

**NAME**

chanmon – combined capture and averaging

**SYNOPSIS**

**chanmon** [ **-n** ] [ **-p** parmfile ]

**DESCRIPTION**

*Chanmon* captures data from the A/D converter, and displays it on the screen. It uses the same parameter setting interface, and the same parameter files, as *cap*(1). Once you begin the data capture, it provides a running display of all channels you selected, showing how the signal varies over a period of time, and also shows a signal level indicator for each channel, so you can see how much of the A/D input range is used up by each input signal. Red clipping indicators will light up at either end of these level indicators, if the signal gets too close to the lower or upper limit of the A/D input, to warn you to reduce the signal level if possible to avoid clipping.

If the parameters are set up to capture *triggered channels*, the left half of the display will show the sweeps triggered from each of these channels, in the order of the trace numbers assigned to them, and the right half of the display will show a running display of all channels. These channels will be displayed in the order you selected in the capture parameters, first the trigger channel, followed by the triggered traces by order of trace number, and finally the untriggered channels by order of waveform number. If the parameters don't specify any triggered channels, then the running display of untriggered channels will take up the full window, showing the signals in the order of waveform numbers you selected in the parameters.

While the capture is running and displaying, you can alter the display using a number of keystrokes or mouse actions. The signal level indicators are shown in a horizontal orientation at the start, but you can switch to vertical and back using **H**, **V**, **/** or **\**, or by clicking and dragging one of the level indicators from one spot to the other. Using **T** or **L**, you can toggle the signal level indicators tic marks to represent the calibrated levels for each channel, rather than A/D input voltage. Using **N** you can toggle numeric display of current signal levels, which are shown in the same scale as the tic marks, either as calibrated levels or input voltage. You can use the mouse scroll wheel, or up and down arrow keys to zoom in or out the displayed level range of the waveform selected by the mouse. The **+** and **-** keys can zoom in or out the time scale for all waveforms displayed. If capturing and displaying triggered sweeps, pressing **O** will toggle between overlapping or non-overlapping display of sweeps, pressing **I** will toggle between interpolated or non-interpolated display of sweeps, and you can change how much of the split screen is used for sweeps versus untriggered channels using the left and right arrow keys, or **<** and **>** keys, or using the mouse to drag any part of the waveform displays left or right. Using the **Home** key, pressing **M** or a middle-button click will re-center the split screen. Pressing **A** restarts the capture and display of triggered sweeps in averaging mode, rather than raw mode, so the running display of sweeps will show the average as it accumulates. Pressing **A** again will turn off averaging mode and restart capturing and displaying raw sweeps.

When capturing multiple bins on a system supporting auto-tagged capture, *chanmon displays multiple triggered sweeps, one* the left part of the display. You can use the digit keys **1** through **9** (for up to 9 bins) to select first the bin number, then to select the column in which that bin is displayed. For example, typing **42** puts bin 4 into column 2, and typing each digit twice puts all bins back in their respective columns.

In *chanmon's* normal running and displaying mode, the capture parameter that selects the file name is ignored, as *chanmon* doesn't store the data it captures. The parameter that selects a disk capture or a queued capture is also ignored, as *chanmon* must always perform a queued capture to display data as they are captured. The run length is also ignored, as capture continues until you type a **Q**. However, you can type an **R** or **C** at any time to begin recording data in the selected run file, for the selected run length. *Chanmon* will give a running display of the elapsed and remaining recording time. If you need to extend that running time, you can press the **E** or **X** key to double the currently selected run time. After recording has finished, *chanmon* will ask you for a run description, and then increment the selected run file name, just as *cap*(1) does, but you can also set the run description during recording (or even

before beginning recording), by pressing the **D** key. If you press the **S** key during the running display or recording, chanmon will quit, as for the **Q** key, but will then return to its parameter setting screen so you can adjust your settings and capture again. Chanmon also returns to the parameter setting screen after an error or warning during capture, so you can fix your settings and try again. If you begin recording while in averaging mode, chanmon will calculate and display averaged triggered sweeps, but will record the raw data for both waveforms and triggered traces. However, if chanmon is called with the **CHM-SAVEAVG** environment variable set to **y**, chanmon will store the averaged triggered sweeps in the frame file, rather than the raw triggered sweeps. You can't switch into or out of averaging mode while chanmon is recording.

All of these options for changing the display or capture modes are also presented in a menu on the left side of the display, and you can click on any choice, rather than using the keyboard, to make your selections. Active selections are displayed in red, and if a selection is unavailable in the current capture mode, it is either removed or crossed out in the menu.

*Chanmon* maintains, in your current directory, the file **default.cap**, which keeps track of all the parameters used to control the data capture. If this file does not exist in your current directory, it will be created. Also, if there is no **default.cap** in your current directory, *chanmon* will attempt to load the parameter file of the same name, from the directory **/usr/neuro/lib/parmgrps**.

If *chanmon* is invoked with either the **-n** option, or the **-p** option, it will not go into its initial parameter setting mode, but will instead begin capturing and displaying right away. The **-n** option will cause all current parameter values to be used for the capture. The **-p** option allows you to specify a parameter set, *parmfile*, to be loaded, and all capture parameters will be taken from this file. The *parmfile* name can be a simple parameter set name, to be taken from your current parameter group, or a name of the form *groupname/setname* to load a set from any parameter group.

When *chanmon* is invoked without any of the above options, it displays all current parameter values. A line at the top of the display shows the free disk space remaining on the current volume. The right sidebar shows a list of alternate parameter sets which can be loaded, or a list of parameter groups. Parameters and parameter sets are handled in exactly the same way as with *cap(1)*.

Once you have finished setting the parameters, and wish to proceed to the data capture, press either **C** or **Q**. The entered parameters are then saved in the file **default.cap**, and capture begins.

## X WINDOW SUPPORT

*Chanmon* should be run from an X Window graphics terminal, in order to view the captured data. When run from an *xterm* (or *kterm*) window on an X Window terminal, a new window will be shown, and all the parameter setting and display of captured data will be in that window. Like the other X Window programs in this package, *chanmon* will recognise the usual X command line options, such as **-display**, **-geometry**, **-font**, etc. The environment variables for setting these options will also work. (This is provided that the **DISPLAY** environment variable is set, and **TERM** is set to *xterm* or *kterm*.) See *analysis(1)* for details on X options and environment variables.

The **SCRBIGFONT** environment variable can provide an alternate list of larger X11 fonts, which *chanmon* will try to use for the *Numeric* display feature, instead of the built-in list of fonts. In either case, the first font in the list that is available is the one that it will use.

On an X Window terminal, *chanmon* clears the **KEYMAP** environment variable while it is running, to disable any keyboard mapping you may have enabled, such as the ISO Latin 1 character set. It does this so that the function keys, which are mapped internally to upper-half 8-bit characters, have their usual assignments. The side effect is that if you selected an alternate keyboard mapping, it will not work while in *chanmon*.

## FILES

<b>default.cap</b>	default capture parameters
<b>/usr/neuro/lib/parmgrps/*.ini</b>	configuration files
<b>/usr/neuro/lib/parmgrps/editprms.grp</b>	group list
<b>/usr/neuro/lib/parmgrps*/editprms.grp</b>	parameter set lists

/usr/neuro/lib/parmgrps/*/*.cap	parameter sets
default.cal	calibration information
/usr/neuro/lib/default.cal	system calibration file

**SEE ALSO**

dsepr(1), cap(1), calibrate(1), analysis(1)