# CED eNews

The eNewsletter from Cambridge Electronic Design

**Contents**

**News**

Back to top

## Spike2 and Signal Training Courses

All available places for Spike2 sessions at our 2007 U.K. training days have now been fully booked. We are still able to take limited bookings for Signal and workshop sessions via the training section of our website. The courses will take place on the 12th & 13th of April at St. John's Innovation Centre, Cambridge and we look forward to seeing all registered attendees on these dates. If you would like to be added to the mailing list to receive information about future CED training days, please contact us at sales@ced.co.uk.

## Meetings and events

**German Neuroscience Society 2007**
Gottingen, Germany
March 28th – April 1st

**British Neuroscience Association 2007**
Booth No. 4
Harrogate International Centre, Harrogate, UK
April 1st – 4th 2007

**Experimental Biology 2007**
Booth No. 1831
Washington, DC, USA
April 28th – May 2nd 2007

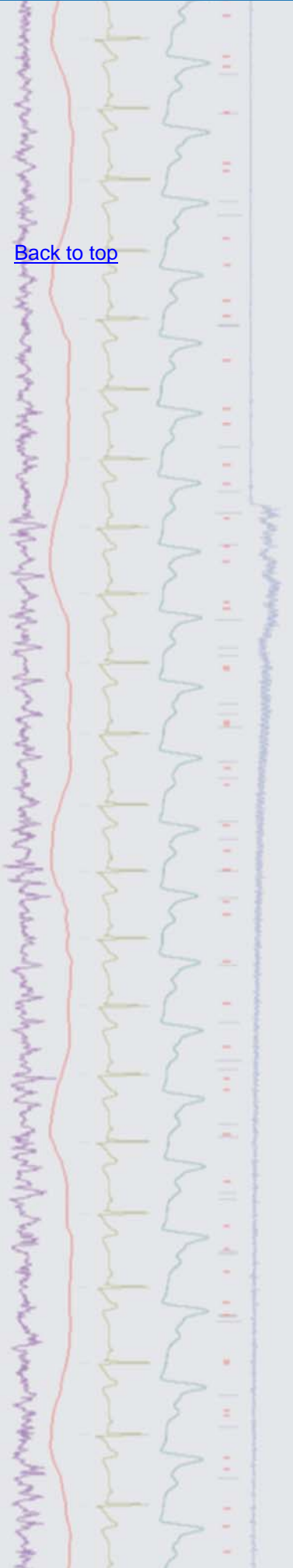**8th Meeting of the French Neuroscience Society 2007**
Corum-Esplanade Charles de Gaulle
Montpellier, France
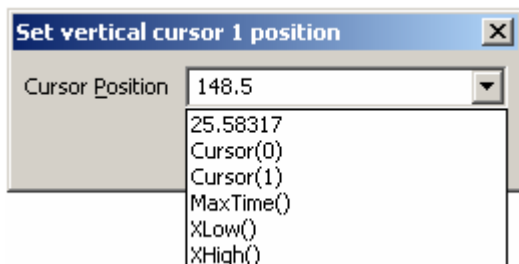May 22nd – 25th 2007

## Latest versions of Spike2 and Signal

Updates for Spike2 and Signal are available from the CED downloads page, or by clicking on the links in the table below. Demonstration versions of the latest software are also available.

| Spike2 downloads | Signal downloads |
|---|---|
| Spike2 version 6.03 | Signal version 3.09 |
| Spike2 version 5.17 | Signal version 2.16 |
| Spike2 demo | Signal demo |

