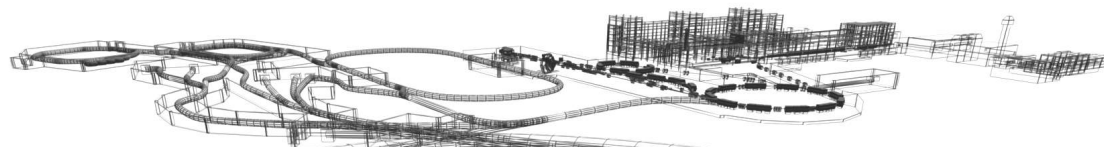


# IonBeamVIEW



Readout of IMAQ & IMAQdx cameras

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EE-Meeting 29.11.2010

# Measurement & Automation Explorer

HTCam\_0 : Prosilica GC655M (02-2115A) - Measurement & Automation Explorer

Save Revert Snap Grab Histogram Save Image Hilfe ausblenden

Mein System

- Datenumgebung
- Geräte und Schnittstellen
  - GPB0 (GPB-USB-HS)
  - NI DAQCard-6062E "Dev1"
  - NI USB-6212 "Dev2"
  - NI PXI-1033 "Chassis 1"
- Netzwerkgeräte
- NI-IMAQ Devices
  - img0 : NI PXI-1409
    - Channel 0: PAL
    - Channel 1: RS-170
    - Channel 2: RS-170
    - Channel 3: RS-170
  - NI-IMAQdx Devices
    - HB\_WebCam : Logitech QuickCam Pro
    - HTCam\_0 : Prosilica GC655M (02-2115)
    - HTCam\_1 : Prosilica GC655M (02-2115)
    - HTCam\_2 : Prosilica GC655M (02-2115)
- PXI System (Unidentified)
- Serial & Parallel
- Traditionelle NI-DAQ-Geräte
- Historische Daten
- Skalierungen
- Software
- IVI Drivers
- Netzwerkumgebung

659x493 0.5X 16-bit image 138

Collapse All Refresh View Options Hide Help

**Acquisition Attributes**

| Camera Attributes         |             |
|---------------------------|-------------|
| <b>AcquisitionControl</b> |             |
| AcquisitionMode           | Continuous  |
| AcquisitionFrameCount     | 1           |
| AcquisitionFrameRateAbs   | 89.5896793  |
| AcquisitionFrameRateLimit | 66.2163952  |
| RecorderPreEventCount     | 0           |
| TriggerSelector           | FrameStart  |
| TriggerMode               | Off         |
| TriggerSoftware           |             |
| TriggerSource             | Line2       |
| TriggerActivation         | RisingEdge  |
| TriggerDelayAbs           | 0.000000000 |
| <b>StreamHold</b>         |             |
| <b>Bandwidth</b>          |             |
| StreamBytesPerSecond      | 115000000   |

StreamHold

Camera Informat... Acquisition Attrib... Camera Attributes Bayer Color Ethernet Attributes

Frames per second: 66, 4225651 (displayed, acquired)

**NI-IMAQdx Basics**

What do you want to do?

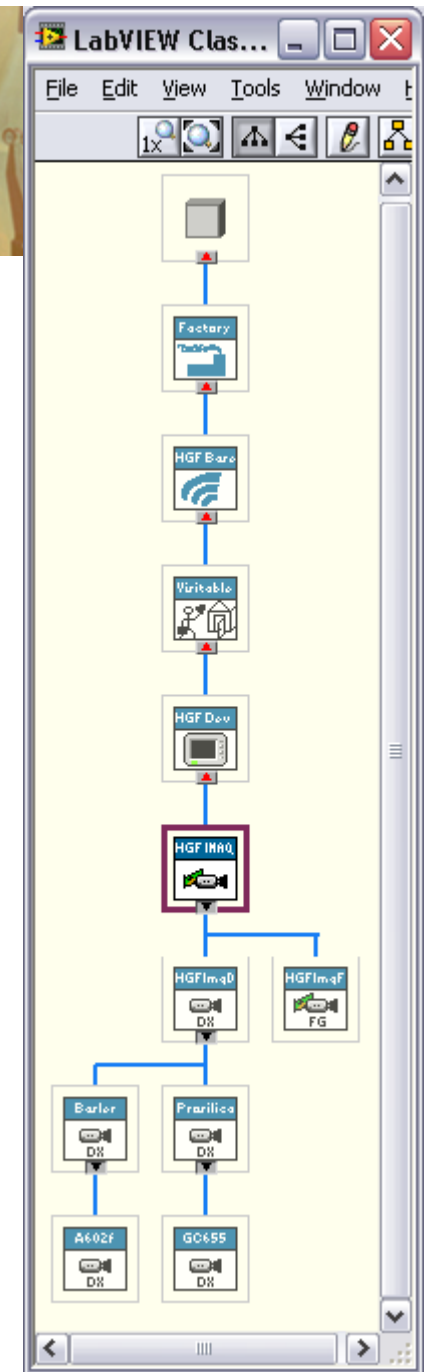
- [Connect my camera](#)
- [Configure my device](#)
- [Set my remote image options](#)

