

GenICam Hiroshima Meeting Minutes – 2017-10-16/17

1. *Welcome (Watanabe-san, JIA)*
2. *Agenda Review (Fritz Dierks, Basler)*
3. *Homework Status/Voting Members (Fritz Dierks, Basler)*
 - Active Silicon – GenSP
 - Allied Vision – GenSP, GenTL Validation Framework
 - AVAL DATA – GenApi/Multi-language
 - Automation Technology – Python binding
 - Basler – Python bindings,
 - Baumer – CLProtocol, SFNC, GenTL Producer Framework
 - Gardasoft – Lighting proposal
 - IMAC – Lighting proposal
 - MATRIX VISION – GenApi Persistence
 - Matrox – SFNC, GenSP
 - MVTec – GenSP, Administration, GenTL Producer Framework
 - NI – GenSP, FWUpdate
 - Pleora – PFNC image generator
 - SICK – GenSP
 - Silicon Software – GenSP, OpenVX, Going Embedded SC2 proposal
 - STEMMER IMAGING – Modular Logging, GenSP, GenApi C-bindings
 - Teledyne DALSA – GenApi Persistence&Transactions
 - Toshiba TELI – GenTL Python bindings
4. *GenApi (Fritz Dierks, Basler)*
 - Overview
 - Changes Ready for v3.1
 - Transaction support
 - Caching MUXed registers
 - Retrieving Value Influencing Children
 - Speeding up MathParser
 - Open Topics for v3.1
 - See below
 - Next Steps
 - Transaction support (Eric Bourbonnais, Teledyne DALSA)
 - Stacking register write by IPortStacked interface
 - Bypassing validations when writing a group of features (e.g., AOI)
 - Decision: Go for option 1, see presentation
 - Caching improvements (Eric Bourbonnais, Teledyne DALSA)
 - pError cannot have cache
 - Retrieving Value Influencing Children (Eric Bourbonnais, Teledyne DALSA)
 - INode::GetProperty is very slow (since GenAPI 3.0)
 - Introduce INode::GetChildren method

- Speeding Up th MathParser
 - Code has been merged now
- C-binding (Sascha Dorenbeck, STEMMER IMAGING)
 - Use cases
 - Stable application binary interface
 - Enable static linking
 - Enable dynamic loading
 - Scope
 - GenApi Module only
 - Make only user interface accessible
 - Keep it minimal
 - Current state
 - Development branch with GenApiC and GenApiTestC
 - Library, e.g. GenApiC_v3_0
 - Future steps
 - Identify what is missing, looking for feedback!
 - Header-only C++ wrapper
 - Refactor use use C or header-only C++
 - Target the infamous “Glue”
- Multi-Language support (Masahide Matsubara, AVAL DATA)
 - Idea: Descriptions, tooltips, display names by e.g., <Description_L lang=”de”>
 - Get/SetLocalizedID globally
 - to be added in SVN dev branch soon
 - increases XML file size
 - -> Localizing the SFNC display names by homework packages
- Log4CPP loading (Silvio Voitzsch, Baumer)
 - New search order for CLAllSerial
- Stop probing serial devices (Silvio Voitzsch, Baumer)
 - Add function StopProbing to CLProtocol::CCLPort
 - Extend GenCP by CLP_STOP_PROBE_DEVICE
- Modular logging (Quang Nguyen, STEMMER IMAGING)
 - Status quo – log4cpp: category, priority, message
 - Proposal 1: new logging module
 - Proposal 2: custom appender (keep the infrastructure)
 - Decision: go for proposal 2, more homework to be done
- Firmware Upload (Thies Möller, Basler)
 - Already tested by several companies, more to be expected during plugfest
 - Naming: New GenICam module “FWUpdate” (analog to “CLProtocol”)
 - Will be released with reference implementation as part of GenICam v3.1
 - Next steps:
 - Final adjustments (e.g., include diagram in introduction)
 - Start ballot soon after the meeting
- Persisting selector sets (Stefan Battmer, MATRIX VISION)
 - New CFeatureBagger class to persist all data
- Using GenICam with MIPI CSI-2 D-PHY (Tim Handschack, Allied Vision)
 - CSI defines protocols for control and also pixel types