A full list of the new features and changes in the software versions is available from the website.
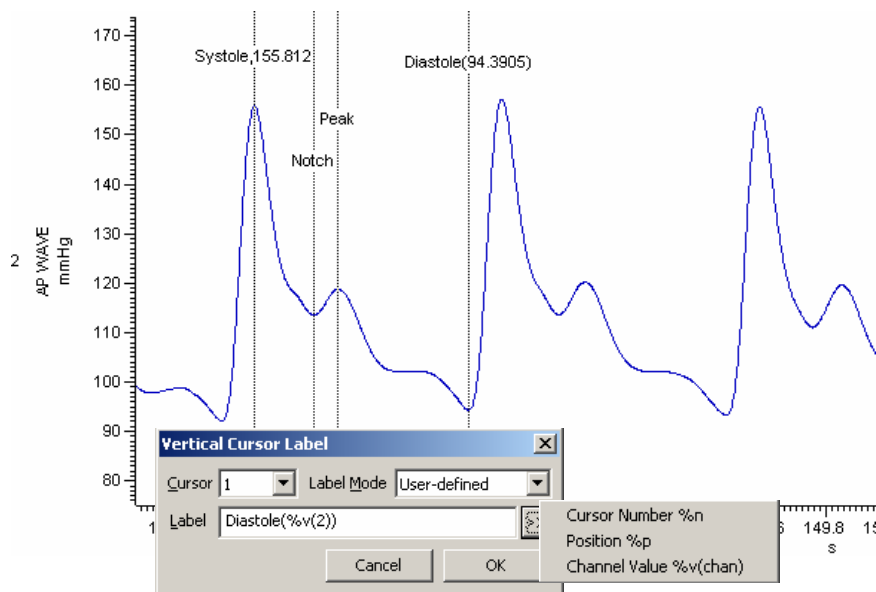
**Q.** Is there any way to position vertical and horizontal cursors at specific locations by typing in an x or y-axis value, rather than trying to place them at exact positions by clicking and dragging?

**A.** In previous versions of Spike2 you had to use the associated script commands to enter specific positions for cursors. You can now position vertical and horizontal cursors interactively, either from the Cursor menu or by right clicking on a cursor in a data, result or XY-view. Cursor positions can be entered as x or y-axis values or expressions such as `Cursor(0)+1.5`.



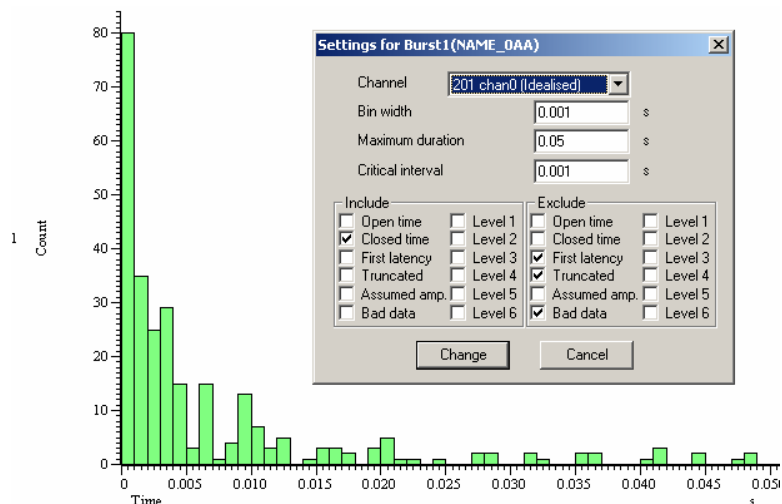*Interactive dialog for cursor position*

There are also new interactive commands for cursors which allow you to set user-defined labels. There are additional options to display channel y-values as part of the label, including pre-set instructions available from the dialog which allows the user to 'build' labels for cursors based on number, position and Y-values from multiple channels.



*An example of user-defined labels showing channel values*

**Q.** I would like to be able to analyse the duration of burst events from my single-channel data in Signal. Is there any way to specify a burst interval parameter so that only open/closed times that fall within this interval are included?

**A.** From the Open/Closed times option in the Analysis menu you can generate an Event burst histogram of open/closed times from an idealized trace channel. You can specify which events to include and exclude from the histogram along with the maximum duration of a burst (which also sets the histogram width) and the critical interval (the time range that an event duration must fall within to be included in the result).

*Burst duration histogram and settings dialog*

## Scripts: Spike2

**Q.** I was wondering if there was any way to apply on-line high pass filtering to a waveform channel in Spike2 using the built-in digital filters.

