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FORESIGHT IMAGING®

AccuStream Express HD 75+

Key Features:

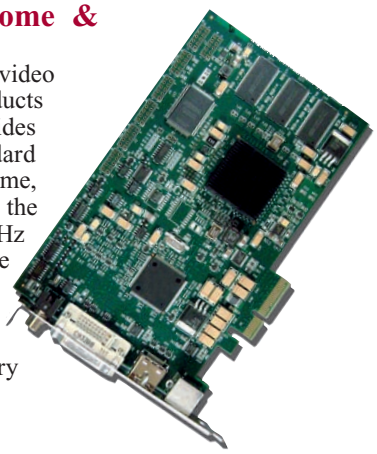
Extreme Accuracy
- ±0.5 ns pixel jitter
- 59 dB S/N ratio
- 8 or 10 bit monochrome
- 24 bit color
- Gain, black level, and phase adjustments

High Performance
- Real-time video streaming with AVI file creation
- 750 MB/second sustained PCI Express x4 bus transfers
- Simultaneous real-time transfer to memory and display

Video
- Up to 75 MHz pixel rate
- Up to 2048 x 2048
- Includes 720p, 1080i and VGA through XGA
- Non-standard and standard video inputs
- DVI, RGB, YPbPr, HDTV, S-video, composite color & monochrome
- Connectors: HDMI-style DVI, DVI-I, S-video

Software
- Windows 7, XP, Vista
- Auto-SYNC
- WDM driver, Linux driver
- Example programs with source code

High Resolution DVI, RGB, HDTV, Monochrome & Standard Definition Video Formats



The AccuStream™ Express Series of frame grabbers and video streamers are the most advanced, most versatile series of products from Foresight Imaging. AccuStream Express HD 75+ provides video capture from all popular high resolution and standard definition video sources: DVI, RGB, YPbPr, HDTV, monochrome, S-video and composite color. Physical input connectors on the board are HDMI-style DVI, DVI-I, and S-video. Up to 75 MHz pixel rates and up to 2048 x 2048 pixel resolution are supported. The extreme performance of AccuStream Express HD 75+ is due to the PCI Express x4 bus design, delivering sustained performance to system memory of 750 MB/second. For example, AccuStream Express HD 75+ can stream to memory 720p & 1080i HDTV video without dropping any frames.

Accuracy

The AccuStream Express HD 75+ can deliver extreme accuracy and image quality for demanding customers with high resolution and precision applications. Extremely low pixel jitter of ±0.5 ns, superior analog design, and a 59 dB signal-to-noise ratio provide the accuracy and image fidelity required of high performance applications. For superior quality, 10 bit analog-to-digital converters are used throughout. Color video may be stored as 24 bit, and monochrome video at 8 or 10 bit. Pixel formats include RGB 24, RGB 32, RGB 5:5:5, RGB 8, YCbCr 4:2:2, YCbCr 4:4:4, 8 bit monochrome, and 10 bit monochrome.

Performance

AccuStream Express HD 75+ can achieve extreme 750 MB/second sustained performance via its PCI Express x4 bus mastering design, scatter-gather technology, and double buffering. This high performance requires minimal CPU intervention so that the processor is free to work on other tasks or process the data immediately. Real-time display is simultaneously enabled by real-time transfer of image data directly to display card memory over the bus. AccuStream Express HD 75+ also features independent, dual video data paths, allowing for the simultaneous Direct Draw display of YCbCr 4:2:2 color video and the transfer of full 24 bit RGB video data for processing.

Video

AccuStream Express HD 75+ acquires images and video streams from both non-standard and standard video inputs from DVI, RGB, YPbPr, HDTV, S-video, composite color, and monochrome sources. Video input connectors on the board include an HDMI-style DVI connector (for DVI-D input), a DVI-I connector (for DVI-D, DVI-A, RGBHV, & monochrome inputs), and a S-video connector (for S-video & composite color inputs). Input resolution is up to 4 megapixels total area and pixel rates are up to 75 MHz. For fine-tuning of the video signal, gain, black level, white balance, and phase controls are provided. Separate H and V sync are supported. An external trigger is available. AccuStream Express HD 75+ is fully compliant with the DVI 1.0 specification.

Software

AccuStream Express HD 75+ is supported by Auto-SYNC™, Foresight Imaging's flagship automatic configuration software. Auto-SYNC ensures quick and simple installation and image capture by automatically configuring AccuStream Express HD 75+ to the incoming standard or non-standard video signal. Auto-SYNC automatically analyzes the incoming video signal and builds a configuration file. Use the configuration file as created or utilize the Auto-SYNC Wizard for simple, step-by-step video adjustments. AccuStream Express HD 75+ is supported by the IDEA (Imaging Development Environment for Applications) software development kit. By using IDEA™, developers have the confidence of knowing that they can write their applications once and have support built-in for the entire AccuStream Series. TWAIN, WDM, and VFW drivers are included to further simplify development and use of AccuStream Express HD 75+. With IDEA, ActiveX controls are provided to facilitate easy development with Visual Basic, Visual C++, and Visual J++. Extensive example programs (with source code) are provided with IDEA. Functions of the example programs include triggered acquisition, video streaming to AVI files, integration with Pegasus Imaging compression for streaming, overlays, and much more. Auto-SYNC, IDEA, example programs, and drivers are provided free of charge with each AccuStream Express HD 75+. Linux drivers are also available.

