# Novel Digital Camera with PCIe Interface

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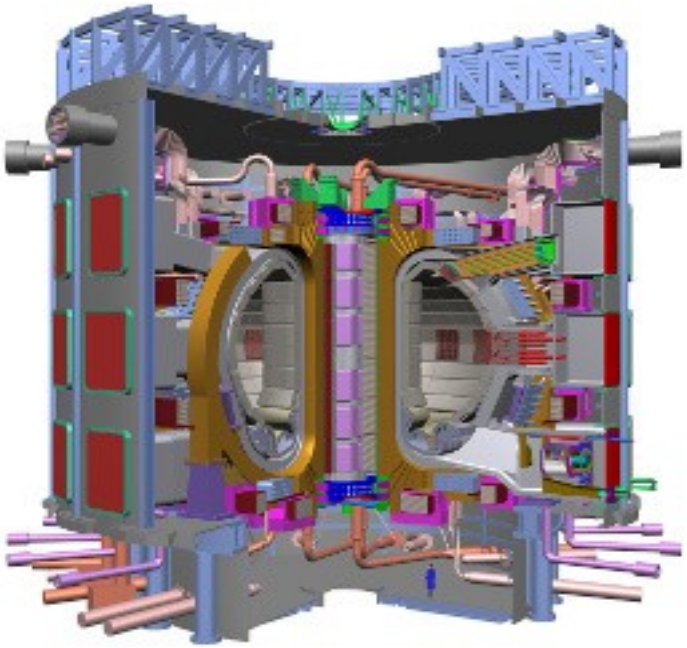
# Plasma Diagnostics with VIS/IR Cameras



Courtesy of ITER Organization

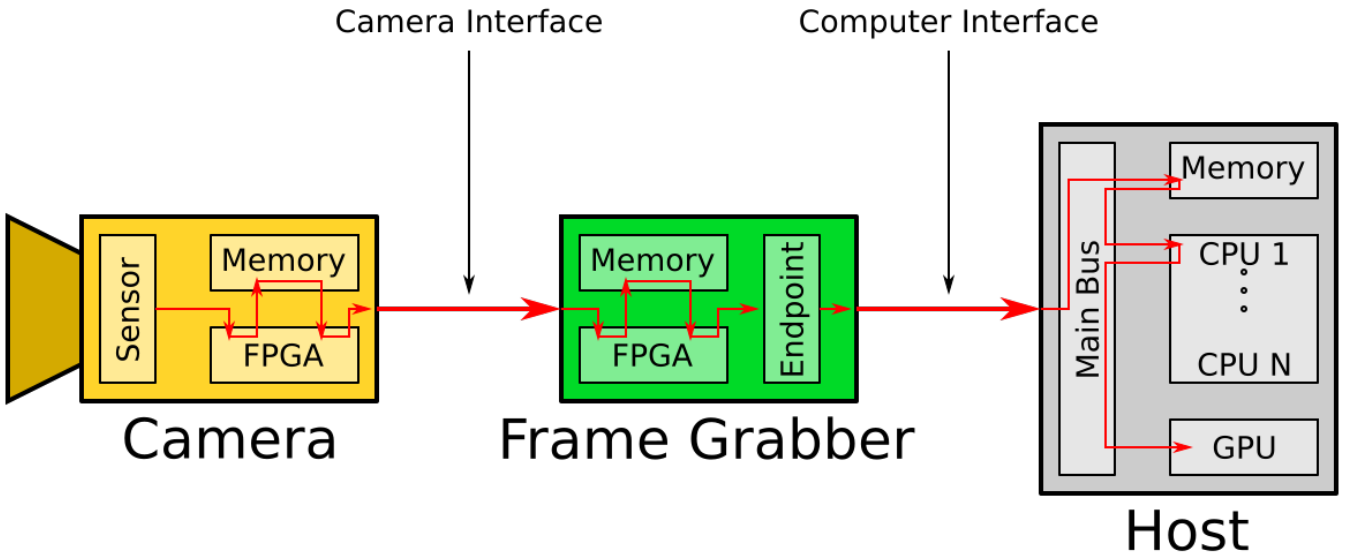
- Non-Uniformity Correction
- Bad Pixel Correction
- Translation to thermal image
- Adaptive thresholding
- Multi-area hot-spot detection
- **Dozens of real-time cameras required**

