GenICam Meeting, Ottawa

Day 1, 2010-10-05

Welcome

- List of voting members based on homeworks from last meeting: Basler, Baumer, Dalsa, JAI, Leutron, Matrox, MVTec, NI, Pleora, Stemmer, Mathworks.

GenApi/CLProtocol

- Release v2.1, upcoming maintenance release v2.1.1
- New feature requests, roadmap for release
- GenICam Release v2.1
    - GenApi v2.1
        - Bug fixes, new helper classes, first version of tutorial
    - Schema v1.0 v1.1
    - Reference implementation v2.1
    - SFNC v1.4 (support for GEV v1.2)
    - GenTLv1.2
    - CLProtocol v1.0
    - Released September 2010 on 4th RC
- Changes to v2.1 since last meeting
    - EnumEntry must be Terminal Node (682)
    - Fixing callback code for CCommand::IsDone and NodeMap::Poll (690)
    - Feature persistence problems (629, 677)
    - Installer problems (684, 694, 695)
    - GenApi Linkage.h binds to GenApi debug version (627)
    - Miscellaneous (674, 683, 689, 696, 697, 698)
    - Make enumeration NA/NI if all entries are NA/NI (616, 624, 711)

- GenApi v2.1.1 maintenance release
    - If enum accessibility is NA/NI, don't evaluate entries (711)
    - Only change on the board for v2.1.1, should be released quickly
    - Question: should GenApi absorb some transport layer errors? No…
- New feature requests for v2.2
    - Make feature NA if min > max (624, 711)
    - Cleanup problems when DelayLoading (686)
    - Support private GenICam installations: solution proposed but only required if some static objects of types implemented by GenApi are used. `#pragma init_seg(lib)`
    - Xalan/Xerces use client's locale vs. floating point values. Solution is to enforce standard C locale while loading the XML files but keep the client's locale untouched +++
    - C++ new() changed behaviour (706) now throws exceptions instead of returning a NULL pointer. GenICam_new introduction recommended.
    - Support Events without data (622)
    - Rename Xalan/Xerces DLLs under Linux. Windows already does that.
    - Auto-generate Standard Features Header file (582)
    - Optimize node map creation time by eliminating log category creation (609) +++
    - Add SelectorSet helper class (664) persistence code should leverage this feature when available +++
    - Support Visual Studio 2010 (589, 714, 571)
    - Support Mac OSX (716) has been working for 1-2 weeks (Mark Jones, Mathworks) changes will be shared soon with community
    - Deal with char8_t, int8_t in stdint.h (571) appeared with VS 2010
    - Add Xerces/Xalan to CVS and integrate in CMake (714)
    - Improve installer (537, 580)
        - Separate for 32, 64 bits
        - Version of each installer is the same

        - You can build installers in either debug or release mode
        - We need ONE installer where debug/release and Win32/64 are to select
        - Deployment clashes with C:\Program Files, C:\Program Files (x86) model
        - InstallShield is powerful, but quite expensive
        - WIX CMake patch proposal by NI. Proof of concept put together.
        - A better installer would likely improve the popularity of central installations
        - Basic version of InstallShield for VS 2010?
        - What about Linux and OSX installers – Christoph
        - Do we need installer (MSI) with 32/64 bits? It appears so
        - **[Homework]** figure out which could be the best installer solution on Windows
        - Status quo for Linux, TBD for now on OSX
    - GetProperty returns wrong LSB/MSB values in Big Endian (703)
    - AccessMode helpers crash when passing NULL pointer (693)
    - Reallocate Event/ChunkProt buffer only when needed, optimization (561)
    - The 1394EventAdapter does not handle Big Endian packet layout, done (701)
    - EventID treaded as a string rather than as a number (623)
    - GENICAM_LOG_CONFIG if not set, fires an catches an exception (613)
    - AccessMode of a SwissKnife with Variable access mode must not depend on variable's access mode otherwise the statement does not make sense: fix InternalGetAccessMode (547)
    - Standardize on how to detect supported OS in GenICam source code (702,604,596, 595, 594) we need a consistent system to identity the operating system and compiler. A central GCPlatofrm.h defining some GENICAM_XXX symbols, etc.
    - Portability issues (603, 598) as reported by MathWorks during OSX port
    - Purity (713, 705, 600, 599, 602, 597, 685)
    - Bugs in the standard text (710, 708)
    - Loging in CLProtocol Driver DLL (688, 700, 585)