Refer to the following topics for information about using the image viewer in MAX:

- [Zooming](#)
- [Panning](#)
- [Palettes](#)

# HGF\_ImaqDevice Class

- HGF\_Device
  - HGF\_ImaqDevice
    - HGF\_ImaqFg: IMAQ-Driver
      - Framegrabber (NI PXI-1409)
      - CameraLink
    - HGF\_ImaqDx
      - » Firewire (Basler A602f)
      - » GigE (Prosilica GC655)
      - » USB (DirectX 9) (Logitech WebCam)
    - HGF\_Basler
      - » HGF\_Basler\_A602f
    - HGF\_Prosilica
      - » HGF\_Prosilica\_GC655



# Cameras Selection & Configuration

[General]

ImageStreamingPath="F:\tmp\Images"

[Camera Aliases]

img0=True

HB\_WebCam=False

HTCam\_0=True

HTCam\_1=False

HTCam\_2=False

[HTCam\_0]

ClassName=HGF\_Prosilica\_GC655

ImageType=1

Configuration="F:\HTCam\_0\_FreeRun.ini"

Background="F:\HTCam\_0\_BG.png"

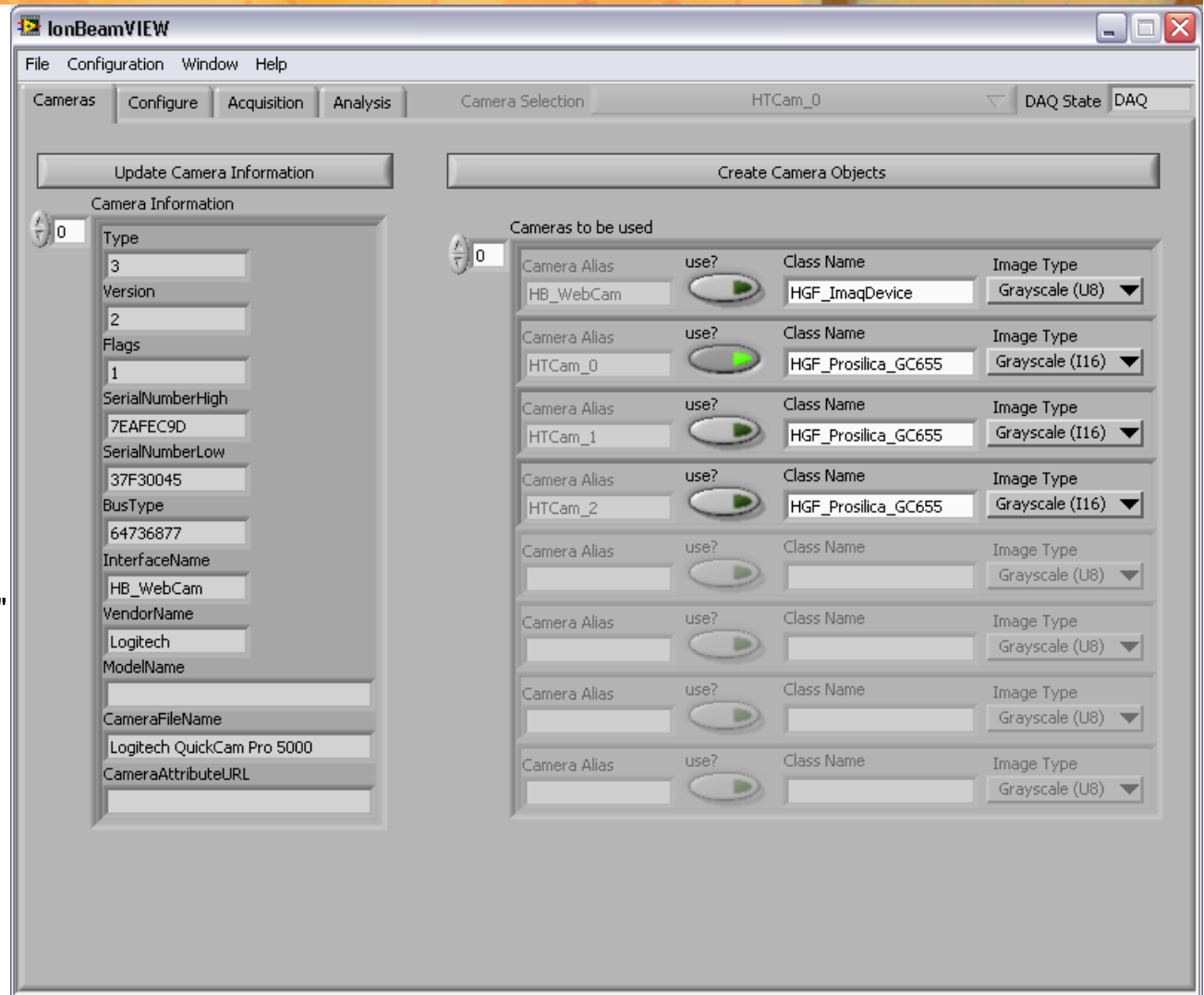
Scale\_X=0,1059322033898

Scale\_Y=0,1059322033898

Center\_X=100

Center\_Y=100

Center\_R=10



# Camera Attribute Tree

HGF\_VisionTools.lvlib:ImaqAttributeTreeGUI.vi rev. 7

HTCam\_0

Attribute Table

| Attribute                     | Value       |
|-------------------------------|-------------|
| Acquisition Attributes        |             |
| Advanced Ethernet             |             |
| Bandwidth Control             |             |
| Actual Peak Bandwidth         | 1000        |
| Desired Peak Bandwidth        | 1000        |
| Controller                    |             |
| Destination Mode              | Unicast     |
| Destination Multicast Address | 239.192.0.1 |
| Event Parameters              |             |
| Events Enabled                | true        |
| Max Outstanding Events        | 50          |
| Lost Packet Mode              | Ignore      |
| Resend Parameters             |             |
| Max Resends Per Packet        | 25          |
| Memory Window Size            | 1024        |
| Missing Packet Timeout        | ?           |

U32 DBL String Enum Bool Command

DBL Value Control

1000 800 600 400 200 1E-6

1000

Units

Mbits/sec

Tooltip

