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**C&T SERIAL
INTERFACE
MODULE**

DESCRIPTION

ICS's VXI-5526-8 Command and Telemetry (C&T) module is a single slot, C-size VXI module for generating and receiving arbitrary length serial messages with data rates up to 1 Mbs. The VXI-5526-8 C&T has four sets of serial interfaces which are driven by a common transmit/receive logic unit. Any one of the four sets of interfaces can be enabled at a time. Data transfer between the VXI-5526-8 C&T and the VXI controller is via a VXI Fast Data Channel to minimize VXIbus transfer time and assure continuous data flow when operating at high baud rates. The VXI-5526-8 C&T also generates six timing outputs and two clocks for synchronizing other equipment. Typical uses are sending/receiving telemetry data and commands for testing satellites or other devices with serial interfaces.

Serial Interface Operation

Each serial interface provides transmit data, transmit clock, gated transmit clock and transmit gate signal as its outputs. Inputs are receive data and the receive data clock signals.

Transmission starts when data is placed in the transmit buffer. The transmit clock is continuous and can be generated from the internal baud rate generator or from an external clock source. In the continuous transmit mode, fill data is automatically transmitted when there are no more messages to be sent. The transmit gate goes true at the start of the first data bit and stays true until the last data bit has been sent. In the continuous mode, the data gate stays on while fill data is being sent.

Received data can be captured upon command or when a 8, 16 or 32 bit sync pattern is detected. The received data is stored in the VXI-5526-8 C&T's memory until read by the Slot 0 Controller.

Transmit and receive data is transferred over the VXI bus as 16 or 32 bit wide words at a 4 Mbyte per second rate. The Fast Data Channel memory is organized as two A/B buffer pairs in each direction. The VXI-5526-8 C&T processes one buffer of each pair while the VXI controller transfers data to or from the other buffer.

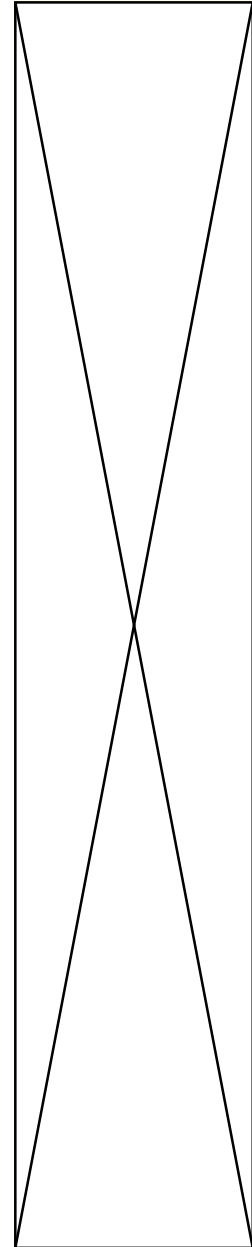
Clock and Timing Pulse Outputs

Three independent clock pulse generators with programmable output frequencies for synchronizing external devices. Two of the generators are programmable from 20 Hz to 1 Hz. The third generator is a fixed, 1 Hz output. The three generators have eight differential output drivers with individual enable controls.

Program Capability

The VXI-5526-8 C&T uses VXI message based commands to set the module's operating parameters and organize the FDC buffers. Settings may be stored in the C&T's nonvolatile memory. The stored values become the default values when the module is reset or powered on.

- Sends and receives arbitrary bit length messages with baud rates up to 1 Mbs.
Handles most binary formats at high transfer rates.
- Transmitter sends individual messages or continuous bit streams.
Automatic fill operation.
- Receiver inputs data upon command or when an 8, 16 or 32 bit sync pattern is detected.
Captures both types of messages.
- Fast Data Channel transfer rate > 4 Mbytes/sec.
Reduces VXIbus transfer time.
- Eight outputs with programmable pulses from 1 Hz to 20 Hz in fixed steps.
Pulse outputs for synchronizing external devices.
- Built-in diagnostic routines and status LEDs.
Provides confidence test and visual status of received data.