- Add Bootstrap Register to CLProtocol driver DLL (715)
- Add function to invalidate node including its terminals (626)
- Add a Command selector (712) Eric B. providing explanation. Discussion will continue between Eric and Fritz at the break.
- Use Snipper for Writing Test code

- Roadmap to Stuttgart
  - **GenICam v2.1.1**
    - GenApi v2.1
      - Standard text v2.0
      - Schema v1.0 & v1.1
      - Reference implementation v2.1.1
    - SFNC 1.5
    - GenTL v1.2
    - CLProtocol v1.0
      - Standard Text v1.0
      - Interface v1.0
    - Possibly/hopefully before Vision 2010 in Stuttgart
  - **GenICam v2.2.0**
    - GenApi v2.2.
      - Standard text v2.0.1
      - Scema v1.0 v1.1
      - Reference implementation v2.2
    - SFNC v1.6
    - GenTL v1.2.1 (slides mentioned 1.2, updated from Rupert's feedback)
    - CLProtocol v1.1
      - Standard Text v1.1

            - Interface v1.1
        - License v2.0
        - Next meeting hosted by NI in Austin expected Q2 2011
        - No AIA Vision Show in 2011?? Probably merged with Automate…
    - Vincent: GenICam v2.1.1 should be v2.2.0 because SFNC goes up on a minor to 1.5.
    - Fritz: not possible for now because of technical limitations.
    - **[Action]** Vincent to open Trac item so we can fix it after this release

SFNC

- SFNC 1.5 release
    - Hopefully released in time for Stuttgart, including CL features
    - Various fixes based on open tickets
    - Major additions
        - CL features
        - GenICam access section
        - Corrected Chunk section for inconsistencies and missing features
        - Proposal for new features
    - Details and status of the features proposal
- GEV replaced by Device – already deprecating 1.4 features? Applies to manifest features.
- DeviceSerialPortBaudRate: Stephane Maurice would like it to become an Integer. It will stay an enumeration
- DeviceTransferTapGeometry: should be moved in a Transport Layer category. The Device prefix should thus be removed.
- Reminder that the SFNC applies to cameras first and foremost, it is desirable that names applies to grabbers too but this is a secondary objective.
- LineSelector: add CC1, CC2, … enumeration entries. Every source selector feature should follow similar mapping of enumeration entries.
- ClTimeSlotsCount – enumeration, One, Two and Three vs. Integer? Vote, enumeration it is.

- Do we include the tap geometry document provided by Euresys to the SFNC? Not as an embedded document, but as an Appendix it would work. Or having it next to the SFNC document official location? **[Action]** Stephane will add the document to the SFNC as an Appendix.
- Tap port mapping homework review, Baumer
    - Sensor taps, sensor device taps, Camera Link taps, mapping not easy to describe
    - GEV constrained possible pixel formats down from infinity – or at least defined some strict rules on how to define new pixel formats
    - Do we modify the SFNC pixel format to describe what applies to Camera Link?
    - **[Homework]** Create a proposal of names for pixel format of pixel/stream based transport layers (vs. packet based like GEV) by creating names that are missing from Eric Carey's proposal
- Vincent: for a quick 1.5, do we only put Camera Link stuff? Stephane: yes, in addition that what has already been approved/discussed/approved. Everything else can not make the cut if it can speed up the 1.5 release.
- High level camera model
    - Clarification of sensor taps vs. sensor digitization taps
    - Production of document describing the difference
    - Difference is pre vs. post analog to digital conversion stage
    - **[Action]** Attach the document to the ticket and close it once it has been integrated in the SFNC document.
    - When we clarify the whole acquisition mode topic, the material covered here will be available as a source of data to eventually be used in the SFNC
- DeviceSFNCVersionMinor/Major/SubMinor: no objection
- DeviceThroughputLimit: feature used to limit the maximum bandwidth that can be used by a GigE Vision camera.
    - Will be discussed in the upcoming GigE vision meeting
    - Discussion about explicitly linking that parameter to the inter-packet delay
    - Should we change Bs to Bps: Yes…
    - Is it for the device or stream-selectable?

