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FORESIGHT IMAGING™

I-RGB 165 & I-RGB 200

Key Features:

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

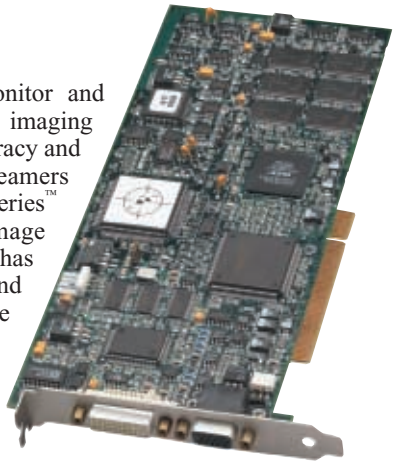
High Performance
- Real-time video streaming with AVI file creation
- 120+ MB/second sustained PCI bus transfers
- Simultaneous real-time transfer to memory and display

Video
- Up to 200 MHz pixel rate
- Up to 4 megapixels input resolution
- Includes 1600 x 1200 x 75 Hz & 1280 x 1024 x 85 Hz
- Non-standard and standard video inputs
- 24 bit RGB; monochrome
- RGB output (loop-through)
- H and V sync input/output

Controls
- Dedicated trigger input
- Dedicated high current digital output

Software
- Windows XP/2000/98/NT
- Auto-SYNC
- Software compatible across I-Series and HI*DEF family
- IDEA SDK
- Common Vision Blox, Image-Pro Plus, and TWAIN drivers
- Example programs with source code

Applications:
- Maritime navigation systems
- Military imaging
- Radar displays
- Monitor/display testing
- Medical imaging
- High resolution imaging



Overview
Designed specifically for maritime navigation systems, monitor and display testing, and other high resolution component RGB imaging applications, I-RGB 165™ and I-RGB 200™ are the highest accuracy and highest performance RGB frame grabbers and video streamers available. I-RGB 165 and I-RGB 200 are based on the I-Series™ architecture, guaranteeing the same industry-leading image accuracy and bus transfer performance that Foresight Imaging has built its reputation upon with the I-Series of frame grabbers and video streamers. Further, I-RGB 165 and I-RGB 200 include Auto-SYNC™, the revolutionary automated video analysis software for both non-standard and standard video sources.

Accuracy
I-RGB 165 and I-RGB 200 deliver the extreme accuracy and image quality that demanding customers with high resolution, high speed imaging applications require. Extremely low pixel jitter of ±0.5 ns, superior analog design, and a 47 dB S/N ratio provide the accuracy and precision needed in high performance applications. Color video digitization is performed at 8 bits each of R, G, and B (24 bits per pixel). Y-only monochrome acquisitions are at 8 bits per pixel. Color formats include RGB 8:8:8, RGB 5:5:5, and YUV 4:2:2.

Performance
As a member of the I-Series of frame grabbers and video streamers, I-RGB 165 and I-RGB 200 have the identical high-speed PCI bus mastering, scatter-gather technology, and double buffering. This leading technology delivers over 120 MB/second sustained transfers to system memory. Such high performance requires minimal CPU intervention so that it is free to work on other tasks or process the incoming data immediately. Video streaming applications such as display monitoring are enabled subject to the 120 MB/second sustained PCI bus transfers. Real-time display is simultaneously enabled by real-time transfer of image data directly to display card memory over the PCI bus. I-RGB 165 and I-RGB 200 also feature independent, dual video data paths. For example, this allows the simultaneous display of YUV 4:2:2 color video and the transfer of full 24 bit RGB video data for processing.

