# Aexeon

*PCI and PCI Express video capture boards*

## Bus-mastering video acquisition board for general purpose OEM applications

Aexeon is a low-cost, full-featured video acquisition board for analog cameras. Available in either PCI or PCI Express formats, Aexeon incorporates a digital media processor and on-board frame buffer for reliable capture for the most demanding vision-related application. Aexeon's video input circuitry digitizes between multiple component, S-Video, or composite video signals in either square pixel or CCIR-601 resolutions. With plenty of I/O triggers and extensive camera control, Aexeon is the perfect frame grabber for cost-effective analog camera applications.

## Aexeon Features

- PCI or PCI Express formats
- Bus-mastering video acquisition
- Simultaneous real-time transfer of video to system memory, overlay, or display memory
- TI DM642 Digital Media Processor
- 32 MB SDRAM Frame Buffer
- High-quality 10-bit input digitization
- Video scaling to arbitrarily sized windows
- Up to 3 RGB or YPbPr, 4 S-Video, and 9 composite multiplexed video inputs
- RGB, YPbPr, S-Video, and composite video output
- CCIR and square pixel capture resolution
- NTSC and PAL video formats
- General purpose I/O triggers

- Programmable LUT
- Packed or planar transfers
- Area of interest transfers to/from system and on-board memory
- On-board microcontroller for robust timing and capture control
- RS-232 serial input and output
- Camera integration support
- 12-volt DC switched output for camera supply
- Real-time image processing
- Windows® XP, Vista, and 7 drivers
- Windows®-based video capture application
- DirectShow and TWAIN support
- Optional SDK with sample applications

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## Specifications

## PCI Express Support

Aexeon can be ordered in either PCI or PCI Express system interfaces allowing for system compatibility well into the future. PCI Express is the high-performance, next-generation interconnect that increases bandwidth, scalability, and reliability.

## Bus-Mastering Performance

Aexeon's high speed bus-mastering capability with scatter gather support delivers real-time video data to system or display memory simultaneously, without intervention from the host CPU. Video data formatting and resolution is independent between streams, allowing for maximum bandwidth flexibility.

## Digital Video Processor

By incorporating an on-board video processor, Aexeon enables maximum flexibility in handling challenging application requirements. Equipped with a 32 MB SDRAM frame buffer, the video processor provides video scaling, pixel formatting, interrupt support, hardware overlay, real-time video processing, and video output functionality.

## High-Quality Video Capture

Aexeon provides high-quality 10-bit capture from up to 3 RGB or PrPb component, 4 S-Video, or 9 composite/monochrome video sources in NTSC or PAL format. Video can be captured and stored in either square pixel or CCIR-601 resolutions, and can be scaled to any arbitrary size.

## Video Output

Aexeon also supplies RGB or YPrPb component, S-Video, or composite video outputs in NTSC or PAL format. Video output source data is acquired from on-board memory, making it completely independent of the video input. This allows for video output not only from the currently viewed input video, but also from off-screen system memory. Graphics overlay or image processing functions can be applied to the video image before going to the video output.

## Extensive Camera Control

Interfacing and controlling cameras with Aexeon is painless. Cameras can be accessed through Aexeon's on-board RS-232 serial interface and powered through a fused 12-volt power output. Aexeon has 8 programmable I/O triggers for camera integration or event triggering. Aexeon also incorporates an on-board microprocessor to guarantee accurate synchronization and robust triggering without relying on the host CPU.

## dVeloper Foundation Software Developers Kit

dVeloper is a comprehensive software developers kit that supports all dPict Imaging products, allowing for easy porting to new hardware. dVeloper is royalty free and runs under Microsoft Windows XP, Vista, and 7 operating systems. Source code samples and complete documentation are included in Visual C, C#, and Visual Basic .NET to provide insight to various hardware functions. Samples include video-in-a-window, overlay, video buffering, camera control, and more.

### Form Factor
- PCI or PCI Express form factor
- Scatter gather DMA support
- PCI 2.2 compliant, 5V and 3,3V universal slot
- PCI Express x1 connector

### Video Inputs
- Up to 9 composite or monochrome inputs
- Up to 4 S-Video inputs
- Up to 3 RGB or YPbPr component input

### Video Digitization
- NTSC (J, M, 4.43), PAL (B, D, G, H, I, M, N, Nc, 60), and SECAM (B, D, G, K, K1, L) support
- High-quality 10-bit digitization
- Square pixel and ITU-601 resolution support
- Software programmable control of gain, offset, hue, saturation, and sharpness
- EEPROM for storing configuration and calibration settings

### Video Acquisition
- Video scaling to randomly-sized windows
- Bus-mastering video transfers to system memory, overlay, or display memory simultaneously.
- Hardware overlay of graphics over video
- RGB 32/24/16/15/8 and YUV 4:2:2 pixel formats
- Area of interest transfers to on-board and system memory
- 32 MB SDRAM frame buffer
- Extensive interrupt control for robust capture
- Real-time image flip, mirror, or rotate

### Video Output
- Composite, S-Video, and component video output
- Output video can be from video overlay, system memory, or display memory

### I/O Control
- 8 general purpose I/O triggers
- Triggers programmable as input or output

### Camera Control
- On-board microcontroller for reliable capture and control
- RS-232 serial interface
- Camera exposure control
- 12-volt fused DC output for camera power supply

### Physical and Environmental
- 5.00"(length) x 4.20" (height)
- Operating temperature: 0° C to 70° C
- Relative humidity: 5% up to 95% non-condensing
- FCC and CE approved

### Available Software Developers Kit
- Compatible with dVeloper SDK
- Windows® XP, Vista, and 7 DLLs
- DirectDraw and DirectShow support
- TWAIN support
- Extensive documentation and sample code
- dPiction Windows-based capture application
- Sample applications with source code

### Ordering Information
- Aexeon PCI: 10011
- Aexeon PCI Express: 10012
- dVeloper Foundation SDK: 90010

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