Gets/sets the desired maximum peak bandwidth the camera should use.

Load Save Close



# Camera File (excerpt)

[NIIMQ\_HEADER]

Type = 2

Version = 8

[CAMERA\_DATA]

AcquisitionAttributes::AdvancedEthernet::BandwidthControl::DesiredPeakBandwidth = "1000"

AcquisitionAttributes::AdvancedEthernet::EventParameters::MaxOutstandingEvents = "50"

AcquisitionAttributes::AdvancedEthernet::LostPacketMode = "Ignore"

AcquisitionAttributes::Bayer::GainB = "1"

AcquisitionAttributes::Bayer::GainG = "1"

AcquisitionAttributes::Bayer::GainR = "1"

AcquisitionAttributes::Bayer::Pattern = "Use hardware value"

AcquisitionAttributes::BitsPerPixel = "Use hardware value"

AcquisitionAttributes::ChunkDataDecoding::ChunkDataDecodingEnabled = "false"

AcquisitionAttributes::ChunkDataDecoding::MaximumChunkCopySize = "64"

AcquisitionAttributes::IgnoreFirstFrame = "false"

AcquisitionAttributes::OverwriteMode = "Get Newest"

AcquisitionAttributes::PacketSize = "1500"

AcquisitionAttributes::PixelSignedness = "Signed"

AcquisitionAttributes::ReceiveTimestampMode = "None"

AcquisitionAttributes::ShiftPixelBits = "false"

AcquisitionAttributes::SwapPixelBytes = "false"

AcquisitionAttributes::Timeout = "5000"

CameraAttributes::AcquisitionControl::AcquisitionFrameCount = "1"

CameraAttributes::AcquisitionControl::AcquisitionFrameRateAbs = "1.0085596457131676"

CameraAttributes::AcquisitionControl::AcquisitionMode = "Continuous"

CameraAttributes::AcquisitionControl::RecorderPreEventCount = "0"

CameraAttributes::AcquisitionControl::StreamHold::StreamHoldEnable = "Off"

CameraAttributes::AcquisitionControl::TriggerActivation = "RisingEdge"

CameraAttributes::AcquisitionControl::TriggerDelayAbs = "0"

CameraAttributes::AcquisitionControl::TriggerMode = "Off"

CameraAttributes::AcquisitionControl::TriggerSelector = "FrameStart"

CameraAttributes::AcquisitionControl::TriggerSource = "Freerun"

CameraAttributes::Bandwidth::BandwidthControlMode = "StreamBytesPerSecond"

CameraAttributes::Bandwidth::StreamBytesPerSecond = "115000000"