- CSI-2 (with C-PHY and D-PHY as physical layer), CSI-3 (with M-PHY)
 - CSI-2 D-PHY is well adopted by embedded boards
 - Bringing CSI-2 and GenICam together
 - Control: Boxing of GenCP over I2C / CCI
 - Streaming
- Open tickets
 - Multiple roots
 - Proof of concept presented in Natick
 - Still unclear what happens with existing implementations when using these kind of floating nodes, maybe to be clarified in spec
 - Using multiple GenApi versions in parallel
 - New Python bindings for GenApi
 - See discussion in GenTL session
- New bug tickets
 - Resolve pragma warnings -> to be fixed for v3.1
- Roadmap
 - Finalize features reported in Hiroshima and fix open bugs
 - Start building RC
 - Release v3.1 e/o 2017

5. *Going Embedded SC2 - Image processing systems (Ralf Lay, Silicon Software)*

- Description of dynamic formats for preprocessing
 - Use of chunks: fixed size and number
 - Use of chunks: Variable number of data elements
 - Use of chunks: Two dimensional aspects
 - Full dynamic data formats
- Custom processing modules
- Model for embedded camera, XML-merger approach
- Next steps: further implementations
- SC3: GenICam and OPC UA -> "OPC Vision", hosted by VDMA
 - Interaction between SC2/GenICam with SC3?

6. *GenCP (Rupert Stelz, STEMMER IMAGING)*

- GenCP still in maintenance mode, see tickets and discussion forum

7. *GenTL (Rupert Stelz, STEMMER IMAGING)*

- GenTL Validation Framework (Tim Handschack, Allied Vision)
 - Bug fixes, in particular regarding long exposure times
 - MultiPart
 - SFNC test feature proposal "TestPayloadFormat"
- GenTL Producer Framework (Roman Moie, MVTec)
 - Idea: Decouple GenTL core functionality from TL-specific code
 - Starting point for new GenTL Producer implementations
 - Committed to GenICam repository as agreed in Natick
 - Maintain GenTL core by homework packages

- Feedback from other companies
 - Activation of Multi-Part more SFNC-like -> already implemented
 - Multile TL within one Producer
 - Hooks for specific utilities (like GVCP library)
 - Expose BufferNodemap
 - Avoid double definition of custom features (in XML and code)
 - New Trac component
- Python bindings (Kazunari Kudo, Toshiba Teli)
 - New README.md for developers
 - Documentation for API consumers
 - Improvements on Usability
- Streams & Buffers vs. Flows (Rupert Stelz, STEMMER IMAGING)
 - from a GenTL point of view
 - Currently, GenSP introduces the so-called flow concept
 - Flow is defined by the sender
 - Flows match to GenTL concept
 - Sub-buffers are a flow, forming flow-sets
 - Instead of AnnounceBuffer then call AnnounceFlowSet
 - Solving many use cases like different receivers, early processing, sequencer
 - No more need for multipart and chunk data
 - The interpretation of data will move to the consumer side (based on GenSP)
- Next steps:
 - Wait for progress on GenSP
 - Presumably big impact, thus, then go for GenTL v2.0

8. GenTL SFNC (Mattias Johannesson, SICK)

- GenTL SFNC still in maintenance mode, see tickets and discussion forum

9. GenSP (Stephane Maurice, Matrox Imaging)

- Status
 - Descriptor structure, layout and fields were accepted by workgroup
 - New notion of data Flow was introduced
 - Official name not decided yet
- Container structure
 - Container has Descriptor + Data
 - Descriptor has Container Header and Component header(s)
- Component header fields and layout
 - Part type specific section depending on content (e.g., JPEG, H.264 or 1D)
 - No more extra Parts headers
 - Component info section is of fixed size followed by Part type specific info
 - Container is self-described, i.e., no need to interpret XML
- Various container scenarios
 - 2D multispectral
 - Compressed images (JPEG, H.264)
 - 3D image (range, confidence, reflectance)

