LuCam Software

Release Notes

1. Update from release V6.8.1 to V6.8.2

Camera Device Driver

- Fixed timeout issue when taking a snapshot while streaming video with the Lu171.
- Fixed I2C issue on interface board for Lu171.

Installation notes

- The re-installation of the same software package versions will not overwrite all the files.
- If any Lumenera SDK 6.0.0 or higher has been installed on the host, a prompt to uninstall will pop up at installation time.
- The drivers are now located in a “Drivers” subdirectory.
- The SDK sources are now installed in “C:\ProgramData\Lumenera Corporation\LuCam Capture\6.8.2\”.
- The shortcut to the sample binaries has been fixed.
- A shortcut to the Lumenera web site has been added (www.lumenera.com).
- Fixed the LUMENERA_SDK environment variable initialization. This variable will point to “C:\Program Files\Lumenera Corporation\Lumenera Camera SDK” for a 32 bit installation. This variable will point to “C:\Program Files (x86)\Lumenera Corporation\Lumenera Camera SDK” for a 64 bit installation.

2. Update from release V6.7.0 to v6.8.1

Camera Device Drivers

- Add support for the Lt345, Lt545, Lt945 and Lt1245
- Add U3V driver for LtUpdater to be released soon.

LuCam Capture

- The LuCam Capture User’s Manual has been updated for this release.
- Changed the behavior of the snapshot exposure value field such that the Enter key no longer needs to be pressed.
- Altered the video exposure and gain adjustments so that they are accessible via a textbox and the sliders.
- Fixed crashes when exiting Lucam Capture when Image Stats Windows is active.
- Added High Dynamic Range (HDR) controls

- Added support for the Lt345, Lt545, Lt945 and Lt1245.
- Added support for P-IRIS lens control.
- Improved the exposure control, to show 2 decimals.

API Changes 2.1.1.75 to 2.1.1.106

- Integrated the SDK with the Lucam Software packages.
- Added support for pin re-assignment for the trigger and the strobe signals to non-isolated IO pins for Lt365, Lt665, Lt965, and Lt1265.
- Added LUCAM_AUTO_GAIN_MINIMUM property.
- Added LUCAM_PROP_IRIS_STEPS property.
- Added support for re-assignment of the trigger signals to GPIO1 for the Lt16059. The signal cannot be routed to GPIO2.
- Added HDR functions. (pre-released)
- Added Trigger Sequencing functions
- Added the LucamGetSubSamplingBinningDescription function.
- Added LUCAM_PROP_GAIN_HDR property.
- Fixed possible infinite loop with video stream.
- Fixed race condition when stopping the stream.
- Fixed issue with flag for LUCAM_PROP_STILL_TAP_CONFIGURATION
- Improvements made to color reproduction.
- Improved LUCAM_PROP_TAP_CONFIGURATION (read only flag)
- Improved Canon Lens focus control.
- Improved LucamOneShotAutoExposure, LucamOneShotAutoGain, LucamOnshotAutoIris.
- Improved timestamp and metadata.
- Improved the LUCAM_PROP_IRIS property.
- Updated the Software Developer's Kit (SDK) manual.

Special Notes

- SDK is installed by default to C:\Program Files (x86)\Lumenera Corporation\Lumenera Camera SDK on 64 bit Windows and installed to c:\Program Files\Lumenera Corportation\Lumenera Camera SDK

3. Update from release v6.6.0 to V6.7.0

- **Camera Device Drivers**
    - Including support for Lt366RC-GT3

- **LuCam CAPTURE**
    - Updated to recognize the Lt366RC-GT3 camera model

4. Update from release v6.5.0 to V6.6.0

- **Camera Device Drivers**
    - Support for Lt16059H completed.
    - Add support for Lt29029H.

- **USB 3.0 drivers change:**
    - Improvement for video stream.
    - Improvement for snapshot capture.
    - Improvement when used in multiple threads.
    - Improvement when in binning mode.
    - Improvement of AVI capture operation on Windows 10.
    - Improvement on reporting of AVI frame rates.
    - Fix for a possible deadlock situation.