    - If approval is even slightly problematic, it will be removed from 1.5
- Feature to control the timestamp, DeviceTimestampXXX, similar to GEV features
    - Stick to GEV model or come up with something better?
    - Simply presented, discussion to happen post 1.5 around the ticket to start with
    - **[Homework]** start a discussion about generalizing the timestamp in the SFNC
- **[Homework]** ask Camera Link group about adding modes
- UserInputSelector, UserInputSource, etc. that could have any signal or line assigned to it
    - **[Homework]** Jan to provide justification to differentiate it from a custom feature that would not require SFNC inclusion
    - Baumer would use such a feature in the SFNC
- Timers and Counters
    - Minor modifications in order to clarify text
    - CounterResetSource Software entry was deleted
- Is Gain/All a separate feature or applies the same gain to all gain values? What about the read?
    - Channel vs. master gain? Is “All” an offset on top of individual gains?
    - Should be clarified to prevent misinterpretation
- Thies: comment about monitor mode if selectors are registers, it would not be possible to access all values tied to such a selector
- GenICam access section
    - Root, Device is standard port name to access the device and must not be included in the Root category
    - TLParamsLocked: 0 and 1 definition
        - Didn’t we have an action about defining a better lock? 590 assigned to Jan
    - How should it work? Documentation is lacking, but use of feature is required…
    - **[Homework]** clarify everything related to locking in SFNC (re-spin on 590)
- Mbs to Mbps. This must be propagated to the SFNC. There is a pending homework to verify all units, but this one specifically should be changed for 1.5.

- Image information chunk is not a valid chunk. Example has been fixed.
- Many inconsistencies flagged in Chunk section by Jan of Leutron.
- **[Action]** ask Jan to clarify where the FrameID in ChunkSelector is coming from
- Chunks: duplicate SFNC or just make everything in the SFNC fair game as long as it applies?
    - How about just having a "Chunkable" attribute for every feature?
    - Features with exact same name cannot co-exist in the same XML file. Fritz: could eventually be solved by having more than one XML in the zip file along with a manifest
    - **[Homework]** Create ticket to automate the generation of Chunk features from "Chunkable" regular (non Chunk) SFNC features

Day 2, 2010-10-06

SFNC

- The DeviceUserID feature, like all string, is always NULL terminated. Its representation in the GigE Vision Bootstrap register map belongs to the GigE Vision standard.
- AcquisitionStart command must be executed in order to begin acquisition or just arm it for triggered mode.
    - **[Homework]** Eric Bourbonnais to clarify AcquisitionStart vs. triggered mode phrasing.
- Extension of the SFNC acquisition model for the triggered, continuous multiple frames acquisition mode. Continuing discussion that started in Yokohama.
    - Should burst or multiple be used? Committee seems to like burst…
    - **[Homework]** Stephane Maurice to follow-up with a proposal for the triggered, continuous multiple frames acquisition mode based on the discussions at the Ottawa meeting.
- Beginning of discussions about changing acquisition parameters during acquisition.
- Multi video source support proposal by Vincent Rowley
    - Currently not covered by SFNC
    - Some features would have to be controlled on a per sensor basis
    - Some features may not be tied to a specific sensor, like digital IOs
    - The committee agree there is a need for such a thing

    - At this point, Vincent will keep pushing forward this proposal
- Adding Transfer Control to SFNC by Eric Bourbonnais
    - Goal is to allow the camera to use more than one stream
    - Should have a limited impact on backward compatibility
    - Some features need to be selected
    - A typical use-case would be recording/playback on current devices
    - Eric to re-circulate the proposal, collect feedback
- Timers and counters
    - Stephane will re-send proposal
    - TimerMode various mode review
    - Timer with delay mode or another type of block, like a Delayer?
    - Rupert proposed Gated Timers and Counters instead of measurement mode

GenTL

- Version 1.2 released.
- Implementations from Leutron, Matrix, MVTec, Stemer, Basler, IDS as producers
- Used in GigE Vision, CoaXPress and potentially Camera Link HS
- Unit test in Trac, JAI updated to 1.2. More tests are needed along with demos
- Next steps
    - List for next versions
    - New technologies
    - Use GenTL also without streaming
    - New acquisition modes
    - Offline plugfest
- GenTL SFNC
    - Mandatory features listed in GenTL standard text (common + GigE Vision)

- Features are structured according to system's architecture
- New GenICam GenTL SFNC document, same structure as GenICam SFNC
- Already contains mandatory features (eventually likely removed from GenTL or simply mentioned as GigE Vision vs. GenICam SFNC)
- 49 pages already, more to come
- Review of general issues
- Next steps
  - Create a working group to generate first official draft
  - First draft targeted at January 2011
  - To be presented at the next GenICam meeting
- GenTL plug fest during Vision in Stuttgart?
- Add a list of GenTL Producers and Consumers at www.genicam.org?

