GenICam Frankfurt Meeting Minutes – 2018-05-14/15

1. *Welcome (Patrick Schwarzkopf, VDMA & Ralf Lay, SILICON SOFTWARE)*
2. *Agenda Review (Fritz Dierks, Basler)*
3. *Homework Status/Voting Members (Fritz Dierks, Basler)*
    - Allied Vision – GenTL proposal, GenTL Validation Framework
    - AVAL DATA – Multiple Language Support
    - Basler – GenICam 3.1, GenDC
    - Baumer – CLProtocol, GenTL SFNC
    - Daheng – Multiple Language Support
    - FLIR (Point Grey) – SFNC EMVA 1288 proposal
    - MathWorks – GenICam 3.1
    - MATRIX VISION – GenICam 3.1, GenApi Persistance, GenDC
    - Matrox – SFNC, GenDC
    - MVTec – GenICam 3.1, GenDC, Administration, GenTL Producer Framework
    - NI – GenDC
    - Pleora – GenICam 3.1, GenDC
    - Sentech – GenTL VF for Linux
    - SICK – GenDC, SFNC, GenTL SFNC
    - Silicon Software – GenDC, Meeting Host, GenICam for Embedded
    - STEMMER IMAGING – Modular Logging, GenDC, GenTL & Flows, GenApi C-bindings
    - Teledyne DALSA – GenDC, GenApi headers
    - Toshiba TELI – GenTL Python bindings, SFNC EMVA 1288 proposal

4. *GenApi (Fritz Dierks, Basler)*
    - GenICam Release 3.1 (Hartmut Nebelung, Basler)
        - Currently RC5 available, proceed with voting
        - Fixed latest bugs #1916 and #1917
        - Includes in particular
            - Alternative mathparser implementation
            - FWUpdate
            - Feature persistence with sequencer settings
            - Transaction support
            - Caching MUXed registers
            - Retrieving Value Influencing Children
        - Still issue with FWUpdate and UTF-8 characters, see #1929
            - can it be fixed fastly? Maybe still for GenICam 3.1?
        - Start voting about RC5 this week!
    - FWModule
        - Finalized standard document
        - Voting and Releasing has been done
        - Interoperability should be tested on plug fests
    - Open Tickets

        - See Trac ticket report
    - CLProtocol (Silvio Voitzsch, Baumer)
        - Extended standard text (-> version 1.3)
            - New parameter ‘stop_probing’
            - Linux support
            - Added description to deal with device events
        - Next step
            - Start voting, include in next full GenICam release package
        - Potential improvements
            - Accelerate probing procedure
            - Flexibility (limit max baud rate)
            - Asymmetric interface (add disconnect and DestroyPort function)
            - Use clallserial functions of Camera Link v1.1 (or even v2.1)
    - Multi-Language support (Masahide Matsubara, AVAL DATA)
        - Idea: Separate resource files with localized texts for Name and Tooltip
        - Zip file includes XML and additional res files
        - Merging is done on the fly within GenApi after xml file loading
        - Roadmap
            - implement draft until next meeting
            - to be included in future GenICam release
    - Modular logging (Quang Nguyen, STEMMER IMAGING)
        - Customizable logging output
        - Keep log4cpp or use custom logger
        - -> Yes, to be be continued!
    - Upgrading to newer compilers (Tom Hopfner, MVTec & Maduhra Singh, Mathworks & Eric Gross, NI)
        - Current status
        - Why upgrading?
        - Proposal
            - Avoid C++11
            - For next major release use VS2017, gcc 4.8, clang 9
            - Try to stay glibc compatible

5. *GenICam for Embedded (Fritz Dierks, Basler)*
    - PC-based MV Market is nearly mature, also the Consumer Embedded Vision market
    - Industrial Embedded Vision Market is still not mature
        - Sensor connected to embedded processor by CSI-2
        - Workaround #1: Fixed register set: CCS as feature layer
        - Workaround #2a: ISP on camera module, possibly also with GenApi & GenTL
        - Workaround #2b: Camera firmware in camera module
    - User Mode centered design (Fritz Dierks, Basler)
        - Register set in software, provide XML, access by GenTL
        - Firmware implemented as GenTL Filter Driver
        - CSI Port Adapter in user space accesses CSI-2 port by V4L/I2C
        - Supporting V4L and gstreamer via V4L loopback
    - Kernel Mode centered design (Thomas Lück, Allied Vision)

        - Sub-device driver framework in kernel mode with V4L output
        - GenTL Adaptor on top of V4L
    - Conclusion
        - Embedded offers now a window of opportunity for GenICam
        - Creating a sub working group?

