FORESIGHT IMAGING™

I-50 HSN

Key Features:

Extreme Accuracy
- ±1.0 ns pixel jitter
- 8 or 10 MSB of 12 bits
- 62 dB S/N ratio
- 12 bit gain, 12 bit black level, and phase adjustments

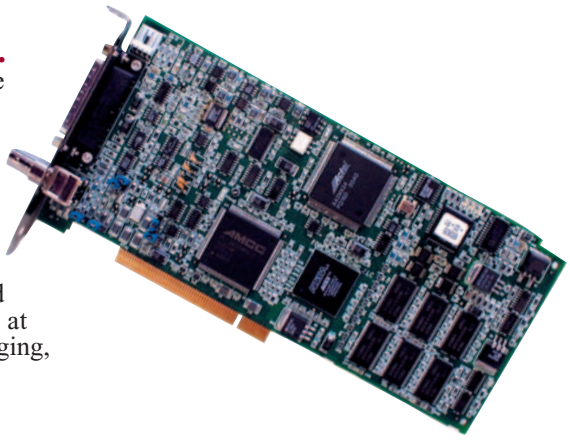
Extreme Performance
- Real-time video streaming with AVI file creation
- 120+ MB/second sustained PCI bus transfers
- Simultaneous real-time transfer to memory and display
- Independent, dual video data paths

Video
- Up to 50 MHz pixel rate
- Up to 2,048 x 2,048 pixel resolution
- 4 monochrome video inputs
- 3-pass RGB input

Controls
- Dedicated trigger input
- H and V sync input/output
- Camera power
- Camera controls
- Digital I/O

Software
- Windows XP/2000/NT
- Auto-SYNC
- Software compatible across I-Series and HI*DEF family
- IDEA SDK
- Video for Windows and TWAIN drivers
- Example programs with source code

Applications:
- Medical Imaging
- Machine Vision
- Scientific Imaging



Accuracy. Performance. Price.

Until now, you could achieve only one or possibly two. With Foresight Imaging, there is no compromise: Choose any three. Extreme accuracy, high performance, and low price. The Foresight Imaging I-50™ HSN member of the I-Series™ of frame grabbers and video streamers, is a high accuracy, high performance image capture board with advanced capabilities targeted at demanding applications in medical imaging, machine vision, and scientific imaging.

Accuracy

Any demanding imaging application requires the highest quality image. Continuing in the Foresight Imaging tradition of high accuracy, the I-50 HSN delivers extreme image quality with very low pixel jitter of ±1.0 ns, superior analog design, and a 62 dB S/N ratio. This is 3 dB better than the standard I-50 board due to the use of a precision 12 bit A/D converter. This superior S/N ratio enables highly sensitive imaging applications to deliver the best in signal integrity on a per pixel basis. The I-50 HSN stores the 8 or 10 most significant bits of the 12 bits digitized.

Performance

With its high-speed PCI bus mastering, scatter-gather technology, and double buffering, the I-50 HSN delivers over 120 MB/second sustained transfers to system memory. This high performance requires minimal CPU intervention so that it is free to work on other tasks or process the incoming data immediately. Consecutive video images are transferred in real-time to system memory enabling real-time video streaming applications, such as cine loop cardiology, to utilize the power of the I-50 HSN. Real-time display is simultaneously enabled by real-time transfer of image data directly to display card memory over the PCI bus. The I-50 HSN also features independent, dual video data paths. For example, this allows the simultaneous display of YUV 4:2:2 formatted video for display and the transfer of full resolution 10 bit monochrome video for processing.

Controls

In addition to breakthrough performance and accuracy, the I-50 HSN provides the digital controls and camera controls that many imaging applications demand: a strobe control selectable between optically isolated and TTL, separate camera power, a dedicated trigger input, a dedicated high current digital output, H and V sync input/output, and general purpose digital I/Os (for camera exposure control or other digital I/O uses).