Generic Protocol

- CLProtocol a good start but not good on embedded platforms, portability, version matching and crossing the vendor boundaries
- Following Yokohama, Stemmer presents a technology agnostic packet based protocol
  - Read/Write registers
  - Retrieve the XML
  - Define a Bootstrap Register Map
- Overview of the protocol proposal – GenCP.pdf. 32 pages document
- Vendors would have to switch from ASCII based to register/binary protocol
- Spun from NI homework in Yokohama
- Discussion on cameras having to support multiple protocols
- Window likely closed for CoaXPress, still possible for Camera Link new cameres, Camera Link HS. Could also apply to GigE Vision if adapted as an answer to P12-09.
- Can we agree that something like this is attractive? Who would be willing to support it? Should it simply be part of the Camera Link HS standard?

- If time allows, would be interesting to bring this topic to the GigE Vision committee later this week to test the waters.
- Subcommitte: Basler, Dalsa, NI, Matrox, SVS Vistek, Stemmer

Infrastructure

- Membership procedures, Trac access
    - Updated membership procedures, closed ticket 524
    - Still have to develop a process to periodically request account update from all member companies
    - Support ideally at genicam-contact@mvtec.com
    - Issue about cleaning up unused accounts still pending (ticket 498)
- Wiki pages updated, fully working
- Ticket 632, review use of discussion forum. Not used much…
    - When should the forum be used instead of the mailing list?
    - Why are so few people subscribed to the forum?
- SVN
    - Everything appears to be good
    - Higher bandwidth access coming soon!
    - Still open (498) on restructuring SVN by modules
- Ticket system
    - Big success. Much more use than last year.
    - Recommendations on how to make better use of it
    - **[Action]** Rename “Next Release” to “Future Release”
    - Create only specific tickets
    - Create tickets for inter-meeting homework
    - Use Trac for reviewing current homework status
- Mailing list

- Running well!

Marketing

- Actions from last meeting
  - 630: how to market benefits of GenICam to integrators and machine builders. First attempt by EMVA to get success stories didn't get any results. Another more structured effort to be performed in order to get it done (try to collect testimonials from the GenICam users).
  - 642: prepare press release for GenICam 2.1. Pending discussions on the release of GenICam v2.1.
- Vision 2010
  - International Standards Booth
    - Same location as last year
    - Messe Stuttgart to produce, distribute special flyer
    - GenICam and GigE Vision committee members to perform booth duties
    - What should be demonstrated?
      - Still teaming up with GigE Vision
      - Multi-camera, GigE Vision 1.2, CLProtocol
      - GigE Vision Server delivering a presentation over GigE vision through a GigE Vision to HDMI converter to a HDM or DVI monitor
      - Demonstrate platform flexibility: Linux, Windows, OS X?
    - EMVA needs to know demos, requirements (tables, etc.)
      - Camera Link demo (Eric in charge, will get camera from Basler)
      - Presentation through HDM converter demo (Vincent)
      - GenTL demo, mix of companies in producer/consumer (Rupert in charge, will look for consumers/cameras)
      - Multiple camera demo (Mark Jones)
      - Christoph and Jeff Fryman offers to coordinate the entire exhibition, but will need people in charge of each individual demo

        - EMVA relies on us to man the booth
            - Vincent to organize a Doodle session
    - Open House
        - Discussed at marketing sub-committee level
        - Not a great fit for a trade fair such as Vision
        - Discussed the idea of delivering one GenICam and GigE Vision presentation per day in a private room
            - Are we interested?
            - Fritz already giving public presentation
            - Not worth our while with current offering!

Wrap-up

- Follow-up on actions and homework captured by Vincent in ottawa_genicam_meeting_attendees_schedule_and_homework.xls
- Push NI meeting to next Fall to have European meeting in Spring – not to have a European meeting just before Vision 2011?
    - Tentative: Stemmer to Spring 2011, NI Fall 2011.
    - To be confirmed…
    - Are two meeting a year still necessary? Switch to one meeting?
    - Decision deferred to GigE Vision meeting later in the week

Post meeting updates

- Basler had an action item to check with Jeff Fryman if the generic register access protocol proposed by STEMMER can be hosted by the CLProtocol module. Rupert and Fritz talked to Jeff on the first GEV day and he was ok with that.
- Camera Link HS and CameraLink, which would be most likely users of this new protocol, could then just reference it and make it a first example of the P12-09 concept.