GenICam Liège Meeting Minutes – 2016-10-10/11

1. *Welcome (Marc Damhaut, Euresys)*
2. *Agenda Review (Fritz Dierks, Basler)*
3. *Homework Status/Voting Members (Fritz Dierks, Basler)*
    - Allied Vision – GenTL Validation Framework
    - Automation Technology – SFNC review
    - Basler – GenICam 3.0.1, Going Embedded SC1 proposal
    - Baumer – SFNC proposal
    - Euresys – Meeting host
    - Gardasoft – SFNC proposal
    - Mathworks – GenICam 3.0.1
    - MATRIX VISION – GenICam 3.0.1, Multi-slope exposure
    - Matrox – SFNC 2.3
    - MVTec – GenICam 3.0.1, Marketing
    - Pleora –SFNC
    - Point Grey / FLIR – Logic block proposal
    - SICK – SFNC, Java/Python wrapping, GenTL SFNC
    - Silicon Software – Going Embedded SC2 proposal
    - STEMMER IMAGING – GenTL, GenCP
    - Teledyne DALSA – MathParser
    - Toshiba TELI – Python bindings

4. *GenApi (Fritz Dierks, Basler)*
    - Short review of fixed GenApi tickets in GenICam 3.0.1 release
    - New issues since Kyoto meeting
        - #1667 fixed
        - #1669 fixed
        - #1680 fixed
        - #1682 avoid LoadLibrary() in DllMain
        - #1686 Tool for creating and maintaining XML files?
    - MathParser (Eric Bourbonnais, Teledyne DALSA & Thies Möller, Basler)
        - Original idea: Use new library to speedup current implementation
        - How to guarantee compatibility? Testing with real-world fomulas from Google and plugfest cache (>15.000 integer, >3000 float formulas)
        - New idea: Parse all formulas in advance, thus avoiding parsing on-demand
        - More work to do regarding optimization, validation and robustness
    - Wormhole (Rupert Stelz, STEMMER IMAGING)
        - “GenTP Extension (Tunneling Protocol)”
        - Waiting for more comments on current proposal , see #1624

5. *GenCP (Rupert Stelz, STEMMER IMAGING)*
    - GenCP 1.2 is released and available

- Currently only two new tickets for next release
- CL is adopting GenCP

6. *Going Embedded SC1 - GenICam 4.0 & Industrial MIPI (Fritz Dierks, Basler)*
    - The Big Picture
        - Embedded processors take over the race (by putting critical SW tasks to HW)
        - … and cover the full range from very cheap to very powerful
    - GenICam 4.0 objectives
        - Make GenICam fit for embedded systems
        - System architecture changes (camera firmware moves to embedded host)
        - No need for registers anymore!
        - Support device bundles (e.g., camera, lens, and illumination)
        - Support virtual devices (e.g., also to finally solve the glue problem)
        - Support channeling video data to GPUs
        - Support MIPI as camera interface
    - GenApi 4.x
        - Use Extended Object Model (with Running Object Table (ROT))
        - Need for a binary portable Interface
        - Bindings and backwards compatibility
    - GenTL 4.0
        - Combine ROT with Device/Interface/System modules
        - Support also Stream modules targeting to GPUs
        - Make sure to be as compatible as possible with SW frameworks like OpenVX
    - "Politics"
        - MV world vs. Consumer world
        - Competing camera standards, see OpenKCam and Android Camera HAL v3
    - Industrial MIPI Camera Interface Standard
        - Create interface for MIPI CSI-2
        - Collaborate with MIPI consortium
        - EMVA has already claimed MIPI for embedded cameras under G3 rules
    - Conclusion
        - Go for GenICam 4.0 (binary DLL portable interface, also full support of classical systems)
            - Form a sub-group, 15 companies showed interest to participate
        - Go for MIPI CSI-2 as new TLI
            - New standard group under the EMVA umbrella, 14 companies showed interest to participate

7. *Going Embedded SC2 - Image processing systems (Ralf Lay, Silicon Software)*
    - Short review
        - Meetings every 14 days by telco/webex
        - Step-by-step approach
    - Motivation
        - Trend towards embedded vision
        - Challenge complexity

        - Still keep it simple
    - Different use cases, e.g. smart camera (sensor->FPGA->ARM)
    - Challenges
        - Image processing
        - Varying data formats
        - Multiple vendors
        - Multiple processing modules
        - Security issues
        - Simplicity
    - Technical challenges
        - Keep compatibility with existing Processing Modules concept
        - Extend region concept, e.g. introducing objects
        - Idea of defining components
        - Idea of hierarchical View/Control
        - System level, incl. merging XMLs from different vendors
    - SC2 Working Group
        - Call for participation and feedback!

8. *GenTL SFNC (Mattias Johannesson, SICK)*
    - Current draf version is v1.1 Beta5
    - See Trac discussion topic #50
    - Clarify how much Version features are needed
    - GEV features
    - Action features
    - Multipart support via BufferPartSelector
    - Event control
    - GenTL SFNC 1.1 RC expected until e/o 2016

9. *GenTL (Rupert Stelz, STEMMER IMAGING)*
    - Scope of next version 1.6, incl.
        - Multi-event proposal via EventGetDataMulti
        - Additional info commands
        - New payload types (JPEG, JPEG2000, Chunk only)
    - Python bindings (Kazunari Kudo, Toshiba Teli)
        - See also github.com/genicam
    - GenTL Validation Framework (Tim Handschack, Allied Vision
        - Key idea: Starting with GenTL 1.6, certification will be mandatory
            - Producers have to pass the GenTL VF
            - Consumers have to show compatibility with 3 producers on plugfest
        - Function Declaration Tests (16)
        - Enumeration Tests (completed)
        - Functional Behavior Tests (nearly complete)
        - Extended GenTLPackage
        - Idea: Certification online as a cloud service?
        - Alternative: Signed self certification

