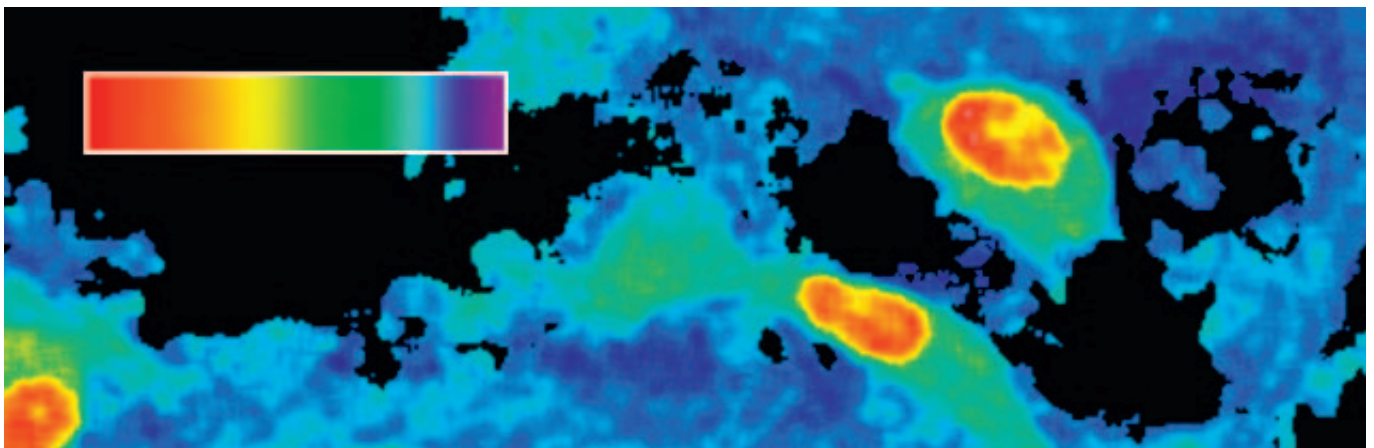


FLIM X16 - 76 MHz TCSPC Detector

>> *A fluorescence lifetime detector combining the advantages of intensified CCD cameras and PMTs* <<



- Fast FLIM imaging at 76 MHz
- High sensitivity and spatial resolution
- Straightforward integration via liquid light guide
- Complete software package including phasor plot

The image acquisition time of a PMT based FLIM [Fluorescence Lifetime Imaging Microscopy] system is limited by its maximum photon counting rate that is typically between 1-8 MHz. FLIM systems that are based on intensified CCD cameras overcome this restriction – but sensitivity and spatial resolution in 3D microscopy applications are limited. LaVision BioTec's PMT based FLIM X16 TCSPC [Time Correlated Single Photon Counting] detector combines both advantages – it is fast and sensitive. Advanced electronics and detectors provide 76 MHz photon counting rate [short term bursts up to 2.5 GHz]. Therefore the FLIM X16 TCSPC is the perfect choice for laser-scanning microscopes.

LaVision BioTec's TCSPC system includes:

- Liquid light guide for optical coupling to the microscope
- 16x PMT-array
- Analog electronics including 16 CFDs [Constant Fraction Discriminator]
- Two 8-channel TDCs [Time to Digital Converter]
- One FPGA [Fast Programmable Gated Array] including USB interface
- ImSpector software package



Input Channels

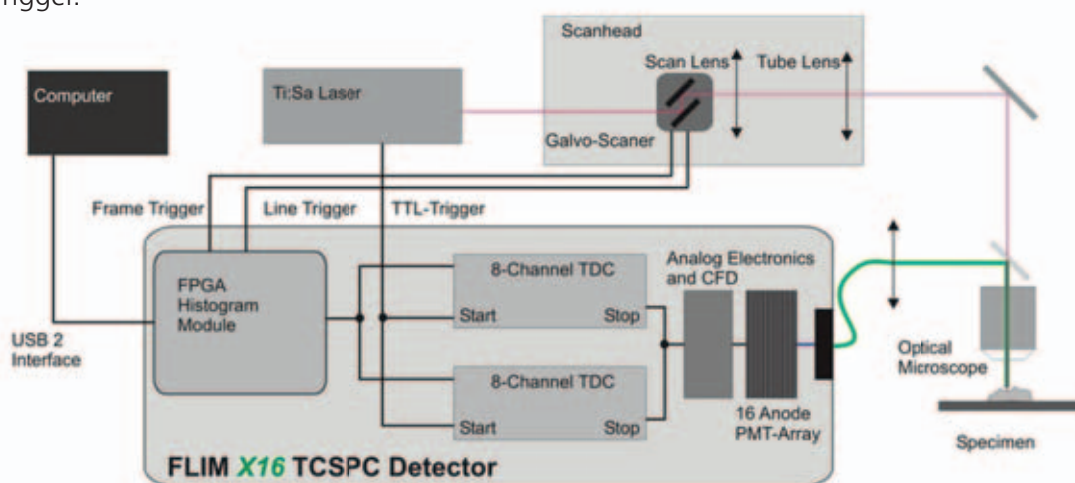
To synchronize the FLIM X16 to the laser scanning microscope it has to be triggered by the pulsed laser and the scanner.

The FLIM X16 provides 3 TTL inputs for:

1. Laser
2. Frame and
3. Line Trigger.

Computer Interface and Software

- USB interface to the computer
- LaVision BioTec's ImSpector Software package proceeds TCSPC data to get real time FLIM images including Phasor Plots

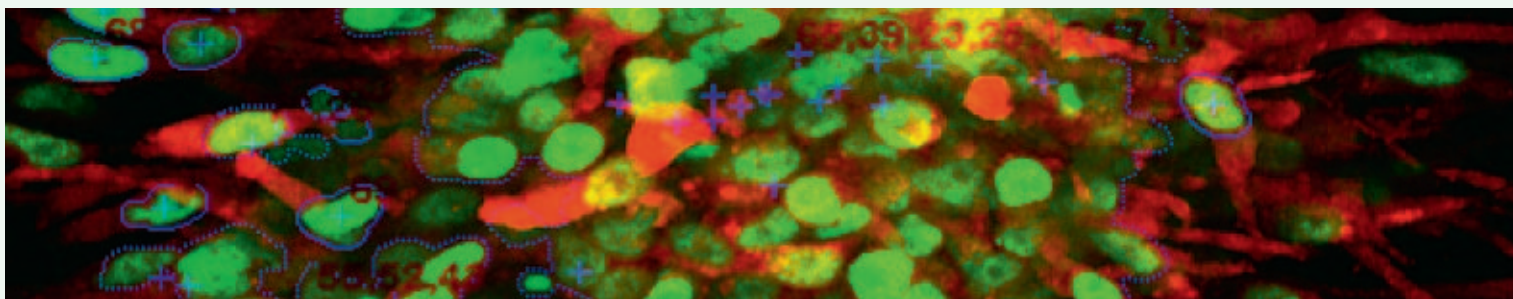


Electronics

Total counting rate:	76 MHz
# of channels:	16
Dead time/channel:	5.5 ns
Max counting rate [burst]:	>2.5 GHz
Multi-hit ability:	yes
Temporal bin size:	80 ps

PMT array detector

Number of channels:	16
Arrangement:	rectangular (4x4)
Spectral response:	300-800 nm
Temporal resolution [FWHM]:	300 ps [depends on detector choice]
Δt between channels:	40 ps rms



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