- **API 2.1.1.49 to 2.1.1.75**
    - Added property to control maximum frame rate.
    - Added property to select algorithm for white balance.
    - Added property to select algorithm for auto-exposure.
    - Fix enumeration range of PROP_TAP_CONFIGURATION
    - Fix issue when stream is displayed on a second monitor.
    - Fix location of the timestamp metadata.
    - Improvement on the tap mismatch correction.
    - Integration of new pixel shifting library.
    - Improvement on timestamp correction on Lt16059H and Lt29059H.
    - Improvement on video stream controls.
    - Improvement on timestamp functions.
    - Improvements on tap correction speed performance.
    - Improvement on Canon EF lens controls.
    - Improvement on auto focus algorithm (Canon EF lens controls).
    - Improvement on auto iris algorithm (Canon EF lens controls).
    - Improvement on application of the digital property to the look up table.
    - Improvement on multiple thread support.
    - Improvement on reporting of video frame rate in AVI.

- **Special note**
    - With Lt365, Lt665 and INFINITY3-3UR the minimum gain is 1.0, when using auto gain settings. If the gain value is below 1.0 when activating the auto flags, the gain will be set to 1.0
    - The use of USB 3.0 Intel chipsets (Ivy Bridge or better) on the host computer is highly recommended. Alternately, we would suggest the use of Renesas D720202 or Asmedia ASM1042 controller. With the Renesas and Asmedia, there is a very small chance that some users may experience camera disconnections. In all cases, the latest device driver updates to the USB 3.0 chipsets should be applied.
    - We do recommend the Newnex US2-2004 3M A to B or US2-AMCBI1-3M A to locking micro-B USB 3.0 cable. In general, Lumenera is suggesting using a 3M cable with 22AWG for power wires and 28AWG for data signals.
    - If camera requires the use of a cable with the micro-B connector, then it is highly recommended to use a cable with a locking Micro-B connection.

- **Known issues**
    - With Lt365/665/965/1265 it might be possible that first frame will include a major tap imbalance and the image will appear corrupted.
    - The Lc camera family performance on windows 8.1 and 10 is not optimal.

5. Update from release v6.4.0 to v6.5.0

- **Camera Drivers**
    - Add support for Lt1265 (future camera model – not yet released).
    - Add support for Lt1609 (model under development – soon to be released).
    - Fix auto exposure maximum, range and setting property for Lt camera models.
    - Fix frame rate clock settings variation depending on whether external power is applied before or after USB3.0 connection.
    - Fix issue with minimum value reported for the strobe delay property.
    - Improvement on exposure granularity for USB 3.0 camera models.
    - Improvement with snapshot operation on Lc camera models.

- **API 2.1.141 to 2.1.1.49**
    - Fix issues with frame counter in Lt camera models.
    - Adding timestamp capability to GIGE camera products.
    - Add high power mode for Lt camera models with the hardware revision that supports it.
    - Improvements on support of TAP configuration.
    - Improvements with camera error reporting.

- Improvements for cameras that have dual TAP capability.

- **Special note**
  - With Lt365, Lt665 and INFINITY3-3UR the gain cannot be set lower than 1.0 when using auto gain settings. If the gain value is below 1.0 when activating the auto flags, the gain will be set to 1.0
  - The use of USB 3.0 Intel chipsets (Ivy Bridge or better) on the host computer is highly recommended. Otherwise we would suggest the usage of Renesas D720202 or Asmedia ASM1042 controller. With the Renesas and Asmedia, there is a very small chance that some users may experience camera disconnections. In all cases, the latest device driver updates to the USB 3.0 chipsets should be applied.
  - We do recommend the Newnex US2-2004 3M A to B or US2-AMCBI1-3M A to locking micro-B USB 3.0 cable. In general, Lumenera is suggesting using a 3M cable with 22AWG for power wires and 28AWG for data signals.
  - If camera requires the usage of a cable with the micro-B connector, then it is highly recommended to use a cable with a locking Micro-B connection.

- **Known open issues**
  - For Lt365, Lt665, Lt965 the first few frames may be corrupted upon starting the stream. Actual target release with resolution is 7.0.0
  - Samples Application binaries still require Microsoft Visual Studio 2008 distribution files.
  - For Lt365, Lt665, Lt965 camera models, the output tap lines are visible for a short period when switching frame rates.