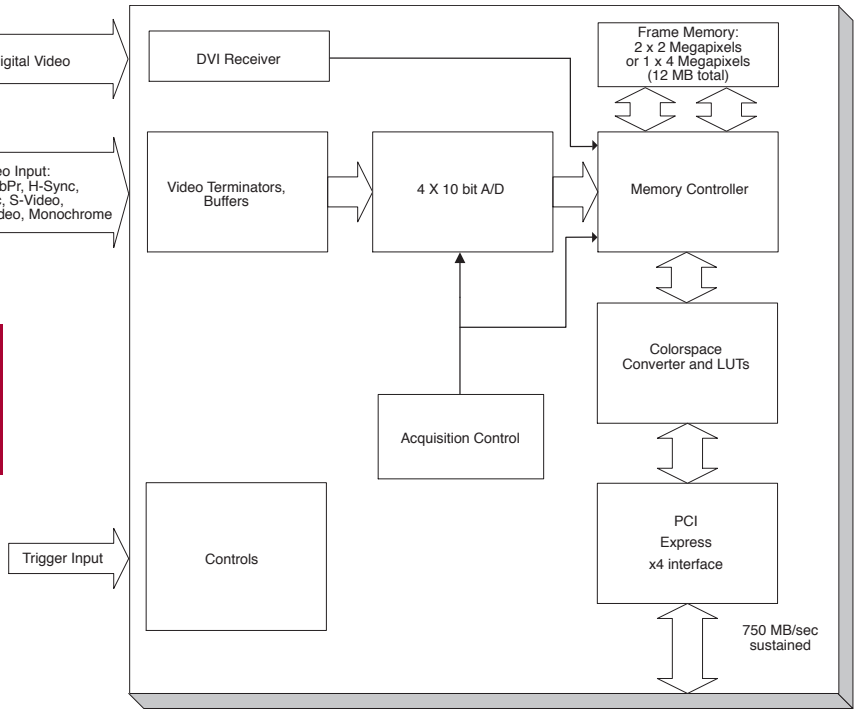
Applications

AccuStream Express HD 75+ is the ideal board for any application requiring the flexibility of acquiring from virtually any analog or digital video input. For example, with many medical imaging applications, any of several video inputs may be required. With AccuStream Express HD 75+, you are ready for any of the high resolution or standard definition video sources up to 75 MHz, including 1080i & 720p, with one inexpensive frame grabber and video streamer.

Flight simulation: Acquire from high resolution simulation displays.
Medical imaging: Acquire from any medical imaging device.
Display monitoring: Acquire from high resolution displays.
Military imaging: Acquire from high resolution video screens for command & control.
Multimedia: Acquire from any HDTV or standard definition device.

AccuStream Express HD 75+ Specifications

AccuStream Express HD 75+ Block Diagram



Video - Analog

- Video input: RGB, YPbPr, S-video, composite color, or monochrome (up to three)
- Non-standard and standard video resolutions and frequencies
- Input range: 0.5 V pp to 1.0 V pp
- Offset: -1.0 V to 2.0 V DC
- 75 ohm termination
- Gain, black level, white balance, phase adjustment
- AC coupled with DC restoration
- H and V sync input
- Bandwidth: 330 MHz
- Pixel rate: up to 75 MHz
- Horizontal frequency: up to 105 kHz
- Pixel resolution: up to 4 megapixels total area, includes up to 720p, 1080i and from VGA to XGA 1024 x 768 at 70 Hz

Video - Digital

- DVI 1.0 compatible receiver
- Includes up to 720p, 1080i and from VGA to XGA 1024 x 768 at 70 Hz
- The receiver operates with true color (24-bit) panels in 1 or 2 pixel(s)/clock mode and features an intrapair skew tolerance of up to one full clock cycle
- Up to 75 MHz DVI

Image Quality

- Pixel jitter: ±0.5 ns
- S/N ratio: 59 dB
- Linearity: Better than 99%
- Gain and offset stability: 1% from 15°C to 40°C
- Synchronization time: less than 250 µs
- A/D conversion: 8 bits each of R, G, & B (24 bits per pixel), 24 bits YPbPr, 8 or 10 bits monochrome
- Color formats: RGB 24, RGB 32, RGB 5:5:5, RGB 8, YCbCr 4:2:2, YCbCr 4:4:4, 8 or 10 bits monochrome

Performance

- 750 MB/second sustained to system memory via PCI Express x4 bus master
- Real-time video streaming
- Real-time transfer to VGA memory
- Storage memory: 4 megapixels, 12 MB total

Physical

- Half-size PCI Express card (length 6.6 inches, height: 4.2 inches)
- One female HDMI-style DVI connector
- One female DVI-I connector
- One female S-video connector
- One female phono connector for trigger
- PCI Express x4

Cabling

- HDMI to HDMI cable (optional)
- DVI to DVI cable (optional)
- DVI to VGA cable (15 pin D-shell) (optional)
- DVI to VGA cable (5 BNC) (optional)
- S-video cable (optional)
- S-video adaptor (optional)
- DVI to HDMI cable (optional)
- DVI to VGA adaptor (optional)
- DVI to HDMI adaptor (optional)
- DVI to BNC adaptor (optional)
- Trigger adaptor (optional)

Software

- Windows 7, XP, Vista; 32 & 64 bit
- WDM driver
- VFW driver
- Auto-SYNC automatic configuration software
- Example application programs (source code included)
- Real-time video streaming with AVI file creation
- IDEA software development kit
- ActiveX controls
- TWAIN driver
- Linux driver

Controls

- Trigger input

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