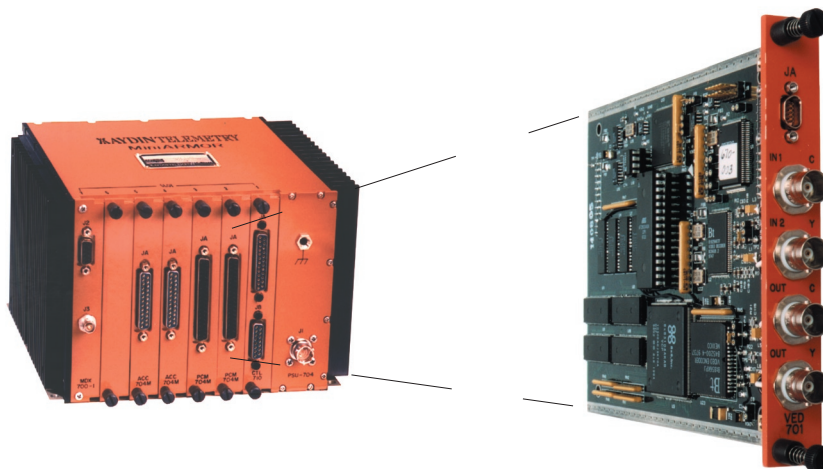




FEATURES

- Video Input Channel: Two PAL or NTSC Composite Video Analog Signal sources, or Single S-Video source
- PCM Serial Data Input: Maximum 3Mbps Serial Data, TTL level
- PCM Serial Clock Input: Maximum 3Mhz Clock to Serial Data, TTL level (Jumper selectable 0° or 180° to data)
- Video Output Channel: Single NTSC Composite Video Analog Signal, or Single S-Video Signal (Y and C)
- Clocking Rates: Software selectable clocking rates of from 3Mbps to 16Kbps, or External Clocking
- Encoder/Decoder Selection: Software selectable
- Format Selection: Selection between Composite and S-Video jumper selectable, selection between PAL and NTSC Composite is software selectable
- Picture Quality Quantizer: Software selectable worst case quantizer value of 4, 8, 16 or 24

- Resolution: Software selectable, QCIF (176 x 144) or CIF (352 x 288)
- Video Encoding and Decoding
- Full Motion, Full Color Video or Black & White
- NTSC, PAL or S-Video Formats
- Data Rates from 16 Kbps to 3.2 Mbps (external clock)

APPLICATIONS

- Aircraft Flight Test
- Aircraft Static Test
- Aircraft Fatigue Test
- Ground Vehicle Test

Note: Consult factory for NTSC format restriction



communications

GENERAL DESCRIPTION

The VED-701 card provides the conversion from an S-Video or one of two PAL or NTSC video signals to a NRZL PCM and Clock pair; and from a NRZL PCM and Clock pair to a NTSC or S-Video signal. These conversions allow the VED-701 to act as both a Video acquisition daughter card for the PCM-704M MiniARMOR PCM input card and as a Video reconstruction daughter card for the MiniARMOR PCM-704D (-502 or 552) output card. A functional block diagram of the VED-701 is shown in Figure 1.

Video Signal In

The VED-701 card accepts a single S-Video signal (Y, Luminance and C, Chrominance) or one of two composite video signals which may have a PAL or NTSC format. Circuitry on the board allows for detection of either PAL or NTSC, dependent on the firmware resident on the VED-701 and setup registers. Jumpers on the board and setup registers select between S-Video and Composite for both input and output video signals. The selection between the two composite inputs is done via an external connector.

Serial PCM Data and Clock Out

The VED-701 card will output a serial data stream with associated clock which correctly encodes the composite video signal. The clock is provided at 180° to the data.

Serial PCM Data and Clock In

The VED-701 card will accept a single ended NRZL PCM data stream with associated 180° clock. This data stream is then decoded into a NTSC formatted video analog signal.

Video Signal Out

The VED-701 card generates a single NTSC composite or S-Video signal based on the input serial PCM data and clock and outputs the signal. The selection between Composite and S-Video is made through an on board jumper.

