

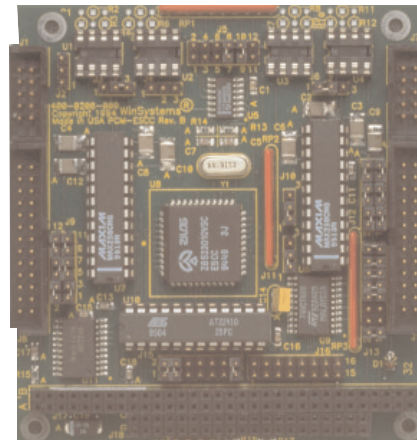
### FEATURES

- Two independent, full-duplex serial channels
- Asynchronous and synchronous (BISYNC, SDLC, HDLC, and CCITT-X.25) protocols supported
- RS-232 and optional RS-485/422 electrical interface levels on both channels
- Asynchronous mode supported with:
  - 5-, 6-, 7- or 8-bit character lengths
  - Even, odd, or no parity generation and checking
  - 1, 1½ or 2 stop bits per character
  - Break, overrun and framing error detection
  - Data rates to 76.8K bps
- Byte oriented synchronous capabilities:
  - Internal or external character synchronization
  - Automatic CRC generation/checking
- SDLC/HDLC capabilities:
  - Abort sequence generation and checking
  - Automatic zero insertion and detection
  - Automatic flag insertion between messages
  - Address field recognition
  - I field residue handling
  - CRC generation/handling
  - SDLC loop mode with EOP recognition/loop entry and exit
- Z85230 Enhanced SCC for improved performance
- 4 byte transmit and 8 byte receive FIFO
- Interrupt or DMA control
- Configurable as DTE or ACE
- Software programmable baud rate generator
- +5 volt only operation
- 8- or 16-bit PC/104 stackthrough connector
- Small size: 3.6" x 3.8" (90mm x 96mm)
- Operating temperature: -40°C to +85°C

The PCM-ESCC is a PC/104 dual channel, multiprotocol data communications controller based upon the Z85230 Enhanced SCC. Each serial channel is independent and capable of synchronous or asynchronous data communications with either RS-232 or optional RS-422/485 electrical levels. The module can be configured to satisfy a wide variety of serial communications applications and can be used to interface to a terminal, printer, modem, or other serial system peripherals.

### FUNCTIONAL CAPABILITY

**Serial Controller** - The onboard Z85230 SCC controller provides dual channel serial communications for any common asynchronous or synchronous data communication protocol. In addition to the standard features of the SCC, it has many enhancements to improve its performance. These include a 4 byte transmit FIFO and 8 byte receive FIFO, programmable FIFO interrupt



and DMA request levels and seven other enhancements to improve SDLC link layer performance.

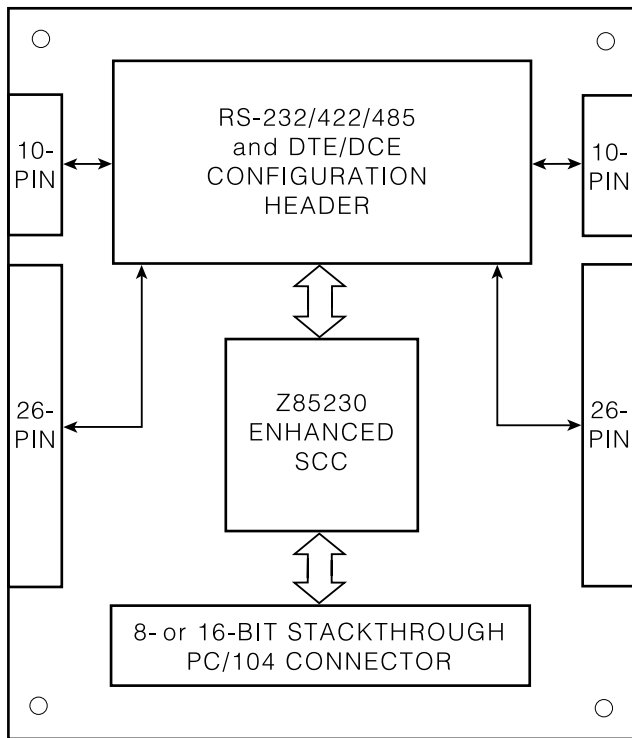
The ESCC can operate in Polling, Interrupt and Block Transfer modes to transfer data, status and control information to the CPU. The Block Transfer mode can be under CPU control or DMA channel 1 or 3.