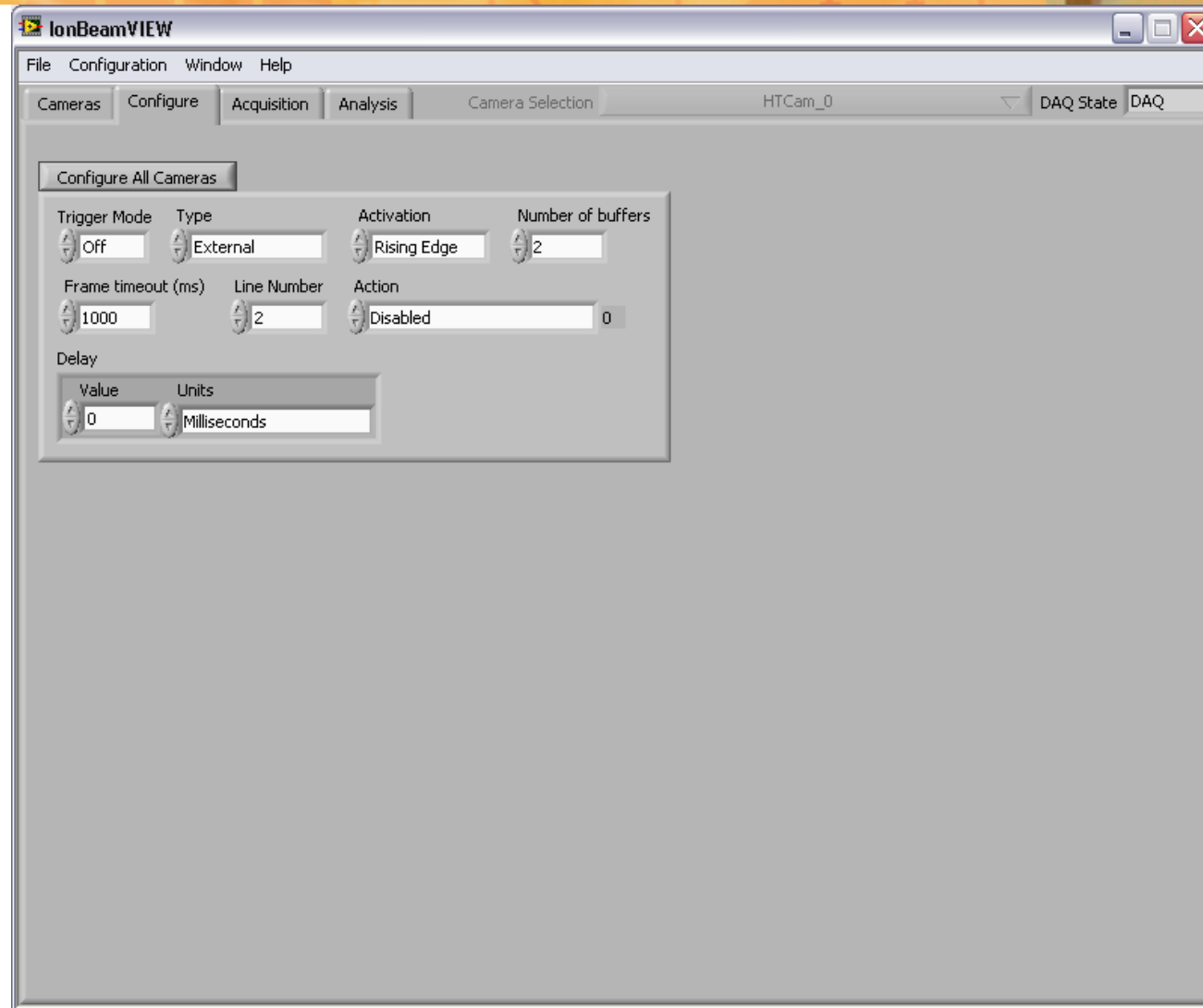
CameraAttributes::FeatureControl::ExposureAuto = "Off"

CameraAttributes::FeatureControl::ExposureMode = "Timed"