- 3D image (xyz planar point cloud, confidence, reflectance)
 - 2D images sequence
 - 2D image with metadata
- New SFNC feature GenSPDescriptor to fetch complete descriptor in binary format
- New SFNC feature GenSPStreamingMode (Default, Native, GenSP, MultiPart)
- Renaming “GenSP”
 - Avoid both the terms “Protocol” and “Payload” since both are not right
 - Proposal: Go for “GenDC” – Generic Data Container
 - Test vote looks good
- GenSP-to-Flow mapping (Eric Gross, NI)
 - Flows != Streams
 - On the wire, a GenSP payload is complete only when all flows are completed
 - Flows represent the lowest common level of transfer described by GenSP
 - Rules of Flows
 - GenSP headers always in flow 0
 - Multiple components/parts may share the same flow
 - Headers are always before payloads if in same flow
 - Components/parts within the same flow are ordered as in header
 - Configuring
 - Enabling flows by camera, end-user or SW library
 - Mapping of flows to user buffers is responsibility of receiver
 - SFNC Features
 - ComponentPartSelector
 - ComponentPartFlowID
 - ComponentPartCurrentFlows
 - Target milestones for next meeting (in Frankfurt May 2018)
 - Finalize GenSP Container Descriptor
 - Conclude on a common approach for the handling of variable scan/payload device producing GenSP Container
 - Study the mapping of the GenSP Container to the various TLs

10. SFNC (Stephane Maurice, Matrox Imaging)

- SFNC status
 - SFNC 2.3 released in May 2016
- Lighting Device Control mechanism using GenICam
 - New category LightingControl with features for source, ratings, brightness, ...
 - Already also reviewed by JIA
 - Ready to be included in next SFNC release
- PFNC extensions (Eric Carey, Teledyne DALSA)
 - Multicomponents
 - Only describe the number of components, not the content
 - MnC pixel formats, e.g., M4C10p
 - Interpreting the content requires then additional information not covered within PFNC
 - Planar
 - Currently, defined by ‘_Planar’

- Regroup multiple components in same buffer, but in planar fashion
 - Introduce 'Planar' suffix (without underscore), e.g. M4C10pPlanar
- 32-bit Pixel ID Fields
- Support of simultaneous non-compressed and compressed image streaming
 - Already possible by using RegionSelector combined with CompressionMode feature (per Region)
- Handling frame endings in linescan (Mattias Johannesson, SICK)
 - Proposal for new AcquisitionStopMode feature
 - Values are Normal, Immediate, ImmediateWithPadding
- Multi-Part test feature proposal (Mattias Johannesson, SICK)
 - New feature TestPayloadFormat with values Off and MulitPart
- TLParamsLocked mandatory before AcquisitionStart (Eric Bourbonnais, Teledyne DALSA)
 - New selector TLDynamicParamsSelector with values ImageSize, PixelFormatConstSize, PixelFormatDynamicSize, ExtendedPayload
 - New feature TLDynamicParamsEnable
- New SFNC features to help automate EMVA 1288 measurement (Kazunari Kudo, Toshiba Teli)
 - SensorPixelWidth
 - SensorPixelHeight
 - SensorName
 - Agreed in general, further review needed
- IEEE 1588 extended feature set proposal (Thies Möller, Basler)
 - GevIEEE1588DatasetLatch
 - Agreed to further review
- Next SFNC Release is v2.4 (as part of GenICam v3.1 release)

11. Marketing & Operations (Christoph Zierl, MVTec)

- Update on membership: nearly 200 companies, 18 with voting rights
- Introduced new status homework_done on Trac ticket workflow to indicate that homework has been done, but not completed
- Naming:
 - Proposal to rename GenSP with GenDC (Generic Data Container)
 - -> Decision: Yes, by 12 positive votes (and 4 abstains)
- Roadmap:
 - Go for GenICam 3.1 before next meeting
 - in particular reference implementation and SFNC v2.4
 - also small updates on GenCP and GenTL SFNC should be included

12. Homework session (Fritz Dierks, Basler)

- Go through homework list/items
- Next meeting:
 - 2018, May 14-18, hosted by Silicon Software at VDMA@Frankfurt, Germany