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VXI-5526 C&T: SPECIFICATIONS

VXI Capabilities

Static and Dynamic address capability.
 Message based, 14 class instrument.
 Message based slave device.
 A16/A24/A32 address space.
 D16/D32 bit data.
 Event generator for all protocol errors
 Normal handshake data transfer.
 Fast Data Channel with programmable buffers sizes. D16/D32 word transfer.
 Programmable interrupter for receive data in buffer and transmit buffer empty.
 Supports VXI instrument protocol, IEEE 488.2 common commands.

488.2 Common Commands

*CLS, *ESE, *ESE?, *ESR?, *IDN?, *OPC, *OPC?, *RST, *SRE, *STB, *TST? and *WAI

Diagnostic Capability

Includes power-on self test, built-in diagnostic routines and front panel LEDs for VXI status and troubleshooting.

Fast Data Channel

Five channels arranged as two streaming buffer pairs plus a fill buffer. VXIbus interrupts when a receive buffer is full or when a transmit buffer is empty.
 Data buffers 4 @128 Kbytes max
 Fill buffer 64 Kbytes

Serial Interface

Transmits and receives serial bit streams. Transmit/receive logic supports four sets of RS-422 interface drivers and receivers. Receiver inputs data upon command or when sync pattern detected.

Serial Signals:

Transmit Data, clock, gated clock and data gate
 Receive Data and clock
 Signal type Differential RS-422 signals with 33Ω series resistors.
 Vout >2 V into 150Ω.
 Monitor lines Single ended TTL TX gate and clock outputs

Baud Rate

153 Hz to 32 KHz for 'B' units
 153 Hz to 1 MHz for 'A' units

Message lengths :

Data 1 to 128 Kbits

Timing

Data bit change on positive clock edge
 Data read on negative clock edge

Sync Detector (Programmable)

Pattern 8, 16 or 32 bits

Clock and Time Pulse Outputs

Three programmable time pulse generators with eight differential outputs. Separate enable commands and programmable output pulse widths.

Frequency

20, 10, 5, and 1 Hz for 'B' units
 20,10,6.436, 5, 2 and 1 Hz for 'A' units

Pulse width 10 msec

Physical

Size, W x H x D

C-sized module
 (30.5 x 233.5 x 353.0 mm)

Weight

2 kg (.45 lbs.)

Power Consumption

+5 Vdc at 2 Amperes

Connectors

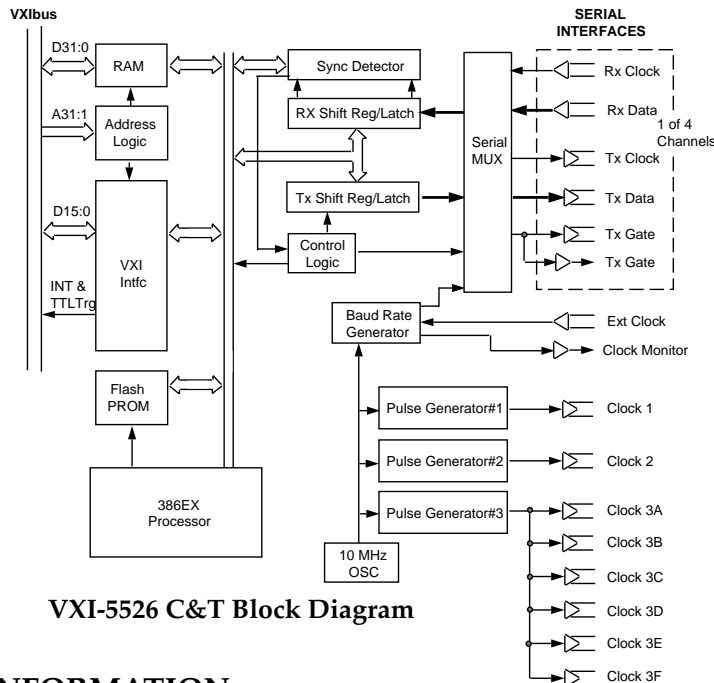
Serial Interface: DD-50S connectors with lock studs

LEDs

PWR
 READY
 FAILED
 SYSFAIL
 SYNC DETECTED

Included Accessories

Instruction manual



VXI-5526 C&T Block Diagram

ORDERING INFORMATION

VXIbus Serial Interface Module 'A' Version

Part Number

VXI-5526-8 C&TA

VXIbus Serial Interface Module 'B' Version

VXI-5526-8 C&TB



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