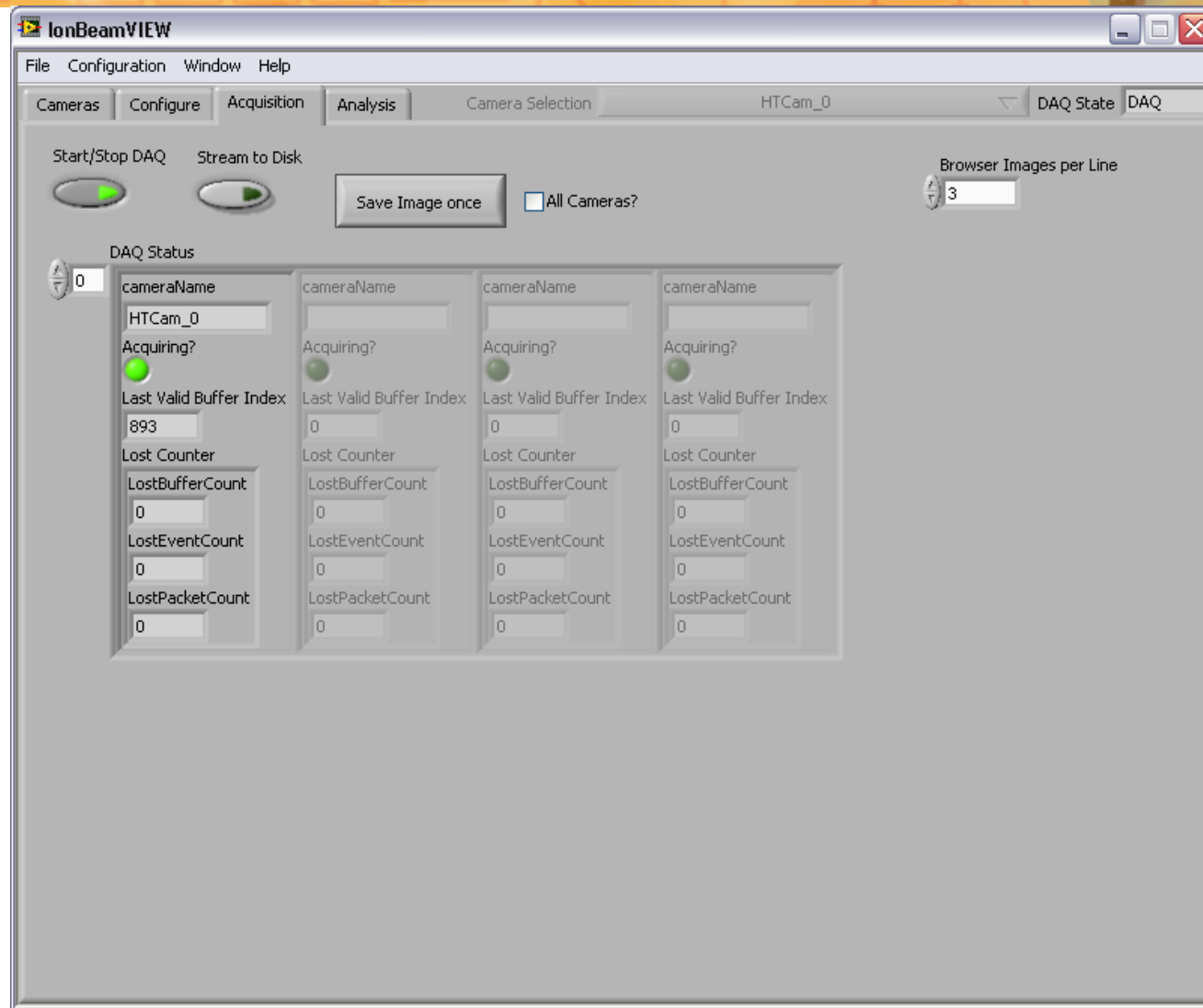
CameraAttributes::FeatureControl::ExposureTimeAbs = "15000"

CameraAttributes::FeatureControl::GainAuto = "Off"

