

CMOS-MEA-Control Version 2.0.0

Main features

- * Online spike detector
- * Spike server tool to stream detected spike to external program
- * Labbook to save additional experimental data together with acquired raw data.
- * New file format (HDF5)
- * Display and Record stimulation pattern along with raw data
- * Switch off tools to reduce processing load
- * Recorder work asynchronous and can buffer data in its own queue.

Spike Detector Tool

- Detects spike depending on noise level of each individual sensor.
- For full frame recording the data of 4225 sensors has to be analysed in parallel in real time, therefore a powerful computer is required.
- Different noise measures combined with different timings can be applied. The noise can be measured by the signal's 'Standard Deviation' or its 'Median Absolute Deviation'. Modes: Single measurement at start, repeated measurement at given intervals, continuous measurement and adjustment of the threshold.
- Optional extraction of a data segment around the spike event.
- UI shows sensor array with spike count for each sensor and either the spike cut outs or the raw data trace with markers for detected spikes.

Spike Server Tool

- Stream detected spike to external program via a named pipe.
- The client can be on the same machine, or on any windows computer in the network.
- Beside the spike data events are transferred via the pipe representing different states of the measurement (recording on/off, stimulation events)
- UI for transfer status and transfer rate
- Examples how to write a client in C#, Matlab and Python

New file format (HDF5)

- Common scientific file format, which is supported by many tools
- Much higher file transfer rates are possible
- Record stimulation pattern along with raw data

Display and Record stimulation pattern along with raw data

- Stimulation signal of all three stimulators are shown in Zoom Display.
- Stimulation signal and the stimulation sites are saved along with the raw data.

Switch off tools to reduce processing load

- The Activity Tool, Trace Tool and Spike Tool can be disabled to reduce processing load.

CMOS-MEA-Tools Version 2.0.0

Main features

- Spike Sorter Tool
- Spike Sorter Client
- Extended file open dialogs with lab book information
- Hdf5 Files, reads solely H5 files, ncd files can be converted with Multi Channel DataManager.
- Result files were written also in Hdf5 format.
- Extended STA Analyzer UI (sensor/unit selection)
- Analysis Tree (extended and possibility to switch STA input between SpikeExplorer and SpikeSorter)