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## News

### Spike2 and Signal Training Days

Our U.K. Spike2 and Signal training courses will take place on Thursday 27<sup>th</sup> and Friday 28<sup>th</sup> of March at St. John's Innovation Centre, Cambridge. These training days are for both existing and prospective users of Spike2 and Signal and are suitable for beginners and advanced users. There is also our popular Workshop thread where you can discuss your particular requirements with a CED engineer or programmer in a small group environment.

If you or any of your colleagues would like to attend, please follow the links to view the [training day program](#) and complete the [registration form](#). Please give a short description of the type of research that you do and analysis that you are interested in. This will allow us to tailor sessions for specific requirements.

### Meetings and events

#### Australian Neuroscience Society 2008

Booth 14  
Hobart, Tasmania  
January 27<sup>th</sup> – 30<sup>th</sup> 2008

#### Biophysical Society 2008

Booth 317  
Long Beach, California  
February 3<sup>rd</sup> – 7<sup>th</sup> 2008

### 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.

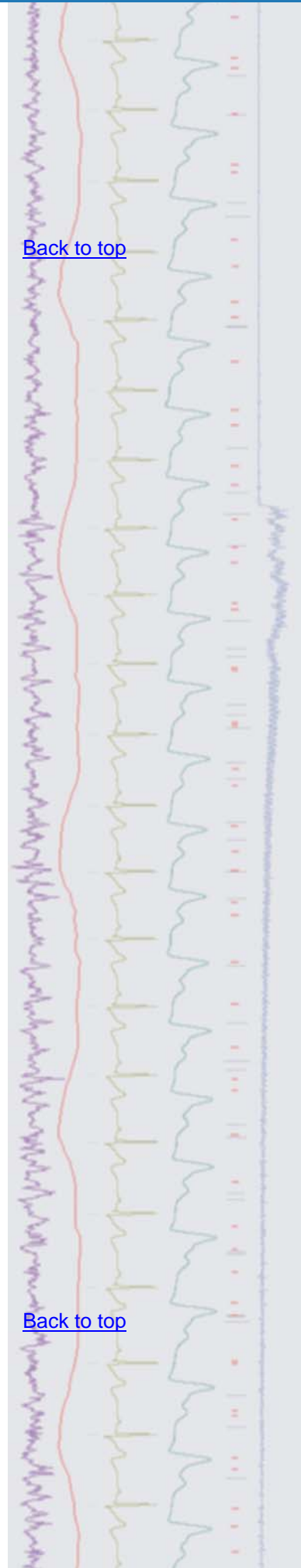
Spike2 downloads	Signal downloads
<a href="#">Spike2 version 6.06</a>	<a href="#">Signal version 3.10</a>
<a href="#">Spike2 version 5.19</a>	<a href="#">Signal version 2.16</a>
<a href="#">Spike2 demo</a>	<a href="#">Signal demo</a>



- Q. I notice that there is a new burst mode for sampling in Spike2. What are the advantages of using this?
- A. There is now a new burst mode option which can allow longer run times with the same sample rates or higher sampling rates at the same clock resolution. These

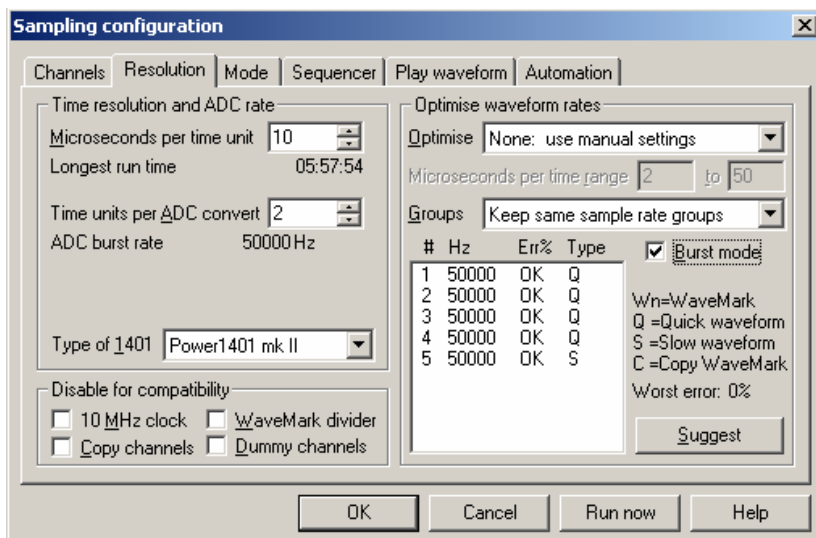
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benefits are most effective when sampling a large number of waveform and WaveMark channels.