# Acquisition Configuration

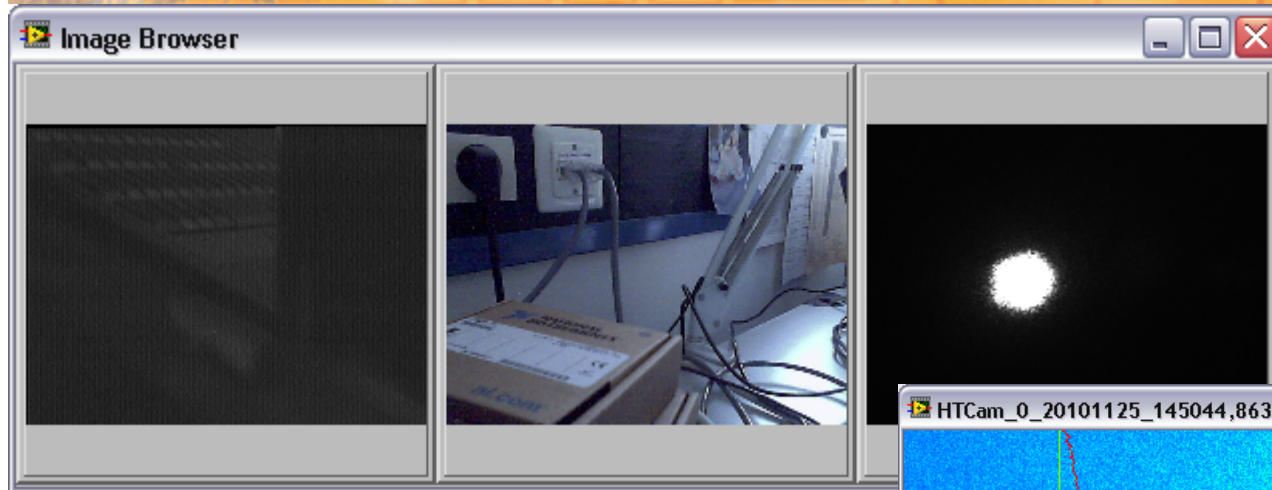


# Acquisition Monitoring & Streaming

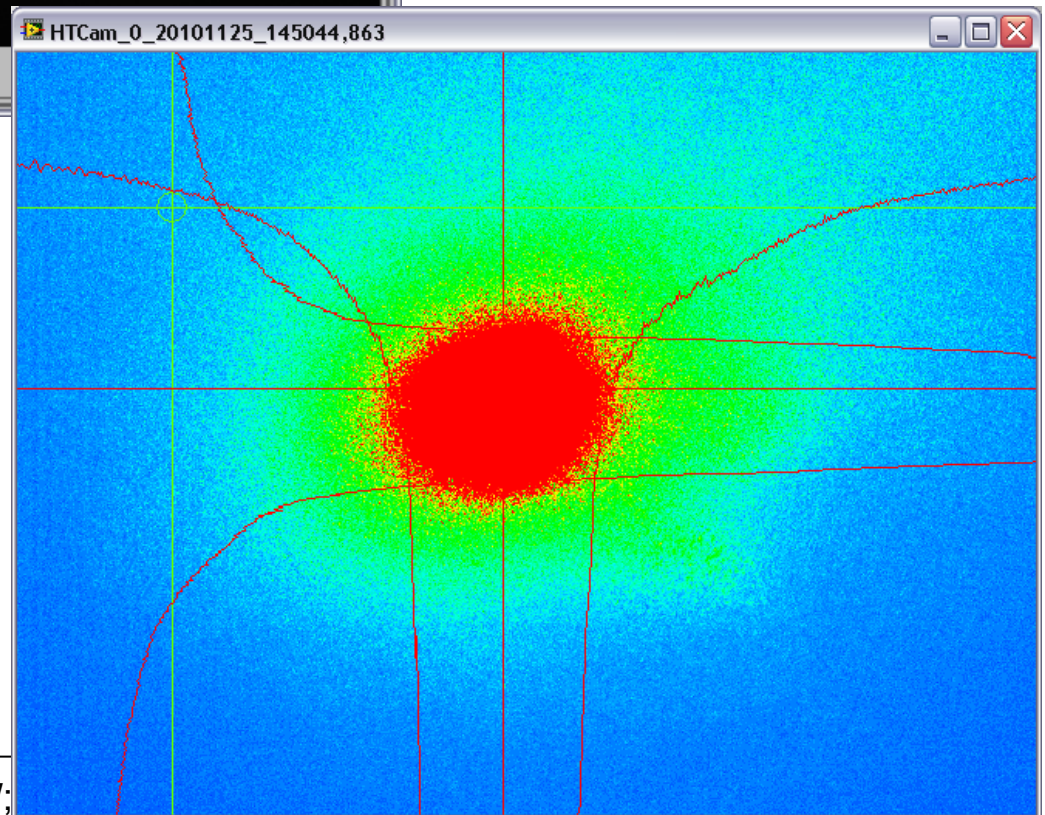




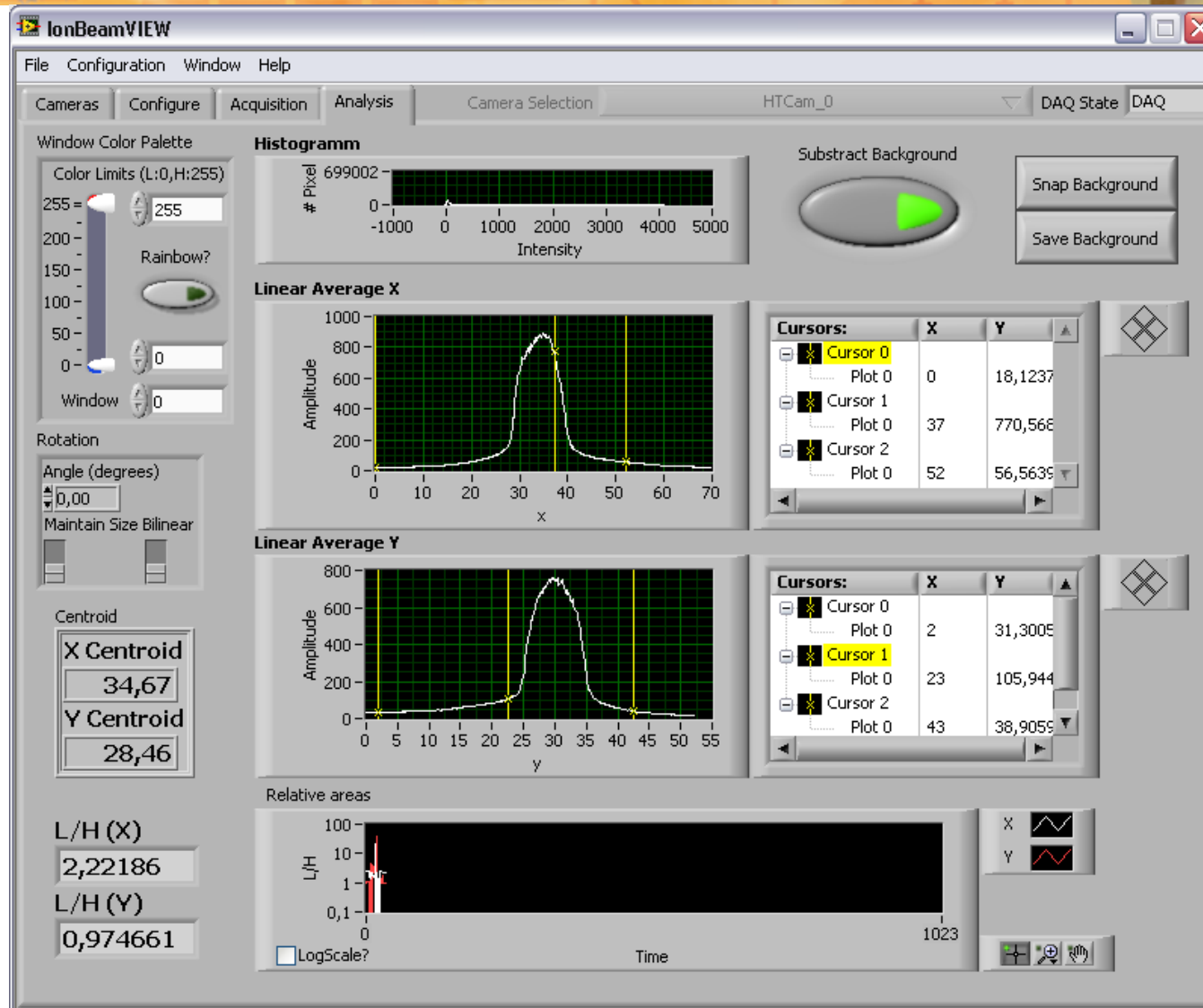
# Image Browser & Analysis Overlay



- Image Browser
  1. Framegrabber
  2. USB WebCam
