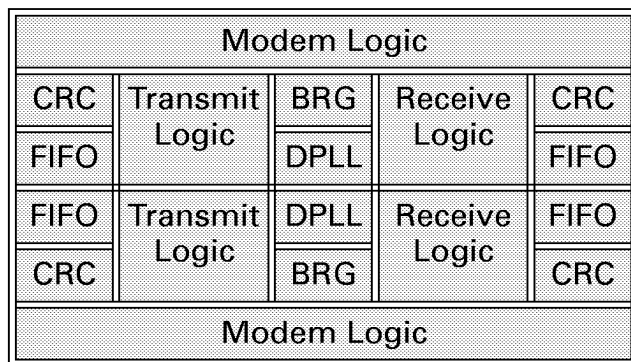


Z80230/Z85230

ESCC™-ENHANCED SERIAL COMMUNICATION CONTROLLERS

PB000400-SCC0399

PRODUCT BLOCK DIAGRAM



FEATURES

- Two independent full-duplex channels with a crystal oscillator, a baud rate generator (BRG) and a digital phase locked loop (DPLL) in each channel.
- Pin-compatible with the Z8030/Z8530 and the Z80C30/Z85C30
- 4-Byte transmit FIFO and 8-Byte receive FIFO for each channel
- Asynchronous capabilities:
 - 5, 6, 7, or 8 bits/character
 - 1, 1.5, or 2 Stop bits
 - Odd or Even parity
 - Parity, Overrun, and Framing Error detection
- Synchronous/Isosynchronous data rates:
 - Up to $1/4$ of PCLK using an external clock
 - Up to $1/8$ of PCLK using DPLL in FM mode
 - Up to $1/16$ of PCLK using DPLL in NRZI mode
- Character-oriented synchronous capabilities:
 - Internal or external synchronization
 - 1 or 2 SYNC characters (6 or 8 bits/character)
 - NRZ, NRZI, or FM encoding/decoding, as well as Manchester decoding
 - Cyclic redundancy check (CRC-16, CRC-CCITT) generation/detection

• SDLC/HDLC Capabilities:

- Automatic zero insertion and detection
- Automatic flag insertion between messages
- Address field recognition
- CRC generation/detection

GENERAL DESCRIPTION

ZiLOG's Enhanced Serial Communications Controllers (ESCC, Z80230/Z85230) are pin- and software-compatible members of the SCC family. The ESCC is a dual-channel, full-duplex multiprotocol data communication peripheral, designed for use with both 8- and 16-bit microprocessors. The ESCC is an enhanced version of ZiLOG's industry standard SCC core (Z8030/Z8530) which was introduced by ZiLOG in 1981.

The ESCC handles asynchronous formats, byte-oriented synchronous protocols such as MONOSYNC and BISYNC, and bit-oriented synchronous protocols such as HDLC and SDLC.

The device can generate and check CRC codes in any synchronous mode, and can be programmed to check data integrity in various modes. The ESCC also has facilities for modem control in both channels. In applications where these controls are not needed, the modem controls can be used for general-purpose I/O.

With access to 16 WRITE registers and 10 READ registers per channel, the user can configure the ESCC to handle all synchronous formats regardless of data size, number of stop bits, or parity requirements.

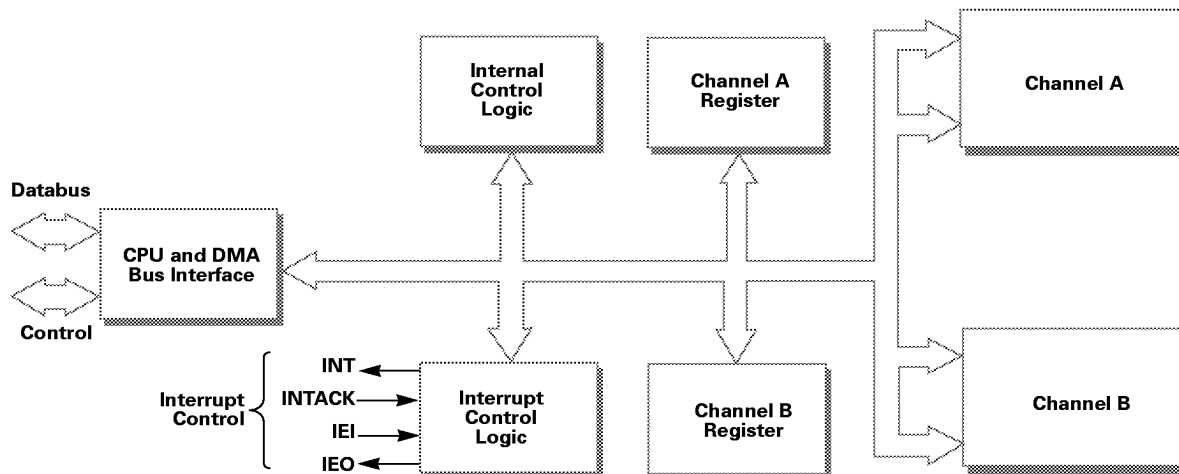
Within each operating mode, the ESCC also allows for protocol variations by checking odd or even parity bits, character insertion or deletion, CRC generation, checking break and abort generation and detection, and many other protocol-dependent features.

The ESCC has many improvements that significantly reduce CPU overhead. The addition of a 4-byte transmit FIFO and an 8-byte receive FIFO significantly

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reduces the overhead required to provide data to the transmitters, and to get data from the receivers.

The ESCC also has many features that improve packet handling in SDLC mode. The combination of these features, along with the deeper data FIFOs, significantly simplifies SDLC driver software.



RELATED PRODUCTS

Similar communication controllers available from ZiLOG's SCC family include:

Z8030	NMOS SCC (Serial Communication Controller)
Z8530	CMOS SCC (Serial Communication Controller)
Z80C30	CMOS SCC (Serial Communication Controller)
Z85C30	CMOS SCC (Serial Communication Controller)
Z16C35	ISCC Single-Channel SCC with Built-in DMA Controllers.
Z16C30	USC (Universal Communication Controller)
Z16C32	IUSC Single-Channel USC with Built-in DMA Controllers

ORDERING INFORMATION

PSI	Description
ESCC with Multiplex Bus Interface	
Z8023010PSC	10MHz 40-Pin DIP ESCC
Z8023010VSC	10MHz 44-Pin PLCC ESCC
Z8023016PSC	16MHz 40-Pin DIP ESCC
Z8023016VSC	16MHz 44-Pin PLCC ESCC
ESCC with Non-multiplex Bus Interface	
Z8523008PSC	8MHz 40-Pin DIP ESCC
Z8523008VSC	8MHz 44-Pin PLCC ESCC
Z8523010PSC	10MHz 40-Pin DIP ESCC
Z8523010VSC	10MHz 44-Pin PLCC ESCC
Z8523016PSC	16MHz 40-Pin DIP ESCC
Z8523016VSC	16MHz 44-Pin PLCC ESCC
Z8523020PSC	20MHz 40-Pin DIP ESCC
Z8523020VSC	20MHz 44-Pin PLCC ESCC
ESCC Evaluation Boards	
Z8523000ZCO	ISA Bus Evaluation Board
Z8018000ZCO	Z180 Evaluation Board
Z8018600ZCO	80186 Evaluation Board

To order, contact your nearest ZiLOG sales office or send an email to: csupport@zilog.com.