- High electromagnetic interference
- Turbulent nature of plasma
- Vessel protection requires real-time video analysis

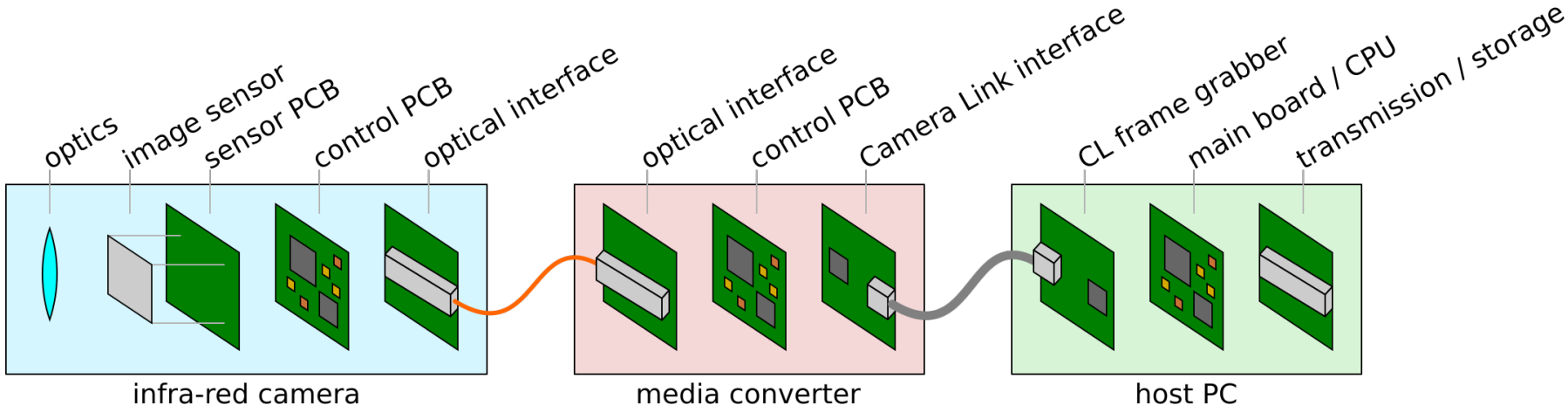
- Avoid ground loops
- Reduce latency
- FPGA / GPU processing