  3. Prosilica GC655
- Analysis Overlay
  - Custom rainbow color palette
  - H/V projected profiles
  - Set position and radius
  - Calculated centroid and radius



# Online Analysis

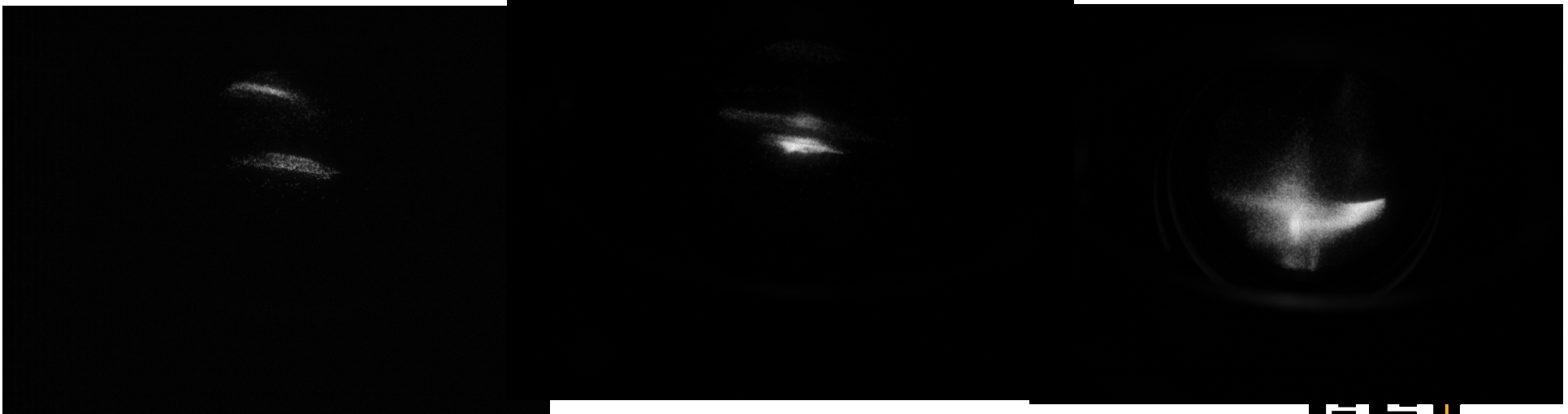
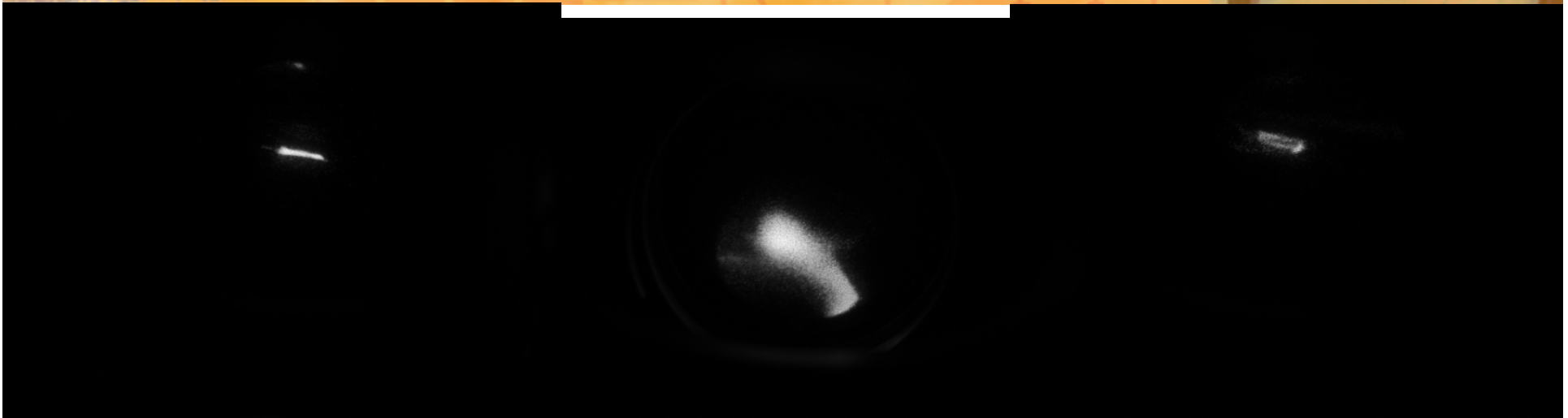