6. *GenICam and OPC Vision (Ralf Lay, Silicon Software)*
    - Clarify interface und functional spaces between both standards
    - Idea/Concept: Introduce a system layer to combine several feature node maps
    - Interpretation of processing results in an OO manner
    - Next steps:
        - Task force of OPC Vision and GenICam
        - Proposal for system layer
        - Proposal for processing results

7. *GenTL (Rupert Stelz, STEMMER IMAGING)*
    - DSGetBufferInfoStacked (Tom Kirchner, Allied Vision)
        - New function DSGetBufferInfoStacked
        - Ready to be released for GenTL v1.6
    - Flows (Rupert Stelz, STEMMER IMAGING) -> PRESENTATION
        - Enable more use cases, including GenDC support
        - Flows come from anywhere (sequential, in parallel, …) and fill buffers
        - Stream will carry flowsets instead of buffers
        - New functions DSAnnounceFlowSet and DSAllocAndAnnounceFlowSet
        - Buffer info provides FlowsetHandle instead of BufferHandle
        - New payload format for GenDC
        - Only flowsets can be revoked, not flows
    - Next steps:
        - Prepare GenTL draft including stacked buffers and flows
    - GenTL Producer Framework (Roman Moie, MVTec)
        - Several bugs and features since release of v1.0 in September 2017
        - -> Prepare release candidate and ask for feedback for some weeks
    - GenTL Validation Framework (Tom Kirchner, Allied Vision)
        - Bugfixes
        - Linux Port (together with Sentech)
    - GenTL Self-Certification (Tom Kirchner, Allied Vision)
        - Goal: Automatic self-certification
        - Database of certificates for internal and external use
        - Idea: signing on EMVA server, verification by dedicated signing tool
        - Step 1: Testing camera/TL with GenTL VF
        - Step 2: Creating a certificate for a TL(/camera combination
        - Step 3: Send Certificate to EMVA database
        - Then, user could check online whether camera/TL is certified
        - Is this approach suitable for the end user or does it provide kind of a “virtual” GenTL plugfest?

- Python bindings (Kazunari Kudo, Toshiba Teli)
    - GenTL Python Consumer called “Harvester”
        - Based on VisPy and PyQt modules (incl. OpenGL)
    - Roadmap: Release until VISION 2018 on GitHub

8. GenCP (Rupert Stelz, STEMMER IMAGING)

- Stacked RW (multiple RW commands)
    - READMEM_STACKED CMD/ACK
    - WRITEMEM_STACKED CMD/ACK
- Command queues
    - Send command before ACK of previous command has been received

9. *GenTL SFNC (Mattias Johannesson, SICK)*

- New TLParamsLocked features for GenTL SFNC (Silvio Voitzsch, Baumer)
    - TLParamsLockedSelector
    - TLStreamContentProperty
- Controlling packet size (Roman Moie, MVTec)
    - Guarantee access to packet size even if not exposed by remote nodemap
    - Allow re-negotiation on existing stream instance
    - Inform the Producer about negotiation preferences (min, max, incr)
    - Proposal of five new DeviceStreamChannel parameters

10. GenDC (Stephane Maurice, Matrox Imaging)

- Status
    - Descriptor structure, layout and fields were accepted by workgroup
    - Preliminary spec is available on Trac
    - Notion of “Flow” was introduced to ease the transport over TLs
    - Defined standard mechanisms and rules shared by the various TLs
- Container descriptor format
    - Container has Descriptor + Data + (optionally) Descriptor Update
    - Descriptor has Container Header and Component header(s)
- Component header fields and layout
- Various container scenarios
- GenDC related SFNC features
    - GenDCDescriptor to fetch complete descriptor in binary format
    - GenDCStreamingMode with values Off, On and Mixed
    - GenDCStreamingStatus with values Off and On
- GenDC flow mapping table
- GenDC and variable-sized components (Eric Gross, NI)
- Milestones
    - Finalize GenDC spec before next meeting in Fall 2018, then start voting
    - Preliminary proposals for various TLs
    - Review GenDC encoder/decoder reference C++ code
    - GEV simulator is already supporting GenDC
- Next steps

