



## Cameras in ELI Beamlines: A standardized approach

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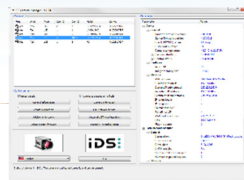
THMPL06

# Cameras in ELI Beamlines



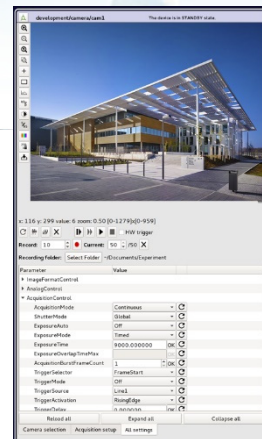
117 different camera models (2014)

90% are covered by “2MP, 30fps, mono, 12bit, CMOS”, but: Physicists..



Vendor SDK

would need up to 20 implementations of basically the same thing



Generic camera interface

# Standardization on the wire -> Generic drivers



**GiGE**  
VISION

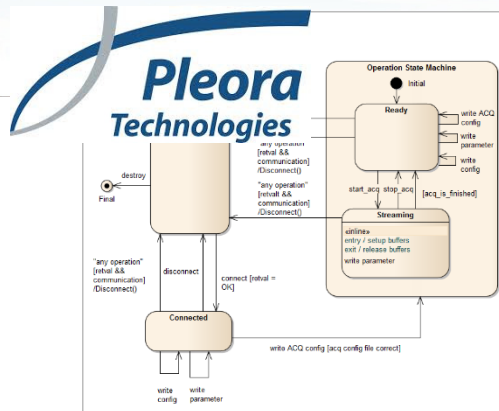
**US3**  
VISION

**10GiGE**  
VISION

**CAMERA**  
**Link**  
REGISTERED PRODUCT

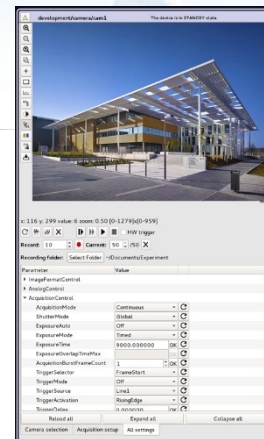


Strictly enforced  
interface standards



1 vendor-independent  
camera SDK

Optimized kernel / filter  
drivers, written once



Generic  
camera interface

# Conclusion

- Hundreds of cameras, ca 4-5 support incidents per week
  - Procurement, Operation, Configuration
  - Hardware (Breakouts), Guidelines
  - Control system = plug-and-play
- Developed generic software
  - (driver, interfaces – C++, TANGO, Matlab, Python,..)
  - written and optimized once  
(using a lot of iterations and careful software engineering)
  - untouched since 2015, OK with all new vendors + models