# Problems - Status

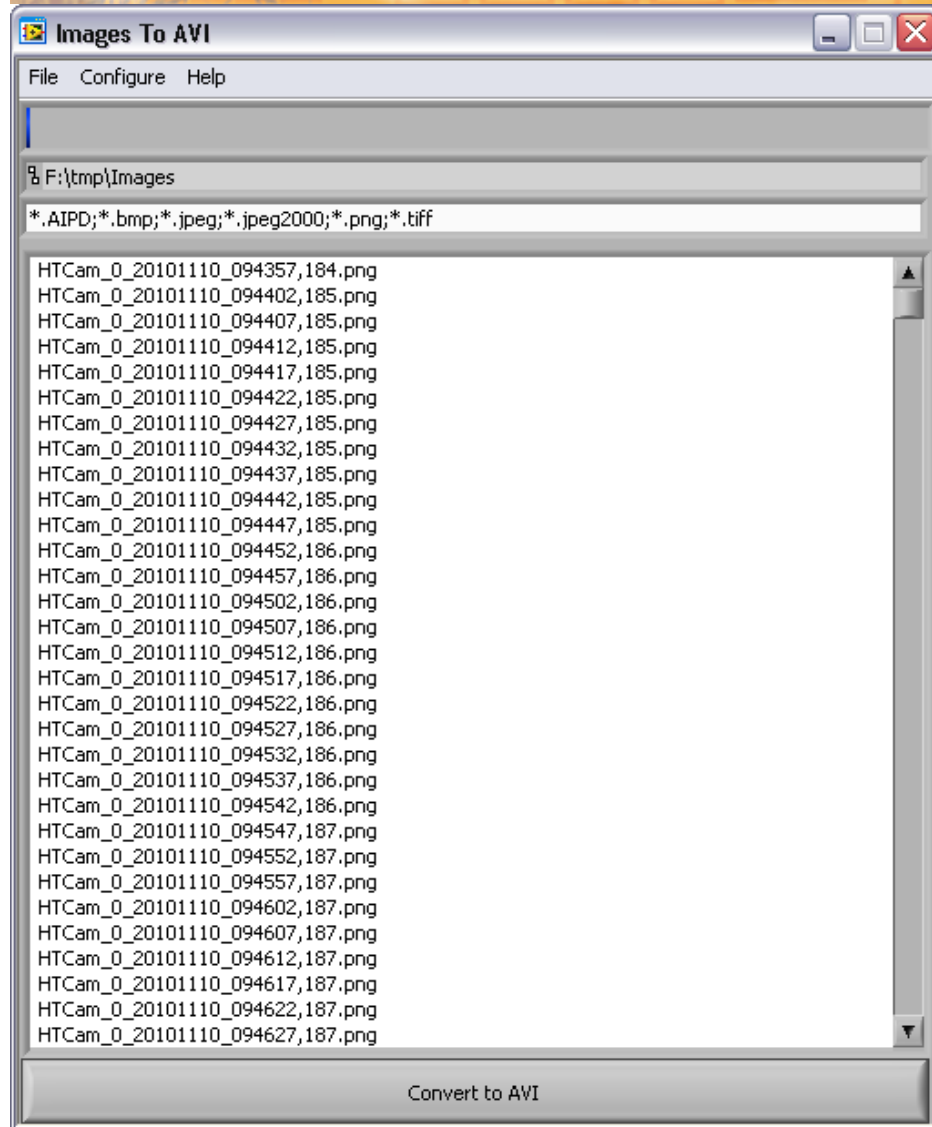
- GigE-Camera
  - Data-/Packet loss due to wrong setting for Ethernet bandwidth
    - 100MBit vs. 1000MBit
- Framegrabber class HGF\_ImaqFg used in free run only
  - I have no progressive scan camera available
- IonBeamVIEW was successfully used during HITRAP beamtime in Nov. 2010
- IonBeamVIEW 0.0.0.14 available for beta test
  - \\winscratch\scratch\Brand\IonBeamVIEW
  - <https://subversion.gsi.de/labview/trunk/LV2009/GPL/User/Brand/Vision/IonBeamVIEW>



# HITRAP Images Nov. 2010



# Converter: Image To AVI



1. Menue->Select image folder
2. Select one or more image files from list.
3. First image defines the type, all selected images must be of the same image type.
  - AIPD
  - bmp
  - jpeg
  - jpeg2000
  - png
  - tiff
4. Click: Convert to AVI