- **Lucam CAPTURE software**
  - Added support for Lt1265, Lt16059H, Lt29059H.
  - Fixed issue with light source selection.
  - Added support for LED in light source selection.
  - Visual Studio 2010 distributable files required.

- **LtUpdater 1.0.0.2278 (firmware updater for USB 3.0 cameras)**
  - All USB 3.0 firmware updater tools now share the same graphical user interface.
  - **SPECIAL NOTE:** For Lt425 and Lt225 the revision number shown beside the camera model is the sensor revision and not the camera hardware revision.

6. Update from release v6.3.4 to v6.4.0

- **Camera Drivers**
  - Added support for Lt665.
  - Added support for Lt965.

- **API**
  - No code enhancement, but now library required is Microsoft Visual Studio 2010 distribution files instead of 2008.

- **Special note**
  - With Lt365, Lt665 and INFINITY3-3UR the gain cannot be set lower than 1.0 when using auto gain settings. If gain bellow 1.0 when activating the auto flags, the gain will be set to 1.0
  - USB 3.0 Intel chipsets (Ivy Bridge or better) is highly recommended. Otherwise we would recommend the usage of Renesas D720202 or Asmedia ASM1042 controller. With the Renesas and Asmedia, there is a very small change that some user may experience camera disconnections.
  - We do recommend the Newnex US2-2004 3M A to B or US2-AMCBI1-3M A to locking micro-B USB 3.0 cable. In general, Lumenera is suggesting using a 3M cable with 22AWG for power wires and 28AWG for data signals.
  - If camera requires the usage of cable with micro-B connector, then it is highly recommend using a cable with locking Micro-B connection.

- **Known open issues**
  - The default frame rate selected at startup depends on how quickly external power is applied on all USB 3.0 products. Turn around is to apply external power on product that require external wait a second and then connect USB cable.
  - Samples Application binaries still require Microsoft Visual Studio 2008 distribution files.

- **Lucam CAPTURE software**
  - Add support for Lt665.
  - Add support for Lt965.

- **LtUpdater 1.0.0.2174 (firmware updater for USB 3.0 cameras)**
  - All USB 3.0 firmware updater tools now share the same graphical user interface.
  - **SPECIAL NOTE:** For Lt425 and Lt225 the revision number shown beside the camera model is the sensor revision and not the camera hardware revision.

- **SDK binaries update**
    - .NET samples application binaries have been modified to show device ID instead camera family.

7. Update from release v6.3.3 to v6.3.4

- **Camera Drivers**
    - Improvement on trigger functionality for Lw565.
- **API update from 2.1.1.37 to 2.1.1.41**
    - Fix some race condition when using buffer last frame in snapshot mode.
    - Add support of RO flag for tap configuration with Lw11050 products.
    - Improvements with camera that do not support true pixel depth to fix issue with dual tap on Lw11050 rev 0 cameras.
    - Improvement to keep frame counters in images with camera that has tap correction support.

8. Update from release v6.3.2 to v6.3.3

- **Camera Drivers**
    - Lm086 and Lu125MB connectivity improvement with USB 3.0 card using the manufacturer's driver.
- **API update from 2.1.1.36 to 2.1.1.37**
    - Improvement of snapshot mode when using the buffer last frame option.

9. Update from release v6.3.1 to v6.3.2

- **Camera Drivers**
    - Lw11059 model
        - Fix iris control.

10. Update from release v6.3.0 to v6.3.1

- **Camera Drivers**
  - **Lt225/Lt425 models**
    - Improved support for use on a USB2.0 port
    - Better black level calibration
    - Enabled ability to boot from a powered off system
    - Improved external triggered frame rate
  - **Lt365 model (new model)**
    - Implemented binning x2, x3, x4
    - LuCam CAPTURE modified to support tap and binning modes
    - Corrected slow response to brightness and gamma adjustments when connected to USB2.0 output
    - Improved tap balancing
    - Added new color correction matrices (CCM) for daylight and incandescent
    - Improved black-level offset correction
  - **Lc170 model**
    - Corrected bug producing disconnect issue at certain resolutions
  - **All USB 3.0 models**
    - Fixed range for gamma

- **Lucam CAPTURE software**
  - LuCam CAPTURE modified to support tap and binning modes

