DELTA COMPONENTS®

AVC8000S

8xD1 Video Frame Grabber

Document version: A.00

PPPF6036

AVC8000S, PCI-Express, 0°C to 60°C

PPPF6036-1

AVC8000S-EXT, PCI-Express, -40°C to 85°C

HARDWARE REFERENCE MANUAL

Windows® Embedded Partner

PCI/104 MODULES

Advanced Micro Peripherals
THE EMBEDDED VIDEO EXPERTS

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Revision History

Document version	Date	Comments	Approved
A.00	26th July 2013	Initial release – based on Rev A.00 PCB	BK

Contents

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1:

Introduction

The AVC8000S is a high-performance 8-channel video capture and overlay controller on a single PCIe form factor card. The AVC8000S provides a powerful and flexible solution for capturing up to eight concurrent analog video inputs for local system display or software analysis and processing, ideal for embedded Situational Awareness systems in the most demanding environment.

The AVC8000S allows each of the 8 video channels to be captured at full D1 size, all at full frame rate. The video can be scaled, cropped and positioned under software control.

The captured video data can be streamed continuously to system memory or disk for either immediate local display or further processing. The capture engine of the AVC8000S features hardware color space conversion to present the captured video data in the format best suited to the end application.

AMP can provide custom configurations (subject to a minimum order quantity) for the AVC8000S. Please contact our Sales team (see A: Contacting Advanced Micro Peripherals) to discuss your requirements.

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Features

- Real time video capture to system memory or overlay to system VGA screen

- 8 Live NTSC/PAL video inputs

- 8 x D1 size capture at full frame rate

- Arbitrary video windows sizing, cropping and scaling

- Efficient PCI DMA Cycle operation

- Robust PCIe construction

- Low power operation

- Windows DirectShow/DirectDraw operation

- Linux Video4Linux2 support

- Single +3.3V operation

AVC8000S 'at a glance'
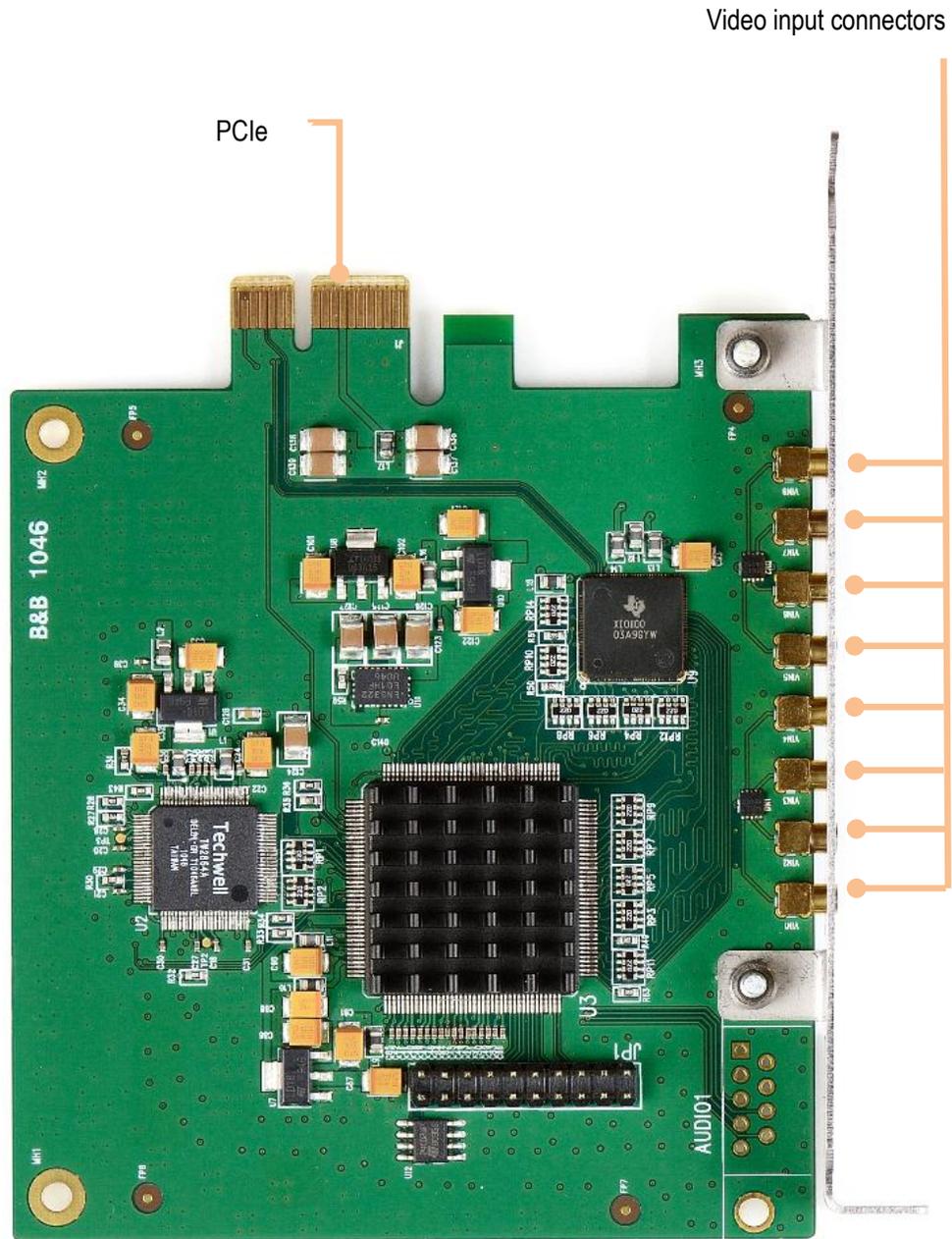
Video input connectors