The VED-701 is a video to PCM/PCM to Video daughter card which requires a slot in the chassis.

SOFTWARE

MiniARMOR software for Windows®* is an icon/toolbar based environment that provides convenient control of the acquisition features of the MiniARMOR-700 system. Programming experience is not necessary.

Hardware configuration is defined in a matter of seconds. Individual setup and control pages allow tailoring each plug-in card to the particular requirements at hand. The graphical, intuitive approach to programming allows non-programmers to start collecting data within minutes of installation.

Windows®-based MiniARMOR software runs on an IBM PC/AT computer operating in the Windows® environment. The computer and MiniARMOR-700 communicate via an RS-232 or RS-422 link. All configuration information is stored in non-volatile memories within the MiniARMOR.

MiniARMOR-700 System Application - [Setup1]

VIEW / EDIT RECORD MODE

SLOT 7: PCM-704M (4 Channel PCM Input Card)

Channel Select
☒ Channel 1
☐ Channel 2
☐ Channel 3
☐ Channel 4

Enable
☒ On ☐ Off

Mode
☒ Single Ended Input
☐ Differential Input

Board Identification
 Dash: Rev:
 Serial Number:
 Mfr. Week:
 Mfr. Year:

PCM Code
☒ NRZ-L at 0 Phase
☐ NRZ-L at 180 Phase
☐ Bi-Phase at 90 Phase

Channel Description
 (30 characters maximum length)

PCM Source BSC-702M VED-701 BSC-704M BSC-714M

VED-701 Video Decoder

Configuration
☒ Composite Input
☐ S-Video Input

Quantizer:

Resolution:

Clock Rate
☒ Internal Clock Source
☐ External Clock Source

Requested:
 3.2 MHz Max
 Actual:

OK Set Default Read ID Print Screen Help

PROGRAMMABLE FEATURES

VED-701 Setup and Programming

The VED-701 card contains 4 registers that hold all the required setup information for the card to be fully configured. On a power-up condition or immediately following a hardware reset (low on RSTLOGL), information must be transferred into the hardware registers of the VED-701 to overwrite the default values if desired. The VED-701 contains numerous other registers within the video decoder, video encoder, and the video processor whose values are controlled by the firmware resident on the VED-701.

External Controls

A nine pin connector is provided on the VED-701 which allows the user to control several aspects of the boards functionality. An external reset is provided which will reset the circuits which make up the video path of the VED-701, the user setup registers previously programmed are not reset by this signal allowing the board to restart with its current setup. A composite selection signal, COMPSEL, is provided to allow the user to select one of the two composite signal inputs or to change this selection at any time during the acquisition phase. An RS-422 compatible External Clock is provided allowing the user to provide the video sampling clock directly rather than the internally programmable clock selections.