- **SDK binaries update**
  - New Executable Sample Programs
    - BurstMode.exe
    - CoolingAppNote.exe
    - DemoConversionEx.exe
    - QueryInterface.exe
  - Existing Samples Improved:
    - autolens.exe
    - avisample.exe
    - demosaicing.exe
    - Histogram.exe (support for Lt models)
    - InfinityTest.exe
    - Threshold.exe (support for Lt models)

11. Update from release V6.2.0 to v6.3.0

- **Camera Drivers**

◊ Added support for Lw130R product.
◊ Strobe signal implemented for Lw290 product.
◊ Improved support for USB 3.0 products.
◊ Added thresholding support for USB 3.0 product.
◊ Added High Dynamic range support for USB 3.0 product.

- **API update from 2.1.1.13 to update 2.1.1.27**

- Improve frame rate reports
- Add more error detection in the LucamConvertFrametoRgbXX.
- Add support for LED color correction matrix.
- Improved dual and multi tap correction mechanism.
- Improved external interface for better support with USB 3.0 product.
- Improvements on property range validation.
- Improvements on LucamAutoFocusStart() for more consistent focus control with macro lenses.
- Improvements on the LUCAM_PROP_ABS_FOCUS.
- Improvements on the LucamCameraReset.
- Added mode function in the alias list to help with direct access to dll.

- **Lucam Capture Software**

◊ Fixed incorrect binning resolution for Lw16059 product.
◊ Added resolution (1280x960) for Lw290 product.
◊ Added drag preview feature.
◊ Fixed issue with cancel button in the properties dialog.

- **SDK binaries update**
  - Corrected issues that could cause an application crash under the following conditions:
    - when taking burst snapshot in 16 bit mode.
    - when ROI is set to 0.
    - with white balance when ROI is active.

◊ Fixed issue where the auto iris was not enabled when he continuous auto iris checkbox is activated.
◊ Fixed file browsing to show movie files in AVI Acquisition.exe
◊ Fixed crash when disconnecting camera without stopping preview in AVI Acquisition.exe
◊ Fixed issue of preview not showing unless Preview while capturing AVI is checked in AVI Acquisition.exe
◊ Improved current time position reporting in AVI play back mode in AVI Acquisition.exe

12. Update from Release V6.0.3 to V6.2.0

Camera Drivers

- Added support for Lt425.
- Added support for Lt225.

API update from 2.1.0.254 to 2.1.1.13

- Added support for USB 3.0 products.
- Improvements made in image quality for large format camera models.
- Improvements made to the JPEG quality property.
- Improvements made in all auto functions.
- Improvements made to the ContinousAutoExposure functions.
- Added the LUCAM_PROP_VIDEO_CLOCK_SPEED property.
- Added the LUCAM_PROP_TRIGGER_PIN property.
- Added the LUCAM_PROP_STROBE_PIN property.
- Added the LUCAM_PROP_GEV_SCPD property.
- Changed the LUCAM_VERSION structure to report the device id number.
- Added the new definition for the LUCAM_EXTERN_INTERFACE_USB3. This is used to determine the connection type with the camera.
- Added LucamPerformMultiTapCorrection functions. To perform multi tap sensor correction. At this point only the11Mega pixel and some 5 Mega pixel CCD camera models support this function.

Lucam Capture Software

- Added subsampling support for Lw115.
- Change for GigE products to show mac address instead of serial number.
- Added support for USB 3.0 products.
- Improved Email support functionality.
- Improved the gain slider functionality for USB 3.0 products.
- Improved of the white balance performance.

13. Update From Release V6.0.2 to V6.0.3

Camera Drivers

- Corrected an issue with the Lm11059 that resulted in occasional image capture frames being darker then expected.
- Reduction of the image noise level in the Lm11059.

14. Update from Release V 6.0.1 to V6.0.2

Camera Drivers

- Correction for an intermittent noise issue that could be detected on the Lw11059 when using hardware trigger.
- Image noise reduction on the Lw11059.
- Improvement for the Lw110/Lw115 series that will now allow 60 fps at resolution (640x480).
- Added support for sub-sampling x2 in the Lw110/Lw115 series (650x612).