Video

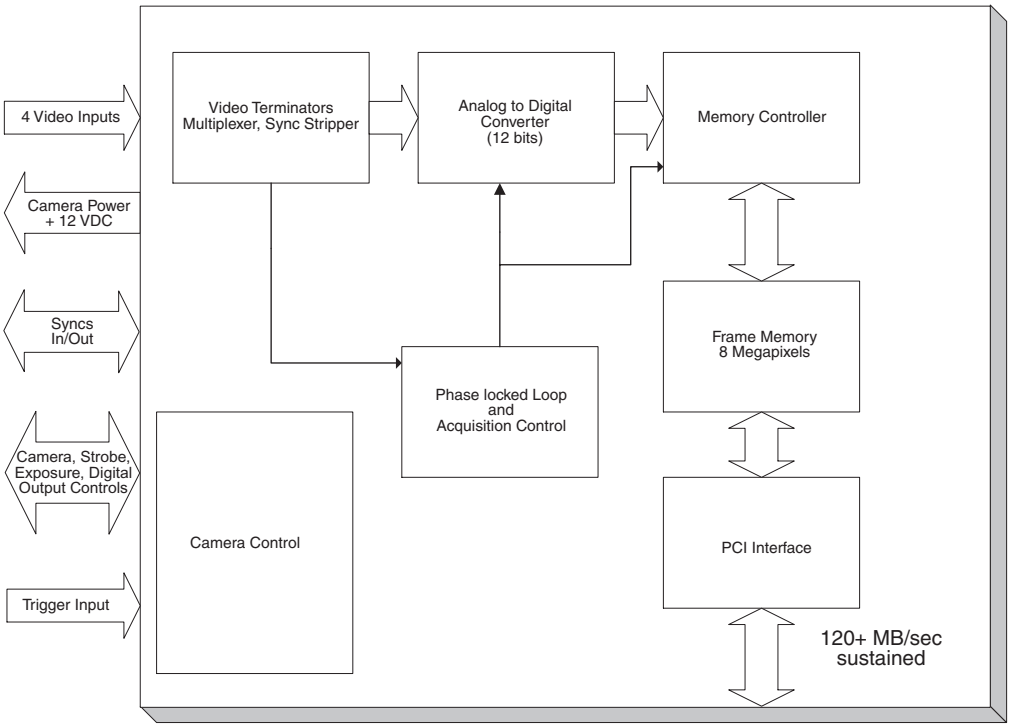
The I-50 HSN supports a variety of cameras and medical input devices up to 2,048 x 2,048 pixel resolution and up to 50 MHz pixel rates. Both interlaced and non-interlaced video formats are supported. The I-50 HSN supports four monochrome video inputs, separate H and V sync input/output, and external triggering. In addition, 12 bit gain, 12 bit black level, and phase controls are available for fine-tuning of the video signal to attain the highest possible image quality.

Software

I-Series 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 I-Series to the incoming video signal. This includes both standard and non-standard video signals. 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. If the incoming video signal is a standard VESA display type, Auto-SYNC's VESA mode can be used to match up to a database of configuration files in a matter of seconds. This speeds board configuration and ensures high quality video acquisition. I-Series 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, I-Series™, and HI*DEF™ product families. A Video for Windows driver and a TWAIN driver are included to further simplify development and use of the I-Series. 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, integration with third party DICOM software, overlays, and much more. Auto-SYNC, IDEA, example programs, and drivers are provided free of charge with each I-Series board.

I-50 HSN Specifications

I-50 HSN Block Diagram



Video

- 4 video inputs, 0.6 V pp to 2.0 V pp
- Offset: -1.0 V to 2.0 V DC
- 75 ohm termination
- 12 bit gain, 12 bit black level, phase adjustment
- AC coupled with DC restoration
- Composite sync (analog or TTL)
- H and V sync input/output
- Standard and non-standard video signals
- Bandwidth: 100 MHz
- Pixel rate: Up to 50 MHz
- Horizontal frequency: Up to 105 kHz
- Horizontal resolution: Up to 2,048 total pixels per line
- Vertical resolution: Up to 2,048 total lines
- Horizontal delay: 12 bit register with resolution of 1 pixel
- Vertical delay: 12 bit register with resolution of 1 line

Image Quality

- Pixel jitter: ±1.0 ns pixel jitter
- S/N ratio: 62 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: 12 bits per pixel, 8 or 10 MSB of 12 bits stored

Controls

- Dedicated trigger input
- Dedicated high current digital output
- Strobe interface, selectable between optically isolated and TTL
- General purpose TTL digital I/Os
- Camera power: +12 V DC @ 1.0 A

Performance

- Over 120 MB/sec sustained to system memory via PCI bus master
- Real-time video streaming
- Real-time transfer to VGA memory
- Independent, dual video data paths
- Storage memory: 8 Megapixels; double buffered

Physical

- Full size PCI card
- One female BNC connector
- One female 25 pin D-shell connector

Cabling

- Standard BNC cable (user provided)
- I-Series general purpose cable (optional)
- I-Series multi-BNC cable (optional)
- I-Series machine vision cable (optional)

Software

- Windows XP, 2000, NT
- Video for Windows 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

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