- Collect open issues until end of May
- Agree in next sub group conference call whether dedicated workgroup meeting is needed
- Prepare release candidate ASAP

11. SFNC (Stephane Maurice, Matrox Imaging)

- SFNC 2.4 draft available, mostly finished for release
- Includes latest changes:
  - Lighting Device Control
  - TLParamsLocked mandatory before AcquisitionStart
  - New AcquisitionStopMode feature with values Complete and Immediate
  - New TestPayloadFormatMode feature with values Off and MultiPart
  - New SFNC features to help automate EMVA 1288 measurement
  - IEEE 1588 extended feature set proposal
    - New category PtpControl
  - Corrected category for SensorShutterMode feature
  - Focal length and Baseline for 3D Reconstruction from Disparity Images (Heiko Hirschmüller, Roboception)
    - Scan3dFocalLength in pixels
    - Scanf3dBaseLine
    - Scan3dPrincipalPointU and –V
    - Ready to be included in SFNC 2.4
- Next SFNC Release is v2.4, voting will start soon

12. Marketing & Operations (Christoph Zierl, MVTec)

- Update on membership: 19 new member companies since last meeting
- Currently 18 contributing members
- Roadmap:
  - Next GenICam package as soon as SFNC 2.4 and License 1.6 are available
    - in particular contains new reference implementation 3.1 with
      a. Speeding up MathParser
      b. Persistance enhancements
      c. FWUpdate
    - Also latest CLProtocol standard should be included
    - also small updates on GenCP and GenTL SFNC should be included
- Update module maintainers
  - FWUpdate now maintained by Hartmut Nebelung (Basler)
  - PFNC module now maintained by Uwe Hagmaier (MATRIX VISION)
  - Currently no maintainer for CLProtocol
- www.genicam.org
  - Now separate news page: http://www.emva.org/standards-technology/genicam/genicam-news/
  - -> should also announce upcoming events
- EMVA plans to initiate a permanent GenICam demo kit for use on trade shows
  - -> Call for contribution on mailing list
- Updating GenICam License document

        - Include new deployment rules
        - Clarify redistribution of SFNC wording
        - Propose compliancies rules for GenICam GenCP
        - Introduce FWUpdate
        - → Voting will start soon after the meeting
    - GenICam versioning scheme
        - (Bi-)Annual packages like “GenICam 2018.06”
        - Start new scheme already for upcoming release (instead of “GenICam 3.1”)!

13. Standard licensing and development procedures (Arnaud Darmont, EMVA)

- Need to have uniform development procedures (in all EMVA standards)
- Legal document for use by EMVA BoD and chairs
    - Compatible with G3 requirements
    - Minimum set of requirements
    - Most of the freedom remains in the working group
- Responsibilities of the EMVA BoD and Standards Director
    - Initiates and approves new standards
    - Manages licensing
- Working and User Group
    - Working Group (WG) will replace Contributing Members
    - User Group will be all remaining non-contributing members
    - WG members have to be EMVA (or G3) association member
    - Valid license
    - May need to pay a WG participation fee
    - Chair elected by WG, approved by EMVA BoD
- Working Group Voting
    - Only 1st version of a new standard needs EMVA BoD approval
- Publishing of a standard
    - 12 weeks time period after publishing voted release candidate
- Licensing
    - Copyright of standard text and logo
    - Use in products
    - Main question: What is licensed in case of GenICam?
- Next steps
    - New procedures and licensing to be introduced until end of 2018
    - More discussion until and at next meeting in Austin

14. GenICam for Lens and HDR (Arnaud Darmont, EMVA)

- GenICam for Open Lens Communication
    - New EMVA standard
    - Need for additional SFNC features
- GenICam for HDR
    - Part 1: control
        - SFNC for most common HDR controls

- Part 2: data
  - Special pixel format required
- Part 3: information
  - Method used -> EMVA 1288

15. *Homework session (Fritz Dierks, Basler)*

- Go through homework list/items
- Next meeting:
  - 2018, September 17-18, hosted by NI, Austin, TX