15. Update from Release V 6.0.0 to V6.0.1

Camera Drivers

- Improvement on Iris control for the Lw11059 and Lm11059.
- Image quality improvement on the Lw11059.

Open Issues

- It is possible that the installation program find a newer source of the drivers for the lw1105X cameras. In this case users must manually select older version in order to take advantage of new improvement on image quality and Canon lens iris control.

16. Update from Release V 5.0.6 to V6.0.0

Install / Uninstall

- Installation procedure has been revised, using an improved method to register files within Windows.
- The Software Developer's Kit (SDK) is no longer included with the LuCam installation. Separate installation packages for the SDK and for the LuCam Software will be provided from now on..

API update from 2.1.0.238 to 2.1.0.254

- Added LucamGetHardwareRevision() function.
- Fixed Iris property for Windows 7.
- Fixed cases where the last error was not reported correctly.
- Improvement on the algorithms for the one-shot auto functions.
- Improvement on the streaming video related functions.
- Improvement with the high resolutions captures.
- Improvement on the rounding of floating point numbers to integer.
- Added the ability to query the current enum extern inferface.
- Fixed a camera enumeration issue when different cameras are present.
- Improved LucamOneShotAutoWhiteBalance()
- Improved handling of gamma, contrast and brightness properties for compatibility with the GigE cameras.
- Fixed the LUCAM_PROP_JPEG_QUALITY property change in reading.

Lucam Capture Software

- Radio Buttons have been added to select the control of either a USB or GigE camera connection. By default it will connect to USB cameras.
- All drivers have been recompiled and tested to be at the same revisions.
- All APICOM object libraries have been removed as they are no longer supported and have been replaced by .NET.

Samples Applications

- Replaced BlankCamera.exe. This application provides basic camera controls under the .NET framework.
- Added DualSnapshot_VBNET.exe. This application provides functions to acquire snapshots when 2 cameras are connected.
- Replaced GetRanges.exe. This application provides the functions to read and report camera property ranges.

- Added PictureFlip.exe. This simple .NET application enables the mirror and flip options for the camera video preview.

Open issues

- Email support information is incorrect in Lucam Capture. This will be corrected in version 6.1.0.
- There is an image intensity shift with the Lm085M while changing the width in 16-bit mode.
- In Lucam Capture the Frame Rate radio buttons are not available for all camera models.
- The .NET API wrapper doesn't work in 64 bit. This will be corrected with Lucam Software release 6.1.0.
- The autoiris method is not working with the Lm11059 camera model, in the sample application Autolens.exe
- The sample application FastSyncSnaps does not currently support output resolutions other than 1280x1040.

17. Update from Release V5.0.5 to 5.0.6

LuCam Capture Software

- Improvements of the white balance function for the Lw565, Lm11059 and the Lw11059B.
- Version of the software stated to be at 5.0.3 this will be corrected in the V6.0.0 release.

18. Update from Release V5.0.4 to 5.0.5

Camera Drivers

- Added Support for the Lw565.
- Added Support for the Lm11059.
- Improve Support for the Lu205CB.

19. Update from Release V5.0.3 to 5.0.4

Camera Drivers

- Added Support for the Lw11059B.

API

- Improve the auto iris function for the Lw1105X and Lw1605x cameras.
- Improve the digital white balance function.
- Added support for GIGE based cameras.
- Added support for the LUCAM_PROP_FOCAL_LENGTH property.
- Added support to query the iris latency.
- Added LucamQueryVersionEx function.
- Improve the LcamPropertyGetRange() function to return the default value of the property.
- Added Little Endian support for the LucamSaveImageEx() for bitmap images
- Added LucamGetHardwareRevision() function.

Lucam Capture software

In the "Help→about" dialog box of Lucam Capture.exe it is states that the version is 5.0.3. The version number will be correctly updated in the next release.

20. Update from Release v5.0.2 to 5.0.3

This section describes the changes made since release 5.0.2.

Camera Drivers

Lw115

- New camera support (Beta drivers).

Lu135, Lw135

- New interface board support.

Lw575

- Corrected issue where the snapshot strobe signal was not outputted correctly.

Lw11059

- Corrected issue where some Canon lenses were not calibrating correctly.
- Corrected issue where HW trigger pulses did not always start a snapshot capture.