**Asynchronous Modes** - Transmission and reception is accomplished independently on each channel with five to eight bits per character plus optional even or odd parity. It will handle 1, 1½ or 2 stop bits; false start bit detection and automatic receiver break detection and handling. Error detection is provided for parity, overrun and framing.

**Synchronous Modes** - The PCM-ESCC supports both byte-oriented and bit-oriented synchronous communications. Synchronous byte-oriented protocols can be handled in several modes, allowing character synchronization with a 6-bit or 8-bit synchronous character (Monosync) or any 12-bit synchronization pattern (Bisync).

The ESCC supports synchronous bit-oriented protocols, such as SDLC and HDLC, by performing automatic flag sending, zero insertion, CRC generation and other special hardware enhancements.

The ESCC may be programmed to encode and decode the serial data in four different ways: NRZ, NRZI, FM0 and FM1. A Digital Phase-Locked-Loop is on each channel to recover clock information from a data stream with NRZI or FM encoding.



**PCM-ESCC BLOCK DIAGRAM**

**Serial Configuration** - Each channel supports Transmit Data (TxD), Receive Data (RxD), Request to Send (RTS), Clear to Send (CTS), Data Set Ready (DSR), Receive Clock (DB), Data Carrier Detect (DCD), Data Terminal Ready (DTR) and Transmit Clock. Both the serial data and modem control lines are jumper selectable for either DTE or DCE operation. Transmit and receive synchronous clock lines are also supported.

The signals from each channel are brought out to separate 26-pin male right angle headers on the card edge which allows easy connections to a flat cable 25-pin "D" type adapter cable. WinSystems offers both the CBL-101-3 male, and CBL-102-3 female type "D" ribbon cables.

**Electrical Interface Levels** - The board is shipped in a standard configuration that supports RS-232. Optionally, RS-422/485 electrical levels can be supported on both channels for the transmit and receive lines by a user installable chip kit. WinSystems' CK-75176-2 chip kit can be ordered for each channel that contains two 75176B devices.

The RS-422/485 RxD and TxD lines are wired to a separate 10-pin connector. Sync clocks are available for Channel A, if Channel B is not used as RS-422/485.

**PC/104 Interface** - The PCM-ESCC is I/O mapped. It requires 4 contiguous port addresses which are jumper selectable on any even 4 port boundary. The PCM-ESCC-8 card is an 8-bit stackthrough card supporting 8-bit data transfers only. The PCM-ESCC-16 also supports 8-bit data transfers but is populated with the 40-pin connector to support additional interrupt request lines.

**Interrupts** - The interrupt request is buffered and selectable on the PC/104 bus as IRQ 2 - 7. The PCM-ESCC-16 additionally supports IRQ 10, 11, 12, 14 and 15. The board supports the interrupt-sharing option on the PC/104 bus.

## SPECIFICATIONS

### Electrical

PCM-ESCC-8: 8-bit, PC/104 stackthrough

PCM-ESCC-16: 8-bit or 16-bit, plus extra interrupts

Serial: Two RS-232 serial channels. Optional

RS-422/485 with the CK-75176-2 installed.

Vcc = +5V ±5% @ 140mA

### Mechanical

Dimensions: 3.6" x 3.8" (90mm x 96mm)

### Connectors

RS-232 Serial: Two, 26-pin 0.100" grid

RS-422/485 Serial: Two, 10-pin 0.100" grid

PC/104: 64-pin, 0.100", 32-pin double row

PC/104: 40-pin, 0.100", 20-pin double row (PCM-ESCC-16 only)

Jumpers: 0.025" square posts

### Environmental

Operating Temperature: -40°C to +85°C

## ORDERING INFORMATION

PCM-ESCC-8 Dual serial async/sync module

PCM-ESCC-16 Dual serial async/sync module

CBL-101-3 3' male 25-pin "D" adapter cable

CBL-102-3 3' female 25-pin "D" adapter cable

CK-75176-2 RS-422/485 chip kit for 1 channel

