Picolo Series

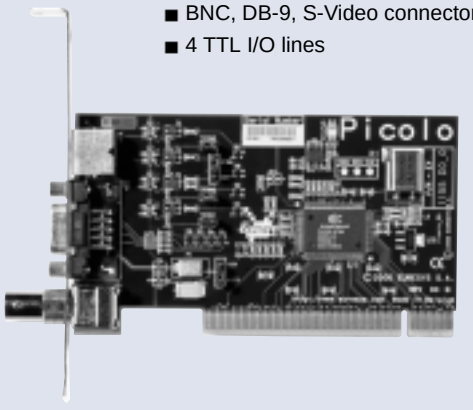
Color/Monochrome Image Acquisition Cards

Features

- 32-bit, PCI bus image acquisition card
- Low-cost
- Applicable signal type: PAL / NTSC / CCIR / EIA
- Acquisition from 1 to 16 standard cameras
- Full resolution and high quality image acquisition
- Libraries, ActiveX controls and DLLs included

Picolo :

- Real-time video capture
- BNC, DB-9, S-Video connectors
- 4 TTL I/O lines



Introduction

General

With an outstanding price/quality ratio, the Picolo series frame grabbers acquire PAL, NTSC, CCIR or EIA video signals directly to PC memory. Their ultramodern digital synchronization system is compatible with cameras as well as unstable video sources such as VCRs. The images can be scaled down and arbitrarily cropped (acquisition limited to an area of interest). Many image formats are supported.

Picolo: The Picolo is a very low-cost frame grabber card perfectly adapted to single camera applications. It provides a robust BNC connector, an S-Video connector and a DB-9 connector for video input and I/O connection.

Picolo Pro 2: The Picolo Pro 2 is a low-cost frame grabber card optimized for video surveillance applications. The synchronization stage, PCI management hardware and the MultiCam driver have been optimized to allow high-speed acquisition of full-resolution images from multiple unsynchronized cameras. Picolo Pro 2 provides 4 BNC connectors (video inputs) for connecting up to four cameras.

Picolo Pro 3: The Picolo Pro 3 is able to acquire images from up to 16 cameras because of its modular architecture. The Picolo Pro 3 baseboard and each extension module (up to 3) provide 4 BNC connectors and a CTL connector (with 5 TTL I/O lines).

Image Acquisition

Color image: The color video format is compatible with the following composite video input formats: **NTSC-M, NTSC-Japan, PAL-B, PAL-D, PAL-G, PAL-H, PAL-I, PAL-M, PAL-N** and **SECAM**.

Monochrome image: The monochrome video acquisition is compatible with **CCIR** and **EIA**.

Optional scaling: The Picolo series boards acquire images or portions of images with optional scaling:

- Acquisition of a programmable area of interest
- Scaling of the image (down to 1:16)
- Adjustment of hue (for NTSC signals), contrast (0 to 200 %), brightness and saturation (0 to 200 % for U and V signals)
- Automatic chrominance gain control
- Programmable coring of the luminance (values below a given threshold are set to zero)

Multiple Camera

The Picolo Pro 2 and Picolo Pro 3 can acquire images from unsynchronized cameras with a very short switching time. The switching time is < 33 ms in NTSC and < 40 ms in PAL, leading to a total of 16 images acquired per second (typical).

Cameras connected	Images acquired per second per camera (typical)
1	25(PAL) / 30(NTSC)
2	8
4	4
8	2
12	1.3
16	1

Image Transfer

The Picolo series support PCI bus mastering. Images are transferred to PC memory using DMA (Direct Memory Access) in parallel with the acquisition and the processing. Simultaneous utilization of several Picolo series boards in a single PC is supported.

I/O Lines

The Picolo cards are fitted with TTL compatible I/O lines protected against overloads and electrostatic discharges. Every line may be configured as an input or output. They can be used to trigger the acquisition or report alarms.

Applications

Industrial applications:

Machine vision, alignment, quality control, PCB inspection, ...

Video surveillance applications:

Access control, traffic monitoring, remote video, motion detection, X-Ray, ...