CIRCUIT DESCRIPTION

Video to PCM Circuitry

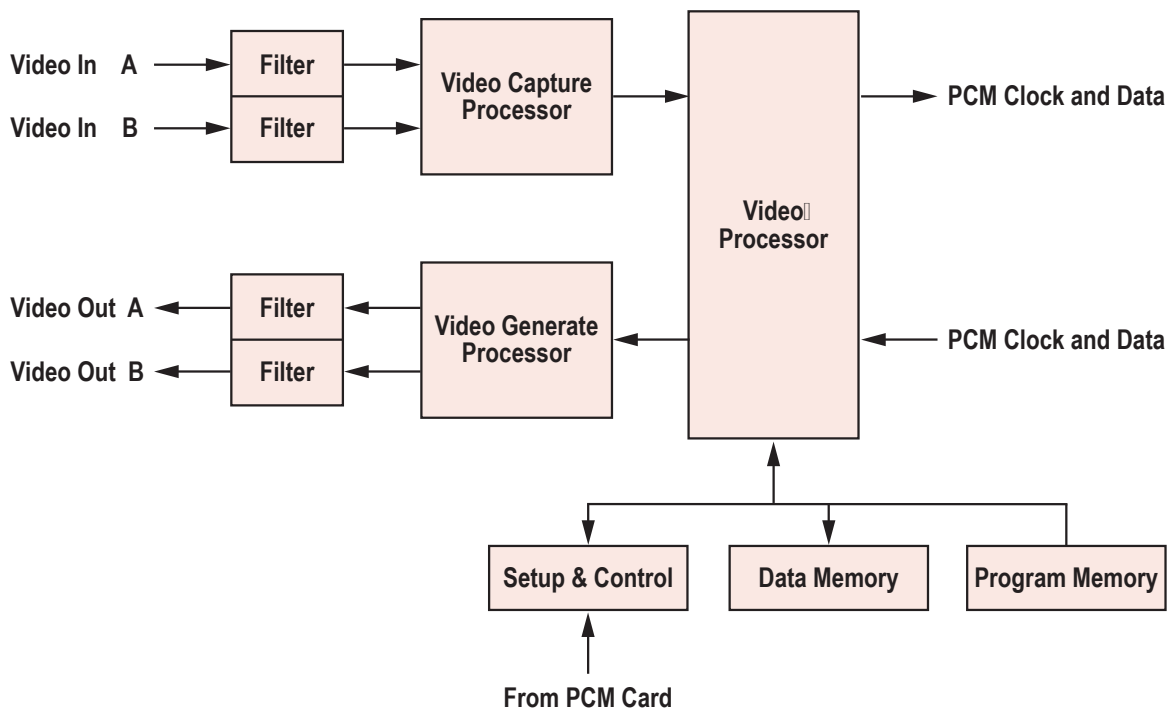
The VED-701 accepts an S-Video or one of two composite PAL or NTSC video signals. The selected signal is fed through an anti-aliasing filter and then to a video decoder and source selector which provides automatic gain control, filtered vertical scaling, and video synchronization.

The decoder outputs the pixel information recovered from the analog video signal to a video processor. The processor stores the pixel information and performs data compression on the stored data. The compressed data is fed serially into a PCM encoder which converts the compressed pixel stream into a NRZL PCM data stream and clock which is then output from the VED-701.

PCM to Video Circuitry

The VED-701 accepts an NRZL PCM Data stream with associated clock which is jumper selectable to have a 0° or 180° phase relationship to the data. This serial stream is captured and converted to a parallel format which is read by the on board video processor. The video processor decompresses the data and provides error correction before passing the recovered pixel data (RGB) to a video encoder. The video encoder generates an NTSC composite signal and an S-Video signal using the recovered pixel data and outputs the signal from the VED-701 using the format selected by an on board jumper.

Figure 1 - Block Diagram



SPECIFICATIONS

Power Requirements: +5V
 Power Consumption: 5 Watts

Video Input

Signal:	Composite	Component
Ports:	Two (Y1 and Y2)	One (Y2/C)
Format:	NTSC or PAL	S-Video
Impedance:	75 Ohms	75 Ohms
Amplitude:	1 V p-p	Y:1 V p-p C:0.3 V p-p

Compression Parameters

Quantizer 4 to 24

Resolution

QCIF (176 x 144) or
 CIF (352 x 288)

PCM Data Output

Signal NRZ-L Data & 180° Clock
 Levels TTL

PCM Data Input

Signal Clock Data & 180° Clock

External Clock Input

Signal Clock (16 Kbps to 3.2 Mbps)
 Levels RS-422 100 Ohms

Internal Clock

Signal Software Selectable

Video Output

Signal	Composite	Component
Formats:	NTSC or PAL	S-Video
Impedance:	75 Ohms	75 Ohms
Amplitude:	1 V p-p	Y:1 V p-p C:0.3V p-p

ORDERING INFORMATION

Contact your L-3 Communications Telemetry-East sales representative or the L-3 Communications Telemetry-East sales office, Newtown, PA. Specify MiniARMOR Signal Interface Card VED-701, Video Encoder/Decoder.

*Windows is a Registered Trademark of Microsoft Corporation in the USA and other countries.

