

EPHUS: control software for electrophysiological and circuit mapping experiments

B. A. Suter¹, T. O'Connor¹, V. Iyer², B. M. Hooks², L. Petreanu², S. M. Sternson², K. Svoboda², G. M. G. Shepherd^{1,2}

¹Dept of Physiology, Feinberg School of Medicine, Northwestern University, Chicago, IL, & ²Janelia Farm Research Campus & Howard Hughes Medical Institute, Ashburn, VA

Ephus is a suite of highly flexible and easy to use software tools that can be used for a wide variety of experimental neuroscience applications.

Freely available at www.ephus.org

Described in: Suter et al. (2010, Frontiers in Neuroscience Methods)

Programs for management of general experimental information

The image shows three software windows: 'hotswitch' for state management, 'xsg' for experiment setup, and 'autonotes' for logging. A flowchart below illustrates the experimental workflow from initialization to acquisition.

Configuration for an *in vitro* electrophysiology experiment

The image displays four software windows: 'ephus' for general settings, 'Acquisition-700B-1' for waveform configuration, 'loopGui' for timing control, and 'pulseJacker' for pulse mapping.

qcam: user interface for video control and display

The image shows the 'qcam' interface with various controls for video acquisition, including exposure, frame rate, and display options.

Configuration for *in vivo* expt

The image shows five software windows: 'acquirer' for acquisition control, and several 'Acquisition-*' windows for data visualization and analysis.

Configuration for synaptic circuit mapping experiment

The image shows two software windows: 'mapper' for mapping parameters and 'Mapping' for visualizing the mapping grid on a microscope image.

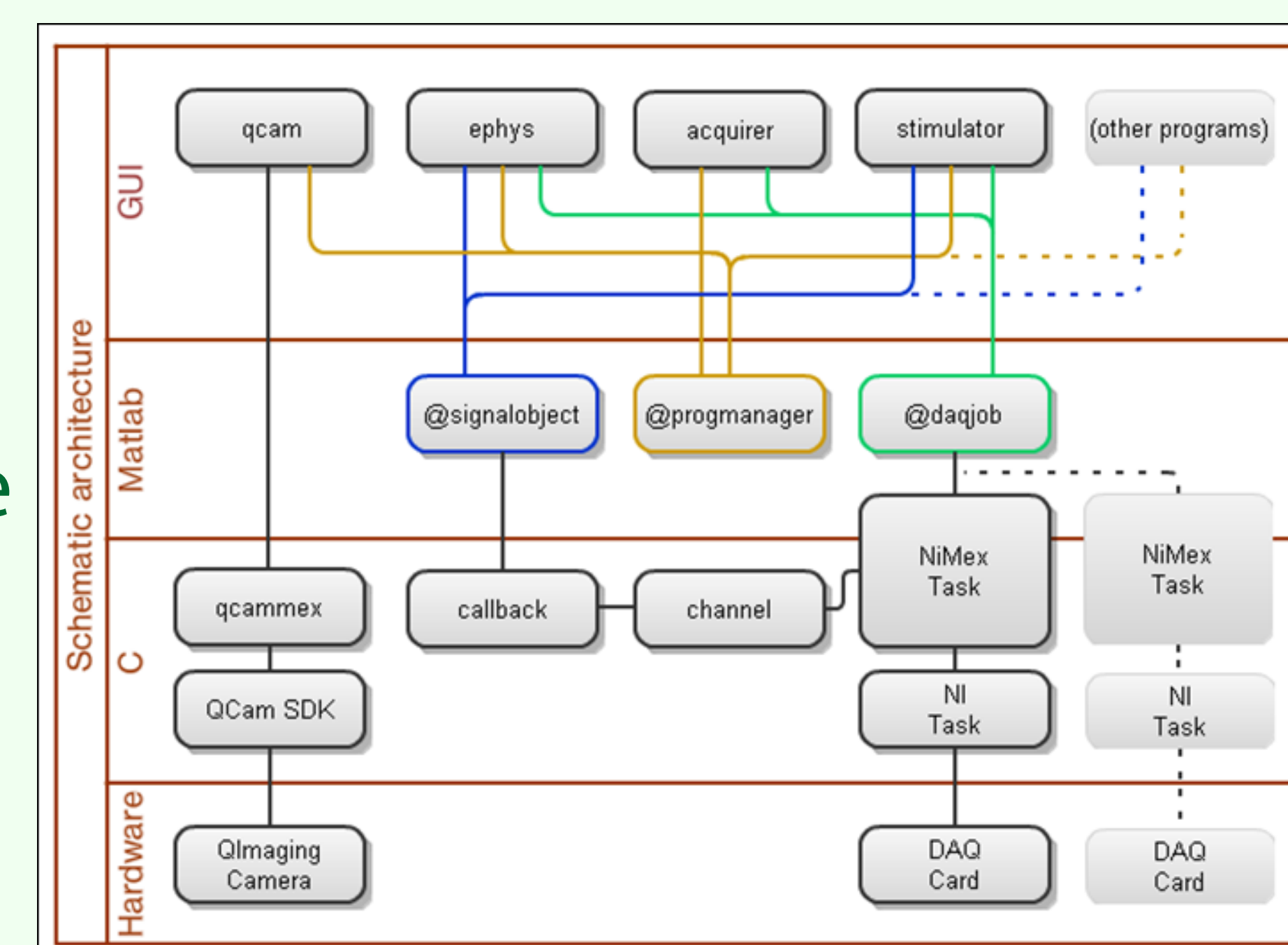
Oscilloscope, displaying two amplifier acquisition channels

The image shows the 'scopeGui' interface with two channels of electrophysiological data displayed on an oscilloscope.

pulseEditor program for creating stimulation pulses

The image shows the 'pulseEditor' interface with a list of pulse sets and a plot of a selected pulse.

Schematic diagram describing connections and layered architecture for a selected set of software and hardware components of the core Ephus data acquisition system



Sequence diagram of the propagation of events and the flow of control in response to user action

