MCU and ESC communication
- Support for distributed clocks
- Standard I2C EEPROM interface
- Up to 32 GPI (general purpose inputs) and up to 32 GPO (general purpose outputs)
- SYNC and LATCH signal integration into various device peripherals

F2838x EtherCAT Subsystem

- Allocate EtherCAT IP ownership to CPU1 or CM
 - CPU1 supports 16-bit accesses, CM supports 8-bit accesses
- EtherCAT Subsystem Interfaces:

Interface	Description
CPU1 PIE, EPWM, ECAP, CLB, GPIO, XBAR, ERAD	EtherCAT subsystem interrupt and SYNC0/SYNC1 signals integrated into these peripherals
CPU1.CLA1	Trigger CLA task on SYNC0/1 pulse
CPU1.DMA	Access to full range of DPRAM (EtherCAT RAM) Trigger DMA transfer on SYNC0/1 pulse
CM.uDMA	Access to full range of DPRAM (EtherCAT RAM) Trigger uDMA transfer on SYNC0/1 pulse
CM NVIC	EtherCAT subsystem interrupt and SYNC0/SYNC1 signals integrated

F2838x EtherCAT Subsystem Service Requests

EtherCAT Source	CPU1	CPU1.CLA	CPU1.DMA	CM	CM.uDMA
EtherCAT IRQ	Available	Available	Not Available	Available	Not Available
PDI Timeout	Available	Available	Not Available	Available	Not Available
uDMA Done	Available	Not Available	Not Available	Available	Not Available
EtherCAT Reset	Available	Available	Not Available	Available	Not Available
SYNC0/1	Available	Available	Available	Available	Available

Note:

- Interrupt lines are connected to local host core
- EtherCAT reset out can be configured to trigger NMI

EtherCAT IP Core (F2838x) vs Beckhoff ET1100

Feature	IP Core (F2838x)	ET1100
Transmission Speed	100 Mbit/s	100 Mbit/s
Number of PHY Ports	2 (MII only)	4 (MII or EBUS)
FMMUs	8	8
SyncManagers	8	8
RAM (KByte)	16 KB	8KB
Distributed Clocks Support	Yes, 64-bit clock	Yes, 64-bit clock
EBUS Support	No	Yes
Process Data Interfaces (PDI)	16 bit ASYNC	Digital I/O SPI 8 bit ASYNC/SYNC 16 bit ASYNC/SYNC

More Information on F2838x and EtherCAT

Learn more about C2000 MCUs:

www.ti.com/c2000

Learn more about F2838x and EtherCAT:

www.ti.com/product/TMS320F28388D

F2838x EtherCAT Software Examples:

www.ti.com/tool/C2000WARE