- Start on plugfest on Friday and also on plugfest in Stuttgart on Nov. 11th

10. SFNC (Stephane Maurice, Matrox Imaging)

- SFNC status
  - SFNC 2.3 released in May 2016
- Generic Firmware Update (Stefan Klug, Basler)
  - Allow vendor agnostic FW updates
  - Plain GenICam
  - No device-vendor specific driver necessary
  - Work on a reference implementation including unit tests
  - Call for participation!
  - First standard draft and reference implementation prototype until e/o 2016
  - Testing and approval until next meeting
- PFNC
  - Remove generated reference images from repository
  - Provide Readme on how to use the reference image generation tool
- Extended IEEE1588 feature set (Thies Möller, Basler)
  - Five new features proposed and accepted
- GenSP – Generic data Streaming Protocol (Stephane Maurice, Matrox Imaging)
  - Why? Mostly to decouple payload type definitions form TL standards, thus decouple the "what" to transmit from the "how" to transmit
  - Would define a new shared and uniform payload format
  - Permits to introduce new payload types without releasing a new version of each TL standard spec
  - Container structure with headers and data chaining
  - Can be used on exisiting TL (chunk metadata as GenSP components/parts)
  - Completing the whole GenICam picture ("symmetric" to GenCP)
  - Creation of a working group with members of each TL protocol to see how they could efficiently implement that
    - 14 member companies showed interest to participate
  - Idea: GenSP as a new generic U3V/CXP/CLHS payload type?
  - Presumably too late to introduce it into GigE Vision (as there the multipart proposal is already integrated) but could be supported in the future
  - Further development mainly depends on the adoption by the various TL standards
- Storing UserSets and SequencerSets in files (Marcel Naggatz, Baumer)
  - Formal proposal to come
- Frame completion with linescan cameras (Mattias Johannesson, SICK)
  - Proposal: AcquisitionStopMode
- Discussion on clarification and simplification on Region setup with respect to binning, decimation and reverse features (Mattias Johannesson, SICK)
- Lighting Device Control mechanism using GenICam (Peter Bhagat, Gardasoft)
  - New category LightingControl
  - Mostly finished and approved
- Lens Control (Peter Bhagat, Gardasoft)
  - Are there interested parties, in particular liquid and motorized lens makers?

        - Yes, to be developed and formal proposal to come
    - TLParamsLocked reloaded (Eric Boubonnais, Teledyne DALSA)
        - Provide additional text for TLParamsLocked feature
        - Define additional features to allow dynamic TL configuration
    - Draft for SFNC 2.4 will be available around next meeting

11. *Marketing & Operations (Christoph Zierl, MVTec)*
    - *Update on membership: approx. 165 companies, 17 with voting rights*
    - *Regained access on* www.genicam.org *CMS for publishing news and downloads*
    - *Trac issues:*
        - *Please announce new proposals also on mailing list*
        - *ToDo: Introduce new workflow state "homework_done" to enable easier tracking of homework*
        - *Using git instead of SVN?*
            - *Requires more user skills, thus, not really worth the migration effort*
    - *Upcoming releases:*
        - *GenTL SFNC 1.1 targeted e/o 2016*
        - *SFNC 2.4 draft until next meeting, release afterwards*
        - *GenTL 1.6 draft until next meeting, release in summer 2017*
        - *GenAPI 3.1 with faster MathParser implementation*
    - *Press work*
        - *„Feel-good" GenICam article published in Vision Yearbook 2016/17, from the publishers of Imaging and Machine Vision Europe*
        - *German article will also be published*
    - *VISION 2016 in Stuttgart*
        - *Talk about GenICam Past/Present/Future during Industrial Vision Forum*
        - *Idea: GenICam 3D demo -> ToDo: ask on mailing list for participation*
    - *Miscellaneous*
        - *ToDo: Publish latest version of GenApi standard text v2.1.1*
        - *ToDo: Provide „GenICam full package" zip files for download, incl. README*
        - *Open issue: code signing of GenICam binaries by EMVA certificate*
    - *GenTL Certification*
        - *ToDo: Prepare official GenTL VF binary (Tim Handschack)*
        - *Now „test run" for v1.5, not mandatory*
            - *Start now in Liege and also at plugfest@Stuttgart in Nov. 2016*
            - *Call for participation with existing implementations (GEV, U3V, CXP, ...)*
        - *Starting with GenTL v1.6/v2.0, certification is planned to be mandatory!*
        - *ToDo: Clarify paperworks, new logo usage and website listing with EMVA*

12. *EMVA standards licensing (Jochem Herrmann, EMVA)*
    - Working with a lawyer to develop better license text
    - Step1: diagnosis
        - Mostly done
        - Found nothing surprising, looks feasible

- Step 2: implementation
    - Need for one GenICam person as primary point of contact
    - Goal is to have updates and draft until next meeting

13. Miscellaneous (Jochem Herrmann, EMVA)

- Report on European Machine Vision Forum held on Sept. 8/9 in Heidelberg
    - 130 participants
    - Interaction between vision industry and academic research
- European Embedded Vision conference
    - 2017, Oct. 12-13 in Stuttgart
    - Organized by EMVA with Landesmesse Stuttgart
    - www.embedded-vision-emva.org

14. Homework session (Fritz Dierks, Basler)

- Go through homework list/items
- Next meeting: May 2017, hosted by Mathworks in Boston, USA