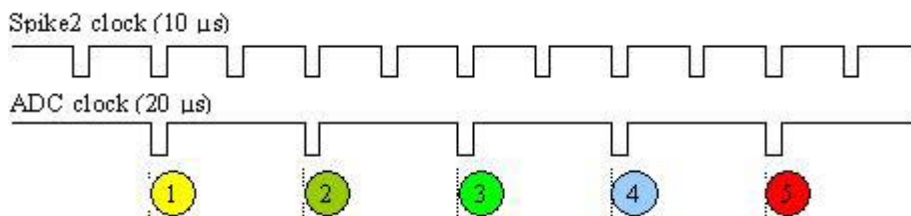
The Burst mode check box is visible in the Resolution tab of the sampling configuration if you have any type of Power1401 or a Micro1401 mk II. With the Burst mode option selected, instead of sampling the ADC at equal intervals of the 1401 clock tick, it samples a burst of channels synchronised to the clock.



Sampling configuration with Burst mode sampling selected

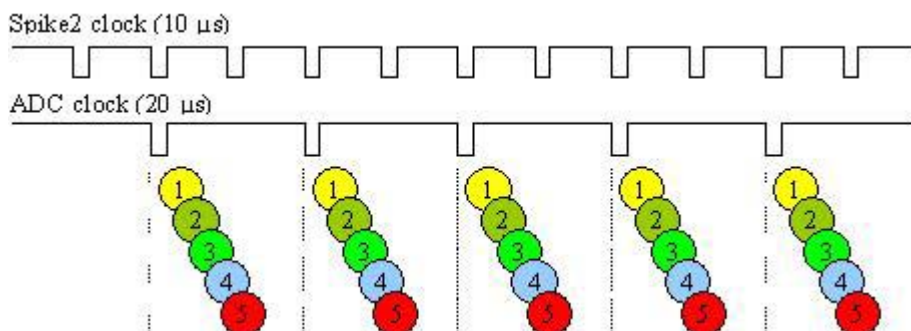
### Non-burst mode

In non-burst mode, the Time units per ADC convert field sets how often the ADC samples in units of clock ticks. For example, with 10 microseconds per tick and the Time units per ADC convert field set to 2 (once every 20 microseconds), the ADC sample rate is 50 kHz. In a simple case with five waveform channels, the fastest each channel could be sampled is 10 kHz. Each sample is synchronised to the Spike2 clock and the pattern repeats every five samples.



### Burst mode

In burst mode, the Time units per ADC convert field sets how often a burst of ADC samples is taken. With the same settings of 10 microseconds per tick and the Time units per ADC convert field set to 2, the burst rate is 50 kHz. The same five channels as in the example above would be sampled in a burst, each channel sampled at 50 kHz. The interval between samples in a burst depends on the 1401 hardware and is typically the interval implied by the maximum sampling rate for the 1401 hardware.

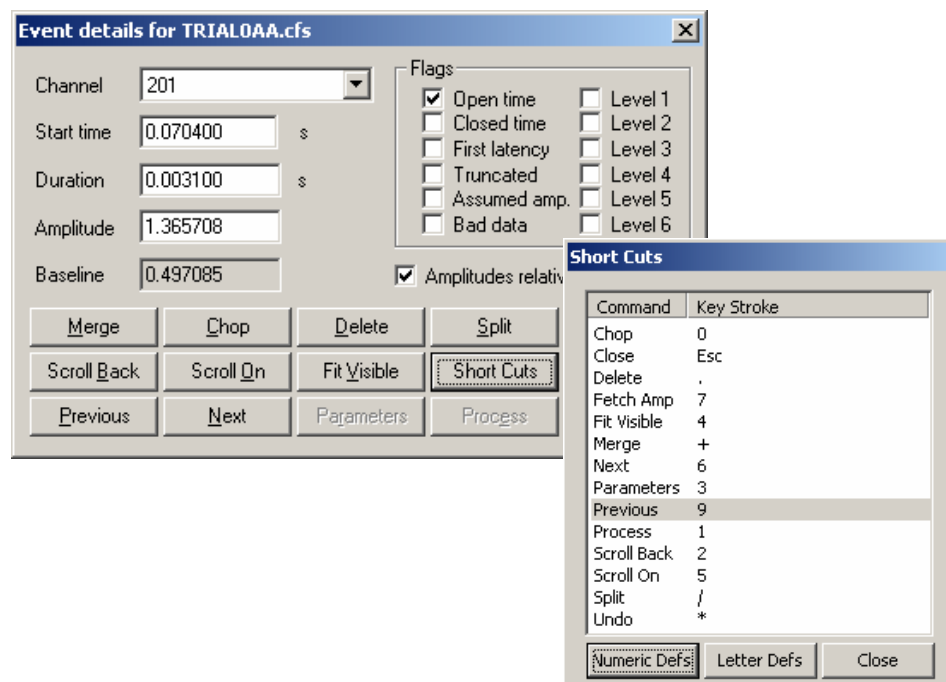


As you can see, the ADC samples no longer fall exactly at Spike2 clock times. The times between samples on a channel are exact, but the entire channel may be displayed time shifted by up to half a Spike2 clock. In this case, channels 1 and 2 would probably be timed for the tick just before them, and channel 3, 4 and 5 for the next tick. In many applications this will not matter and the benefits of a longer run time or better sampling rates will outweigh this.