# Regular Approaches to Vessel Imaging

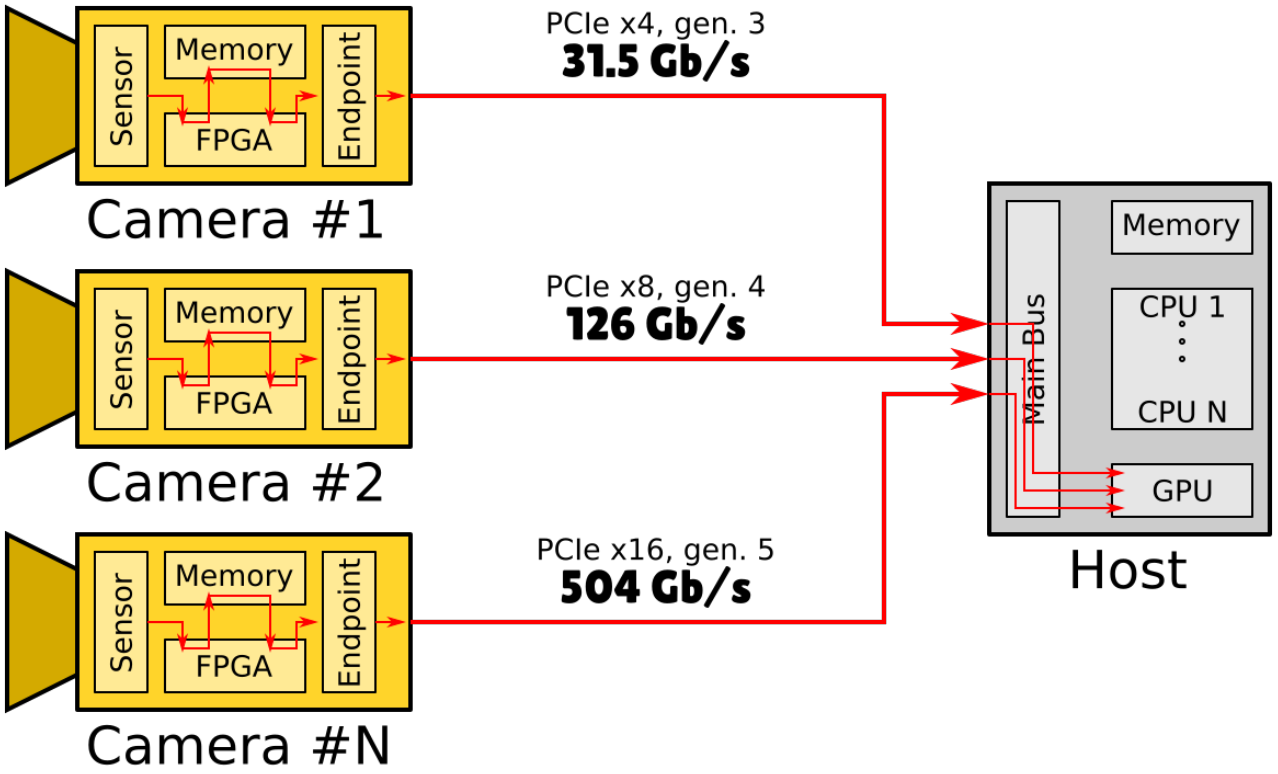
- Excessive buffering produces latency

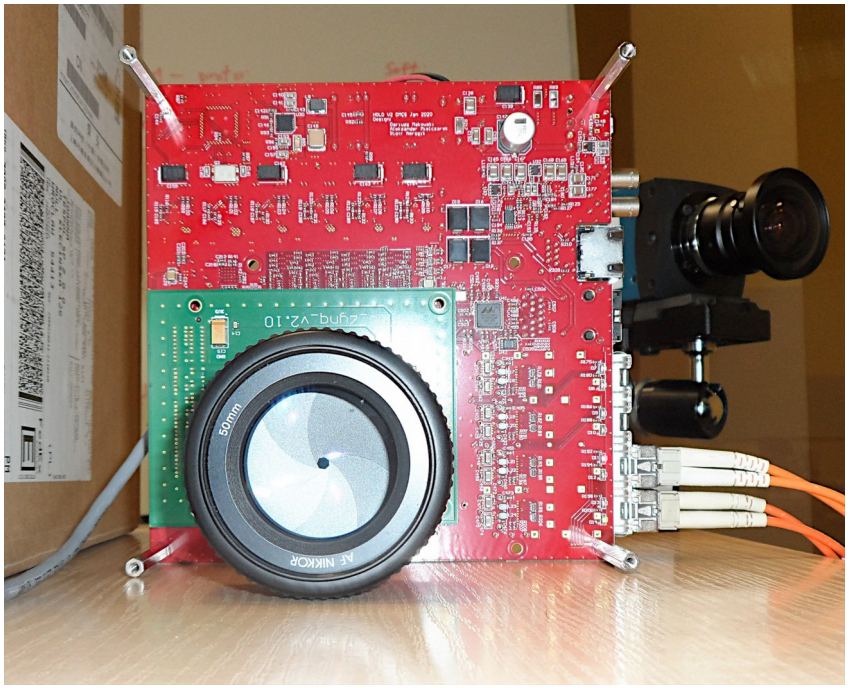
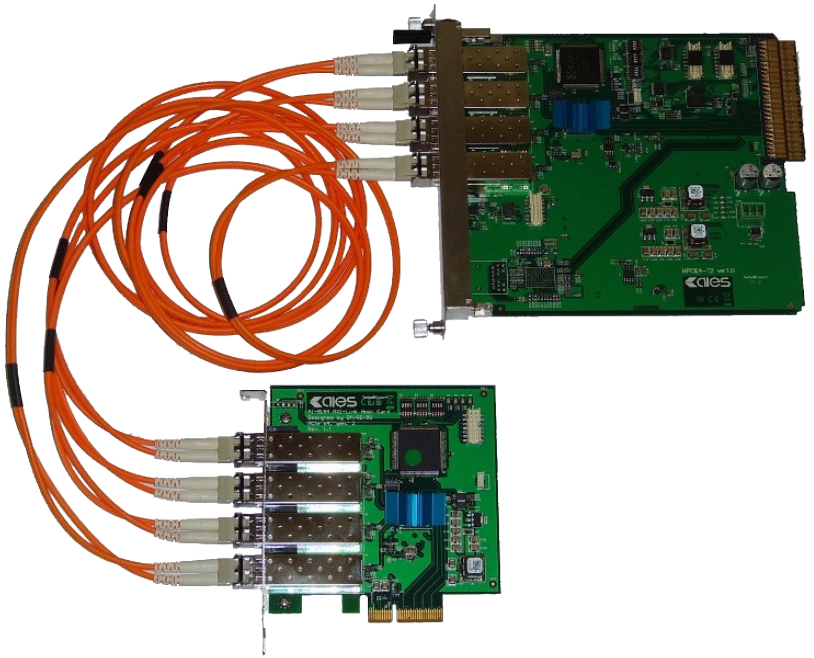
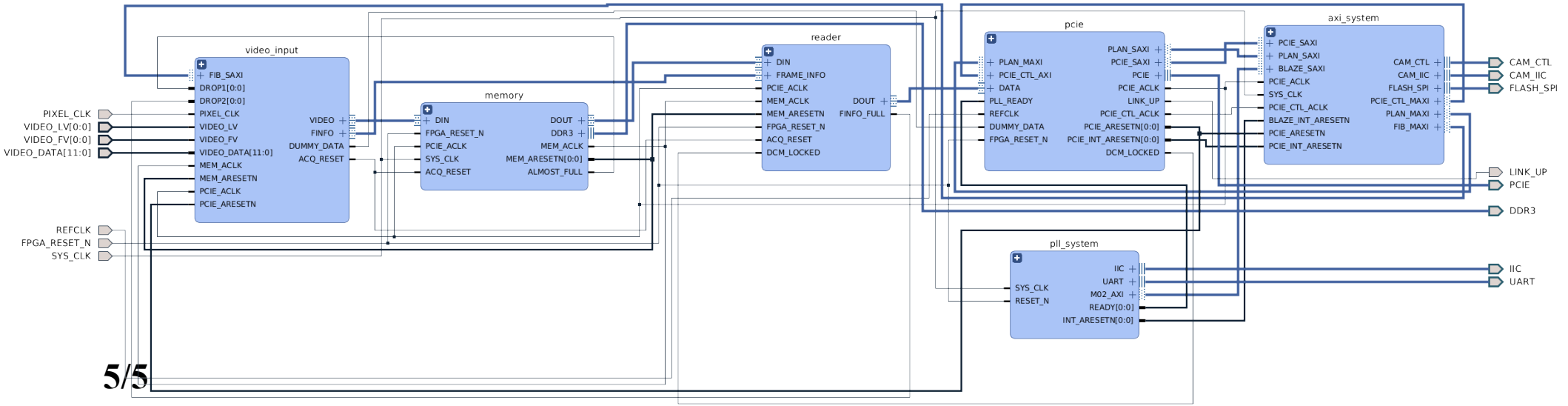



- Introducing galvanic isolation often boosts the complexity



# The PCIe Solution




- No need for a frame grabber
- Direct transfer to CPU memory or GPU
- Unprecedented bandwidth
- Galvanic isolation without added complexity

# Proof-of-concept