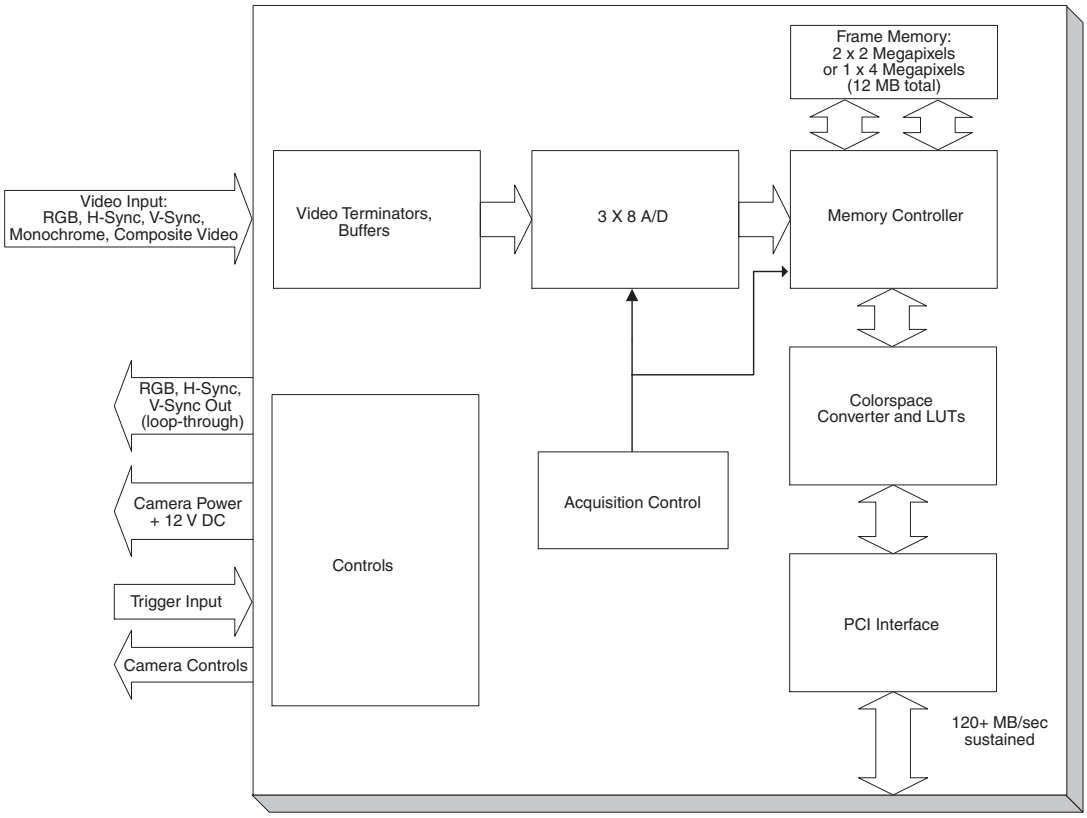
Video
I-RGB 165 and I-RGB 200 acquire images and video streams from both non-standard and standard video inputs up to 165 MHz and 200 MHz respectively via a DVI-analog connector. Input resolution is up to 4 megapixels total area for single buffered acquisition mode and up to 2 megapixels for double buffered acquisition mode. Active RGB loop-through output is provided via a 15 pin D-shell connector (VGA type). I-RGB 165 and I-RGB 200 also provide H and V sync input/output. For fine tuning of the video signal, 8 bit gain, 8 bit black level, white balance, and phase controls are available. LUTs are available on each of the R, G, B, and Y-only channels.

Controls
In addition to its leading accuracy and performance, I-RGB 165 and I-RGB 200 provide the controls necessary for integrating demanding imaging applications. These controls include a dedicated trigger input, separate camera power, a dedicated high current digital output, and camera integration control.

Software
But what is superior hardware without excellent software? Consistent with Foresight Imaging's history of complete, easy-to-use software, I-RGB 165 and I-RGB 200 are 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-RGB 165 and I-RGB 200 to the incoming video signal. Included with Auto-SYNC are full video adjustment capabilities to fine-tune the incoming video signal including gain, black level, phase, resolution, and much more. An Auto-SYNC wizard is also included for step-by-step automated video adjustments. I-RGB 165 and I-RGB 200 are 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 application once and have support built-in for the entire I-Series (both current and future) and HI*DEF product families. Eliminated forever is the need to re-write software every time a new frame grabber-related requirement arises or a new board is introduced. The software compatibility built into the architecture of IDEA allows the simple movement to other products in the I-Series or HI*DEF family. 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 I-RGB 165 and I-RGB 200. Functions of the example programs include triggered acquisition, video streaming to AVI files, integration with Pegasus Imaging compression for streaming, integration with Medicor Imaging DICOM software, overlays and more. For users with higher-level application requirements, drivers are available for Common Vision Blox, Image-Pro Plus, and TWAIN.

I-RGB 165 & I-RGB 200 Specifications

I-RGB 165 & I-RGB 200 Block Diagram



Video

- Video input: RGB, composite video, monochrome
- 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
- 8 bit gain, 8 bit black level, white balance, phase adjustment
- AC coupled with DC restoration
- Composite sync (analog or TTL)
- Bandwidth: 300 MHz
- Pixel rate: up to 200 MHz (165 MHz for I-RGB 165)
- Horizontal frequency: up to 105 kHz
- Pixel resolution: up to 4 megapixels total area in single buffered acquisition mode; up to 2 megapixels total area in double buffered acquisition mode
- H and V sync input/output

Image Quality

- Pixel jitter: ±0.5 ns
- S/N ratio: 47 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)
- Color formats: YUV 4:2:2; RGB 5:5:5; RGB 8:8:8; Y-only

Controls

- Dedicated trigger input
- Camera power: +12 V DC @ 1.0 A
- Camera integration
- Dedicated high current digital output

Performance

- 120+ MB/second sustained to system memory via PCI bus master
- Real-time video streaming
- Real-time transfer to VGA memory
- Storage memory: 2 x 2 megapixels in double buffered acquisition mode; 1 x 4 megapixels in single buffered acquisition mode; 12 MB total

Physical

- Three-quarters size PCI card
- One female DVI-analog input connector
- One female 15 pin D-shell output connector (VGA type)

Cabling

- I-RGB DVI-analog to DVI-analog cable (optional)
- I-RGB DVI-analog to VGA cable (optional)
- I-RGB DVI-analog to multi-BNC cable (optional)

Software

- Windows XP, 2000, 98, NT
- 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
- Common Vision Blox, Image-Pro Plus, and TWAIN drivers

FORESIGHT IMAGING™

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