Lw16059

- New camera support (Beta drivers).

API

- Improved Canon auto-lens initialization for Lw11059, Lw16059.

21. Update from Release v5.0.1 to 5.0.2

This section describes the changes made since release 5.0.1.

Camera Drivers

Lm075, Lm135, Lm165, Lu070, Lu130, Lu160, Lw070, Lw130, Lw160, Lw230

- Improved reliability of GPO features.
- Corrected issue with strobe timing.
- Improved snapshot frame rate.

Lw11057, Lw11058

- Improved snapshot frame rate.
- Corrected issue with snapshot exposure jitter.

Lw11059

- Improved snapshot frame rate.
- Corrected issue with snapshot exposure jitter.
- Corrected issue with powered lens, snapshot iris control.

22. Update from Release v5.0.0 to 5.0.1

This section describes the changes made since release 5.0.0.

Camera Drivers

Lw230

- Support Sub-Component EOL Migration (Release drivers).

23. Update from Release v4.6 to 5.0

This section describes the changes made since release 4.6.

API

- Added 64 bit support for the LuCam API.

- Preview windows created by API now are scalable, have slider bars and zoom control.
- Added functions to cancel requests for video frames and snapshots. The new functions are LucamCancelTakeVideo() and LucamCancelTakeFastFrame() respectively.
- LucamPropertyRange() function now returns true range of property.
- New camera property to control the JPEG compression ratio.
- Added new event, LUCAM_EVENT_START_OF_READOUT, that can be used to notify an application that the camera has started the readout of the sensor.
- Increased permanent buffer storage to 2048 bytes.

COM Object

- Added 64 bit support for the LuCam API COM object.
- Now supports callback functions.

Camera Drivers

All

- Added 64 bit support to all camera drivers.
- In Windows Vista, camera drivers will be installed with little user interaction required. Users should expect to see no “New Hardware Wizard” dialog boxes when installing new cameras on their computers with this release.

Lc080

- Added support for LUCAM_PROP_AUTO_EXP_MAXIMUM property.

Lu100

- Corrected issue where some invalid frame formats were selectable.

Lu120

- Corrected issue where the strobe delay value was not being applied to the strobe pulse.

Lu170CB

- New camera support (Release drivers)

Lw130

- Corrected issue where the Contrast, Gamma and Brightness controls were disabled when opening the DirectX Video Properties dialog box.
- Corrected issue where last two pixels in video frames could be incorrect.

Lw160

- Corrected issue where the video stream may not start correctly every time.

Lu200

- Corrected issue where snapshots could be very noisy.

Lw290

- Added resolutions within the DirectX interface.

Lw570

- Corrected issue where not all camera settings were saved in registry.
- Implemented the half-global shutter for snapshot mode.

Lw11050

- Improved performance when controlling Canon based lenses.
- Corrected issue where snapshot strobe pulse was not being outputted from camera when selected.
- Corrected issue where last four bits of a 16 bit snapshot image were not 0.
- Corrected issue where camera could stop streaming video data unexpectedly.

Known Issues

- Range value for LUCAM_PROP_STILL_STROBE_DURATION is not available for most camera models
- The CreateDisplayWindow() COM API function does not properly handle the dialog title correctly in a C# development environment
- The SOF pulse is not outputted on GPO4 on the Lw1105x cameras.

24. Update from Release v4.5 to 4.6

This section describes the changes made since release 4.5.

API

- Added support for preview callbacks for monochrome cameras.

Camera Drivers

Lm080

- New camera support (Release drivers)

Lu200CB

- Corrected issue when taking snapshots with 0 exposure

Lu270

- Corrected issue where exposure was unresponsive on DirectX Property Pages

Known Issues

- Incandescent color correction matrix is not ideal for Lm080 and Lu200CB cameras
- Subsampling 2x2 mode not implemented on Lw290 cameras
- Snapshots may fail when changing resolutions on Lw570 cameras
- Access to contrast, brightness and gamma on DirectX Property Pages may be disabled when first accessed or after manually changing snapshot exposure with some camera models. Hitting Initialize/Reset button may correct this issue.
- Default color balance is not ideal on Lm080 cameras

25. Update from Release v4.2 to 4.5

This section describes the changes made since release 4.2.

