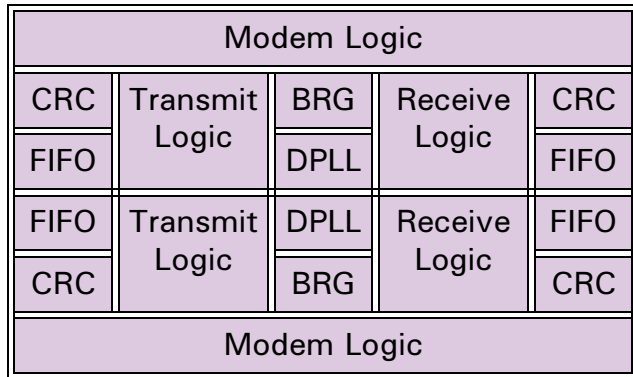


PRODUCT BLOCK DIAGRAM



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

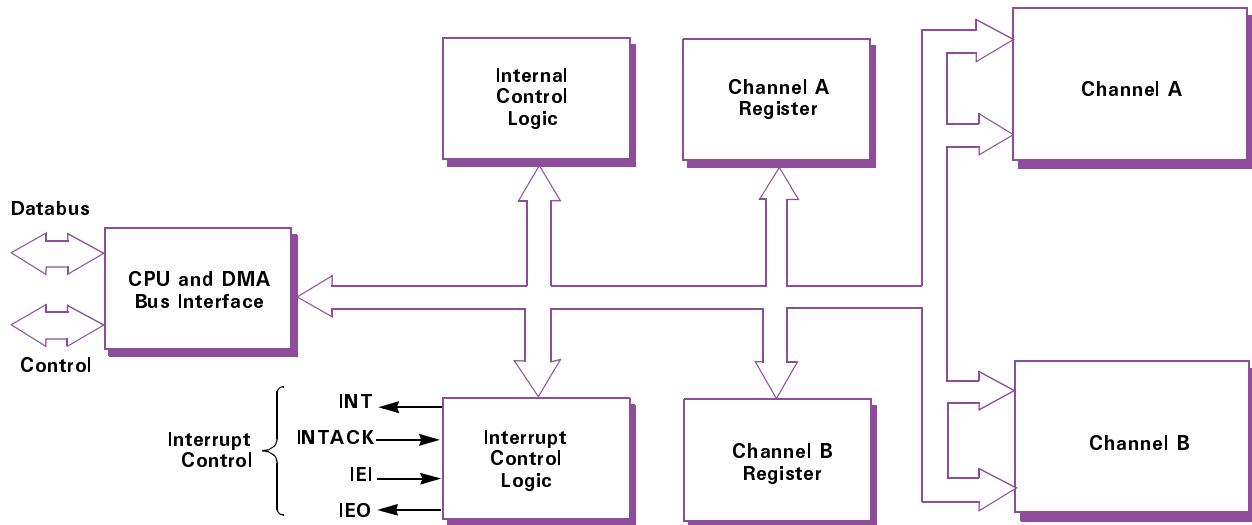
ZiLOG's Enhanced Serial Communications Controllers (ESCC, Z80230/Z85230) are pin- and software-compatible members of the SCC family. The ESCC is a dual-channel, full-duplex multiprotocol data communication peripheral, designed for use with both 8- and 16-bit microprocessors. The ESCC is an enhanced version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