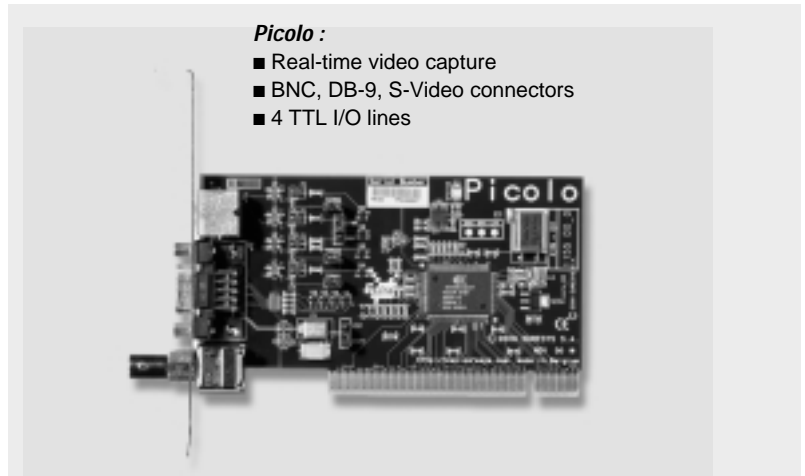


Piccolo Series

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



Piccolo :

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

Introduction

General

With an outstanding price/quality ratio, the Piccolo 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.

Piccolo: The Piccolo 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.

Piccolo Pro 2: The Piccolo 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. Piccolo Pro 2 provides 4 BNC connectors (video inputs) for connecting up to four cameras.

Piccolo Pro 3: The Piccolo Pro 3 is able to acquire images from up to 16 cameras because of its modular architecture. The Piccolo 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 Piccolo 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 Piccolo Pro 2 and Piccolo 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).

Image Transfer

The Piccolo 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 Piccolo series boards in a single PC is supported.

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

I/O Lines

The Piccolo 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

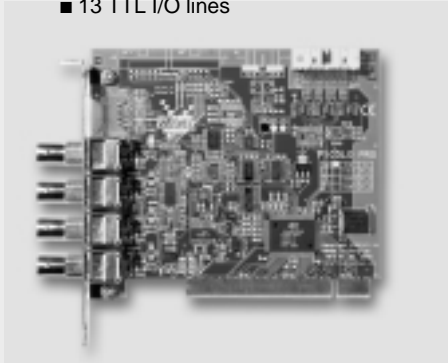
Machine vision, alignment, quality control, PCB inspection, ...

Video surveillance applications

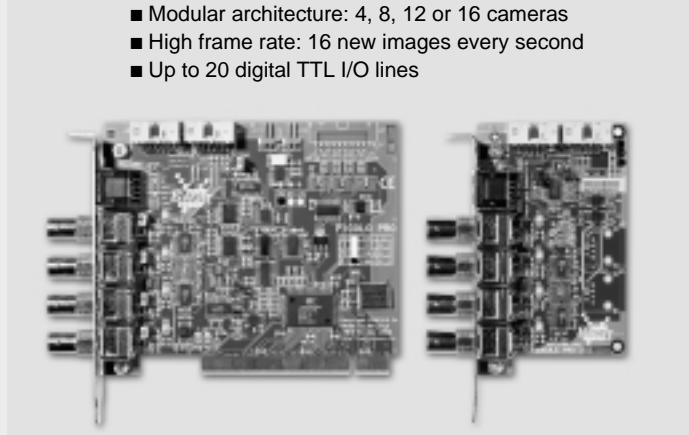
Access control, traffic monitoring, remote video, motion detection, X-Ray, ...

Piccolo Pro 2:

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

**Piccolo 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

Piccolo

- PCI board, 125 x 70 mm
- power consumption: 1 W (200 mA @ +5V)

Piccolo 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 1ns !

I/O Lines**Piccolo**

4 I/O lines on the bracket's DB9.

Piccolo Pro 2

13 I/O lines on the internal 16-pin header connector.

Piccolo 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 Piccolo 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 Piccolo 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 Piccolo 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 Piccolo series is compatible with Windows 98,SE, NT, 2000 and ME. It is delivered as libraries, DLLs and ActiveX controls.

Ordering Information

Piccolo

True-color image acquisition card.

Piccolo Pro 2

Supports up to 4 cameras with 4 BNC connectors.

Piccolo Pro 3

Piccolo Pro 3 baseboard

Supports up to 4 cameras with 4 BNC connectors.

Piccolo Pro 3 Module

Piccolo Pro 3 extension module

Supports up to 4 cameras with 4 BNC connectors.