PCIe

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Technical specification

Video Input:	8 channels composite video
	Monochrome/color NTSC or PAL
	8 10-bit Analog-to-Digital Converters
	Anti-aliasing filters on inputs
	1V peak-to-peak (75 Ohm input impedance)
	Contrast adjustable from 0 − 255% of original
	Saturation adjustable from 0 − 200% of original
	Hue adjustable from -36deg to +36deg
	Brightness can be adjusted from -128 to 127 steps
	Software adjustable sharpness, gamma and noise suppression
Video Overlay:	Video Overlay to host system VGA buffer
	Flexible arrangement of overlay windows
	Video capture to system memory buffer
	Supported Capture Formats:
	RGB555 / RGB565 / YCbCr 4:2:2 / YCbCr 4:1:1
Software:	SDK for Windows and Linux
	Window DirectShow/DirectDraw support
	Linux Video4Linux2 support
PC/104-*Express*:	Single x1 PCI Express Link
Power:	Single +3.3V supply
Environmental:	0 to 60°C
	-40 to +85°C (option)
Physical Size:	Standard PCIe card form

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Functional summary

Signal Sources

The AVC8000S is designed to simultaneously capture and display up to 8 separate and unrelated video sources. Each video frame grabber channel includes a digital NTSC/PAL video decoder.

Video Digitization

Composite NTSC or PAL video is input to the AVC8000S through the MMCX connectors VIN_A1 to VIN_A8. The video is AC-coupled and fed to the on-board decoders of the individual frame grabbers. The video decoders automatically detect whether the incoming video signal is NTSC or PAL and generates the correct timing output signals. Each video channel is first decoded to chrominance and luminance signals and then digitized by high speed analog-to-digital (A2D) converters.

Real time Live Video Overlay

Digital video data streams from are routed across the PC/104-Express bus to the display buffer of the host CPU for overlaying on the VGA Scree. The Overlay Windows can be scaled, cropped and positioned anywhere on the VGA screen.

The digitized video streams from the AVC8000S may also be directed to a memory buffer within the host CPU for frame grabber applications where the information may need further processing (such as software encoding and recording).

Host Interface

The AVC8000S uses a single x1 PCI Express link.

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Ordering information

The following part number(s) can be used when ordering:

PPPF6036   AVC8000S, PCI-Express, 0°C to 60°C

8-chan. PAL/NTSC/RS170 Frame Grabber+Video Overlay

PPPF6036-1   AVC8000S-EXT, PCI-Express, -40°C to 85°C

8-chan. PAL/NTSC/RS170 Frame Grabber+Video Overlay

BPLK6045   Cable set for AVC8000S

Anti-static handling

The board(s) supplied contain electrostatic components that are susceptible to permanent damage from electrostatic discharge (static electricity). To prevent electrostatic discharge, the boards are supplied in anti-static packaging.

When handling a board, observe the following anti-static precautions to alleviate risk of damage:

- Remove the board(s) from the packaging only when you are working on an anti-static, earthed surface and wearing an anti-static wrist strap.

- Retain the anti-static packaging that the board(s) were supplied in. If you remove a board from a system, store it in this packaging.

2:
Installation

System requirements

PCIe Host computer	x86 CPU
	512 Mbytes memory or more
	PCI-Express bus
	Windows-XP-E or Linux