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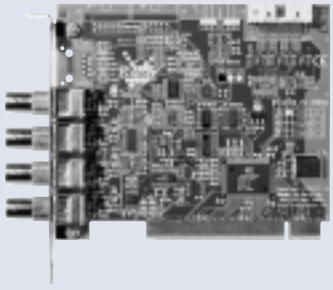
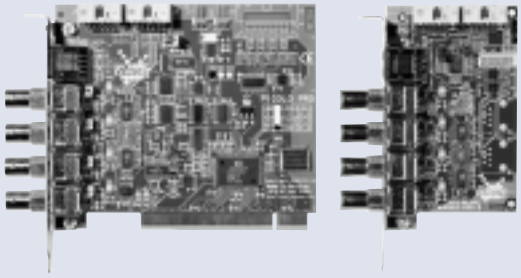
Picolo Pro 2:

- Connection of up to 4 cameras
- High frame rate
- 13 TTL I/O lines



Picolo Pro 3:

- Modular architecture: 4, 8, 12 or 16 cameras
- High frame rate: 16 new images every second
- Up to 20 digital TTL I/O lines



Specifications

Physical Information

Picolo:
PCI board, 125 x 70 mm
power consumption: 1 W (200 mA @ +5V)
Picolo Pro 2:
PCI board, 125 x 107 mm
power consumption: 350 mA @ +5V, 6 mA @ +12V, 30 mA @ -12V
PICOLO Pro 3:
PCI board, 125 x 107 mm
power consumption: 1.3 W
Extension Module:
63 x 107 mm
power consumption: 600 mW

Bitmap Image Format

RGB32: One pixel per 32-bit word (8-bit R: 8-bit G: 8-bit B)
RGB24: Packed data, four pixels per three 32-bit words
RGB16: One pixel per 16-bit word (5-bit R; 6-bit G; 5-bit B)
RGB15: One pixel per 16-bit word (5-bit R; 5-bit G; 5-bit B)
Y8: Luminance only, four pixels per 32-bit word
YCrCb 4:2:2: Four pixels in two 32-bit words (packed data format)
YCrCb 4:1:1: Eight pixels in three 32-bit words (packed data format)
Planar YCrCb 4:2:2: YCrCb 4:2:2 data organized in three different memory regions
Planar YCrCb 4:1:1: YCrCb 4:1:1 data organized in three different memory regions

Synchronization

An UltraLock™ technique is used to lock on the incoming video signal. Unstable signals such as those produced by VCRs are perfectly supported.
When using high-quality cameras, the jitter is lower than 1 ns !

I/O Lines

Picolo
4 I/O lines on the bracket's DB9.
Picolo Pro 2
13 I/O lines on the internal 16-pin header connector.
Picolo Pro 3
Up to 20 I/O lines (5 for the baseboard and 5 for every extension module) on the bracket's 8-pin RJ45 connector.

Watchdog

A hardware watchdog is available on Picolo Pro 3. The watchdog is able to monitor the PC's application operation and will automatically restart the PC after a programmable inactivity time-out. This ensures a reliable operation of remote systems.

Software Supporting

MultiCam Driver

The Picolo series is delivered with the new MultiCam driver. This driver drastically simplifies the acquisition of images coming from multiple cameras connected to one or more Picolo boards. The MultiCam driver allows you to define channels linking cameras to buffers in PC memory. Each channel knows all the acquisition parameters (camera type, image format and size, acquisition gain,...). Channels can all be activated simultaneously, the driver will then manage the switching between cameras and boards to optimize the acquisition speed and the display refresh rate.
The MultiCam driver for the Picolo series is compatible with Windows 98SE, NT, 2000 and ME. It is delivered as libraries, DLLs and ActiveX controls.

Ordering Information

Picolo
True-color image acquisition card.
Picolo Pro 2
Supports up to 4 cameras with 4 BNC connectors.
Picolo Pro 3
Picolo Pro 3 baseboard
Supports up to 4 cameras with 4 BNC connectors.
Picolo Pro 3 Module
Picolo Pro 3 extension module
Supports up to 4 cameras with 4 BNC connectors.