API

- Added new function to retrieve the error code for a specific camera, LucamGetLastErrorForCamera()
- Improved the performance of the LucamOneShotAutoExposure() and LucamOneShotWhiteBalance() functions
- Added new functions to define the region of interest (ROI) that will be used for AEC and AWB
- Corrected issue where unsupported frame formats did not return an error
- Added new function to get the image intensity, LucamGetImageIntensity()

COM Object

- Corrected issue with EnableSyncrhonousSnapshot() function not setting up the cameras correctly
- Corrected issue with EnumCameras() function not work correctly when multiple cameras were connected

Camera Drivers

Lw080

- New camera support (alpha drivers)

Lm080

- New camera support (alpha drivers)

Lu120

- Updated color correction matrices for Lu120C based cameras

Lu130

- Corrected issue where exposure delay was not being applied correctly

Lm130

- By default, cameras will run at its fastest frame rate
- Added support for timestamps on video frames

Lw130

- By default, cameras will run at its fastest frame rate
- Added support for timestamps on video frames

Lu160

- Corrected issue with where the API would allow unsupported subsampling modes

Lw250

- New camera support (alpha drivers)

Lw290

- Increased snapshot exposure range to allow exposures less than 60ms

Lu330

- Still camera properties are now supported in Fast Frames mode

Lw330

- Corrected issue with camera's GPO ports

Lu370

- Corrected issue with previewing in 16 bit mode

Lw450

- New camera support (alpha drivers)

Lw11050

- Improved image quality in low light when running at fastest frame rate

Sample Code

- Ported all sample code to Visual Studio 2005
- Added new sample applications:
    - AutoProperties: Demonstrates how to setup the camera's auto features such as AEC and AWB in Visual C++.Net
    - VbFastFrames: Demonstrates how to enable fast frames mode in Visual Basic.Net

Known Issues

- The LuCam API COM object may not return all the correct information when calling EnumCameras with multiple cameras connected
- The LuCam API COM object may not be fully multi-thread compliant
- The Lw570 currently does not allow the setting of the strobe pulse length

26. Update from Release v4.0 to 4.2

This section describes the changes made since release 4.0.

API

- Added new AVI control functions: LucamPreviewAVIGetDuration(), LucamPreviewAVIGetFrameCount(), LucamPreviewAVIGetFrameRate(), LucamPreviewAVIGetPositionTime(), LucamPreviewAVIGetPositionFrame(), LucamPreviewAVISetPositionTime(), LucamPreviewAVISetPositionFrame(), LucamPreviewAVIGetFormat()
- Added feature to provide event notification of changes in the GPIO values.
- Added feature to provide event notification of camera removal

COM Object

- Added missing LuCam API functions
- Corrected issue with EnumAvailableFrameRate() function parameters
- Corrected issue with Setup8bitsColorLUT() and Setup8bitsLUT() function parameters

Camera Drivers

All CCD based cameras

- Corrected issue where saturated data was set to 0xFFFF instead of 0xFFF0

Lm075

- New camera support

Lu080

- Corrected issue where green color gains were inverted
- Added high speed drivers that allow faster frame rates with 8 bit data

Lu120

- Added support to control the strobe pulse width

Lm135

- New camera support

Lm165

- New camera support

Lu170

- Added high speed drivers that allow faster frame rates with 8 bit data

Lu270

- Corrected issue with noisy snapshots in 16 bit mode
- Added high speed drivers that allow faster frame rates with 8 bit data

Lw230

- Corrected issue where first video frame was corrupted when starting the video stream

Lw290

- Enabled snapshot mode

Lu330

- Improved snapshot quality

Lw330

- Improved preview image quality
- Added support to report max width and height

Lu370

- Corrected issue with camera drivers crashing when stopping preview in Windows Vista
- Added high speed drivers that allow faster frame rates with 8 bit data

Lw620

- Improved image quality in preview

Lw11050

- Improved color response
- Improved dual tap calibration
- Improved lens calibration

Sample Code

New sample code provided

- BlankCamera: Generic camera sample application
- Histogram: sample application that demonstrates how to generate a histogram

Known Issues

Lw620

- Vertical oscillating lines in preview