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Jumpers and Connectors

K1

VIN

JP1

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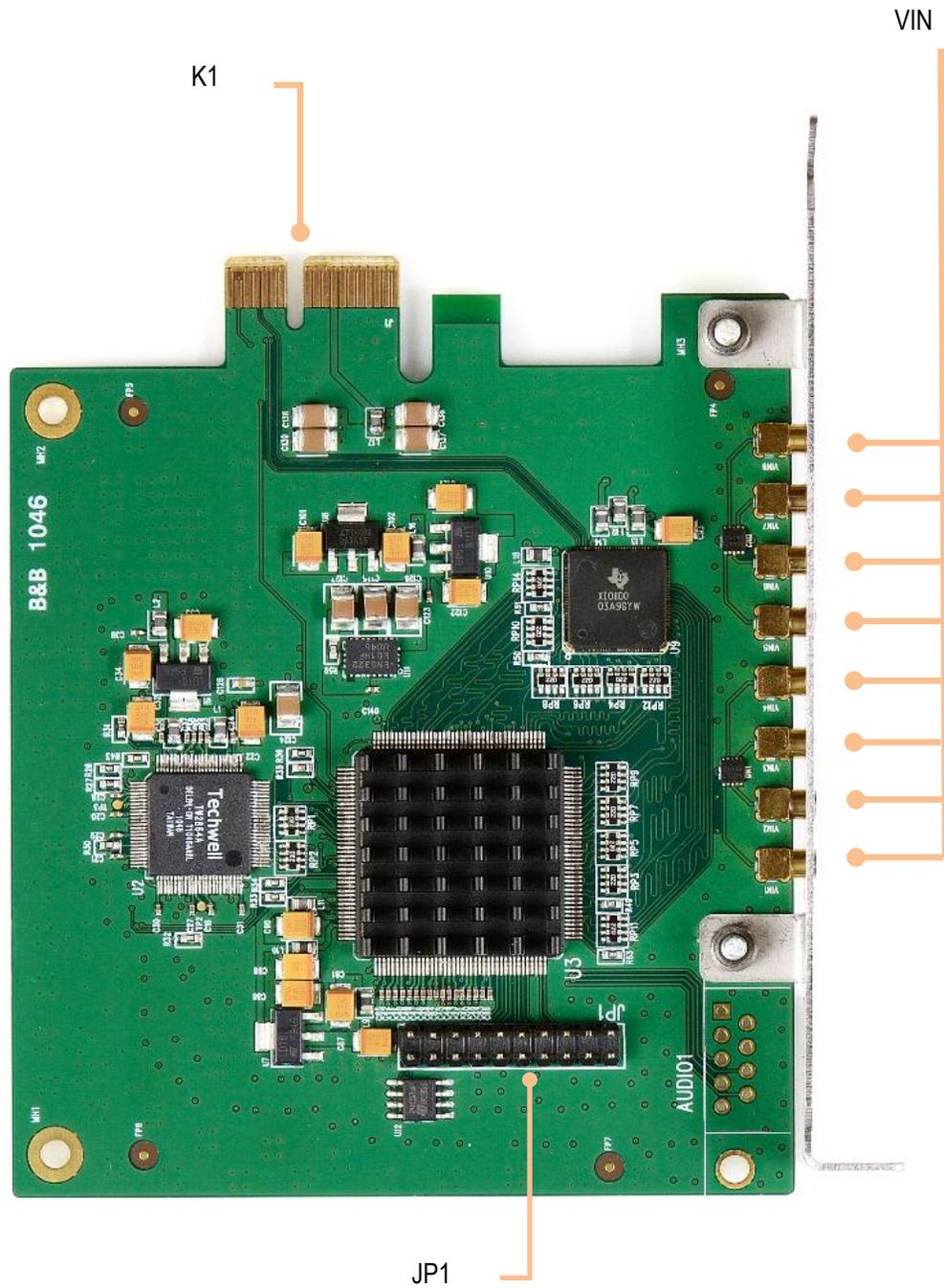
VIN   PAL/NTSC Video Input

Low profile MMCX Connectors for connecting video sources to the AVC8000S.

MMCX	Signal
VIN_A1	Channel 1 video input
VIN_A2	Channel 2 video input
VIN_A3	Channel 3 video input
VIN_A4	Channel 4 video input
VIN_A5	Channel 5 video input
VIN_A6	Channel 6 video input
VIN_A7	Channel 7 video input
VIN_A8	Channel 8 video input

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PCI - Express bus.

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Reserved for factory use.

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3:

AVC8000S Card Installation

This section describes AVC8000S hardware and software installation procedures. Software for the AVC8000S is provided on a CD.

The optional video input cables (from Cable-AVC8000S) should be plugged into VINx to provide live video input to the AVC8000S.

For most recent BIOS and operating system software, the AVC8000S is automatically detected.

Software driver installation should be done from the supplied CD.
Further instructions (and demo programs) for specific operating systems are provided on the driver CD.

Contacting

Sales

DELTA COMPONENTS's sales team is always available to assist you in choosing the board that best meets your requirements. Contact your local sales office or hotline.

Sales office Germany

DELTA COMPONENTS GmbH
Auweg 27
D-79761 Waldshut-Tiengen
Tel: +49 7751 8399 0
Fax: +49 7751 8399 99
E-mail: info@delta-components.de
Web: www.delta-components.de

Technical support

Comprehensive technical information is available on our websites (see above).

If you can't find the information or solution you require, DELTA COMPONENTS has a team of technical support engineers / embedded video experts available to provide a quick *and free* response to your technical queries.

Please submit your technical support query to the appropriate email address:

Technical support US

E-mail: support@delta-components.de

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