**A.** The attached script, `Online Filter.s2s`, is an example of applying IIR filters to a waveform channel during sampling. The script opens a new data file based on the current sampling configuration and then generates a dialog from which the user can select the type of filter to apply, and the source waveform channel to use. Once sampling is started the script uses an idle routine to filter the source data and produce a new memory channel holding the result. This script requires the latest version of Spike2, 6.03. It could also be modified to include FIR digital filtering commands. Information on the characteristics of IIR and FIR filters can be found in the Spike2 on-line help.

## Scripts: Signal

**Q.** I record intracellular spike data using Signal and would like some way to analyse multiple spike occurrences in a single frame. I have tried using the active cursors but it seems that you can only use these to search once per frame. There doesn't seem to be any way of stepping between multiple spikes in a frame using the same cursors

**A.** The attached script, `SpikeAnalysis.sgs`, will automatically run through a Signal data file finding and taking measurements from each spike. The user sets a level threshold using a horizontal cursor and the script then finds each spike that exceeds this level. You can check individual spikes for correct detection of features and run through all spikes to take measurements using the associated toolbar buttons. A text file is then created holding the measurement results and time of occurrence for each spike. This script requires Signal version 3.

Right-click the script icon and save to disk.

If you have any problems opening the embedded scripts in this newsletter please let us know.
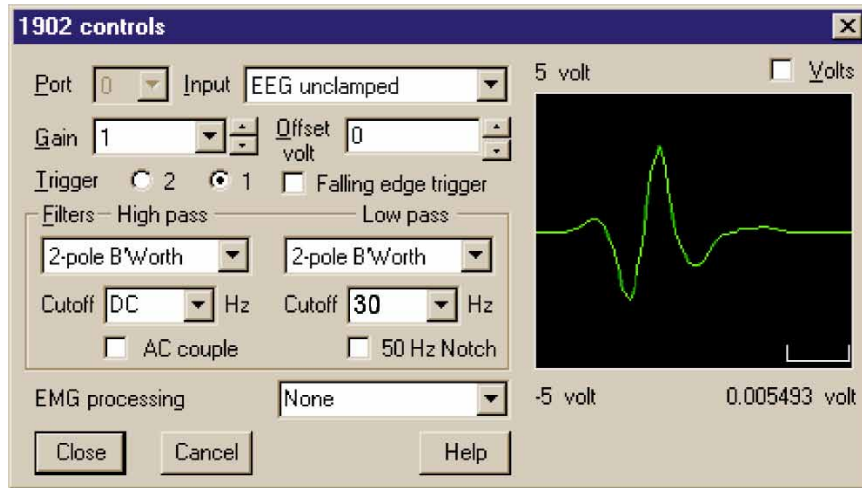
Right-click the script icon and save to disk.

If you have any problems opening the embedded scripts in this newsletter please let us know.

## Did you know…?

1902 conditioner control panel in Spike2 and Signal has now been revised to fully support the new 1902 mk IV units which uses digital filtering, rather than the pre-set hardware filters used in previous models. The user can select between 2 or 3-pole Bessel and Butterworth filter types and the cut-off frequencies can be set either from the drop down lists, or entered as values.

*1902 control panel for digital filters*

## Recent questions

Q. Is it possible to interface with visual stimulus generation systems, other application software and external devices with Signal, Spike2 and a 1401?

A. There are a number of ways that Spike2 and Signal can interact with external devices and other software applications to allow complete experiment control. A 1401 can be used to generate digital outputs, bit patterns and waveform outputs to trigger and control stimulus generators while also reacting to incoming digital and waveform data in real-time. Both Spike2 and Signal can also access and output serial-line data to control and respond to more specialist external equipment such as audiometers or TMS units. Script users are able to run, close and check the status of other software applications directly from Spike2. We can also supply a 'listener' specification that can be used to define an interface whereby an external program can track and synchronise with Spike2 data sampling. This is the same specification that was used to create our Spike2 Video application and allows Windows programmers to write their own external applications to synchronise with Spike2. See the on-line help for detailed descriptions of our output and control capabilities.

## User group

If you have any comments about the newsletter format and content, or wish to un-subscribe from the mailing list for this newsletter, please notify sales@ced.co.uk.