

Microchip EtherCAT® Product Selection Guide

Introduction

Microchip offers several EtherCAT® Slave Controller (ESC) Products. This guide provides information to assist customers in selecting an EtherCAT product based on the different features offered. The guide contains information about key ESC features such as number of ports, the supported Process Data Interfaces (PDI), EEPROM sizes supported, as well as electrical and mechanical specification. For additional product details please refer to the specific product's datasheet.

Product Selection Table

Product Features	LAN9252	LAN9253	LAN9254
Ethernet Ports			
Number of Ports Available	1,2,3, 4*	1,2,3,4*	1,2,3,4*
Number of PHYs Available	2 PHY, 1 MII**	2 PHY, 1 MII**	2 PHY, 1 MII**
Process Data Interface (PDI)			
DIGIO (IN/OUT/Bi-Directional)	16	16	32
SPI and in Built GPIO (in/out)	16	16	16
SPI/SQI	Y	Y	Y
SPI With MII			
(For 3 port, 2 inbuilt PHY and 1 MII)	Y	Y	Y
HBI Multiplex Single Phase (8/16)	Y	Y	Y
HBI Multiplex Dual Phase (8/16)	Y	Y	Y
HBI Demultiplexed (8/16)	N	N	Y
HBI Index Mode	Y	Y	Y
Status LEDs			
Link ACT LED	Y	Y	Y
EtherCAT® RUN LED	Y	Y	Y
EtherCAT Error LED	N	Y	Y
Link status LED	Y	Y	Y
EEPROM			
EEPROM Size (in bits)	1K to 4M	1K to 4M	1K to 4M
EEPROM Emulation	N	Y	Y
Sync Managers	4	8	8
Fieldbus Memory Management Units (FMMU)	3	8	8
PDI Dual Port Memory	4K	8K	8K

Product Features	LAN9252	LAN9253	LAN9254
Fibre Support	Y	N	N
HP Auto MDIX™	Y	Y	Y
Ethernet Wake on Lan (WoL)	Y	Y	Y
PHY Auto Negotiation Control for 3 Port			
Via Firmware	Y	Y	Y
PHY Auto Negotiation Control for 3 Port			
Via Hardware Strap	N	Y	Y
Power Management	Y	Y	Y
Power Over EtherCAT (EtherCAT P)	Y	Y	Y
25 MHz Daisy Chain Clock	N	Y	Y
Signal Quality Indicator (SQI) and Cable Diagnostics	N	Y	Y
EtherCAT® Cycle Time (Non DIGIO)	125 µSec	76.9 µSec	76.9 µSec
Device Package	64 QFN 64 TQFP	64 QFN	80 TQFP
Temperature Rating			
Commercial Version	0°C to +70°C	0°C to +70°C	0°C to +70°C
Industrial Version	–40°C to +85°C	–40°C to +85°C	–40°C to +85°C
Extended Industrial Version	–40°C to +105°C	–40°C to +105°C	–40°C to +105°C
Operational Voltage	3.0 to 3.6V	3.0 to 3.6V	3.0 to 3.6V

Note: *Expansion mode - Connect two 3 port devices back to back to achieve 4 port EtherCAT coupler (One MII configures as upstream and other configures as downstream) **MII is the 3rd port and used in 3 port and expansion mode

Reference Documents

1. LAN9252 Datasheet
2. LAN9253 Datasheet
3. LAN9254 Datasheet