You can find further information and technical details regarding the burst mode sampling option in the Spike2 on-line help.

## Signal

- Q. I use Signal version 3 for single channel analysis, meaning that I spend a great deal of time editing traces using the Event details dialog. Is it possible to assign keyboard shortcuts to the various options when editing event details?
- A. Keyboard shortcuts can now be assigned to the event details dialog when editing idealised trace data in Signal version 4. You can set Letter definitions that set the standard shortcut keys as indicated by the underscored letters in the dialog button labels, or Numeric definitions that set shortcut keys based on the numeric keypad. The numeric keypad keys have the advantage that all of the shortcut keys are grouped together.



*Event details and shortcut dialog for idealized trace editing*

Scripts: **Spike2** 

- Q. Is there any way to apply marker filter settings to multiple WaveMark channels in a file?
- A. The attached script, `CopyMarkerFilter.s2s`, can be used to copy marker filter settings from a nominated channel to any selected WaveMark or marker channels in a data file. You select the channels to copy to by pressing Ctrl and clicking on the channel numbers to the left of the Y-axis.

Scripts: **Signal** 

- Q. I would like to be able to plot amplitude measurements from a data file with multiple states into a single XY view. I know that this can be achieved by setting up multiple channels for measurements by hand, but I was hoping that there might be a script available to do this automatically.

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Right-click the script icon and save to disk.

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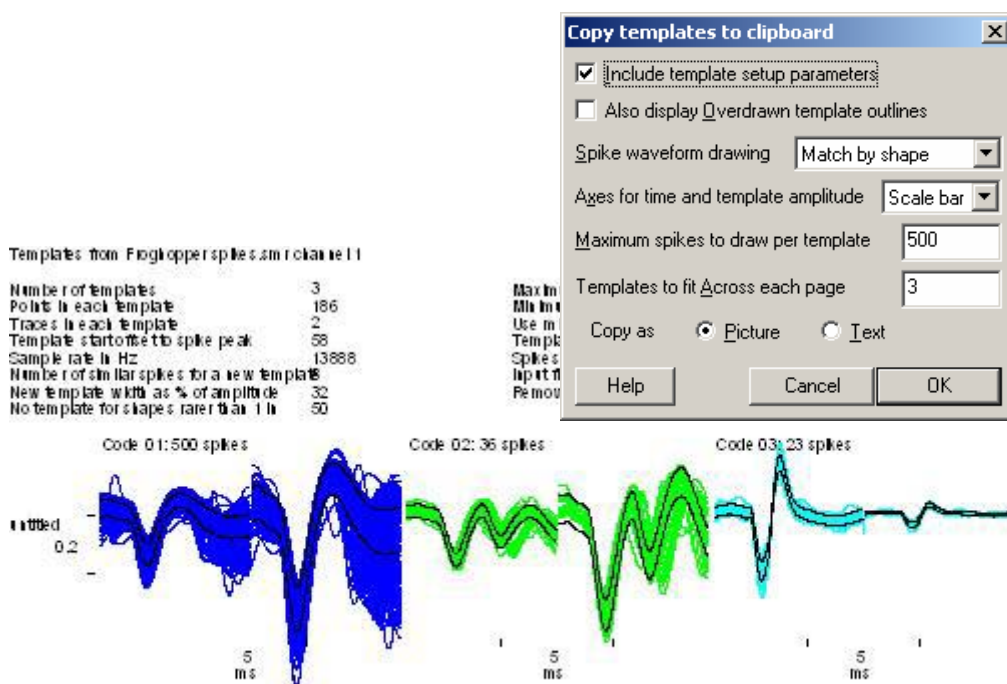
- A. The attached script, `MeasureFromStates.sgs`, is an example script that measures evoked response amplitude from a file with multiple frame states and plots the measurement from each individual state to a separate channel in an XY-view. This could easily be modified to take a wide range of measurements from multiple states.

### Did you know...?

In the Spike2 graphical sequence editor you can now duplicate an existing pulse by holding down Ctrl then clicking and dragging on the pulse.

### Recent questions

- Q. I would like to be able to export my spike shape templates as images for publications. Is there a way to do this without using a script?
- A. You can copy spike shape templates as images to the clipboard from the Edit menu available in the WaveMark spike sorting dialog. This opens a dialog where you can choose drawing mode, axes display and the number of spikes to include per template. The template information can be copied as text only or images with setup parameters. Picture output is in enhanced metafile format and can be pasted directly into most drawing programs and word processing documents.



*Copy templates dialog with template image output*

### User group

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