

## Load multilayer graphics (GIFs) into the LCD terminal (1.2 ", 1.5 ", 2.5 " and 3.5 ")

The loading of the GIFs is unfortunately not very straightforward and due to low demand so far no more comfortable way has been realized. You need SAM-BA V2.14 (exactly this version) and load the graphics by means of the bootloader of the LCD terminal into the Flash, if necessary also several "in one go".

In the following the work on Windows XP or higher is assumed and in the archive "LCD-Term (GIF).rar" you will find everything, what is needed for a first test. Since Atmel no longer offers the required SAM-BA version and is otherwise difficult to find on the internet, it is also included in the archive. For own applications or GIF files, the TCL script to be processed by SAM-BA can be modified.

First, SAM-BA V2.14 and, if necessary, the CDC driver (for the USB connection) must be installed.

The TCL script can be opened with a simple code editor (eg Notepad ++). There, the (GIF) files including paths are entered so that the process is semi-automatic. For the use of own graphics must be made here the modifications.

The maximum number of GIFs that can be loaded (and retrieved individually) depends on the size of the GIFs and, if applicable, the number of subgraphics (layers) they contain.

For the demo we will work on a ram-disk (R :). Copy the 'gif\_to\_flash.tcl' directly into SAM-BA's SAMD21-TCL directory (... \Atmel \ sam-ba\_2.14 \ tcl\_lib \ samd21\_xplained\_pro). After that some paths have to be adjusted in the file. On the one hand, the path / s to the files to be loaded ([41] .... [43]) and, on the other hand, the entry for the temporary file used. Of course, an existing Temp directory can be used; for the demo, one is created on R: ([64]). Please note that not the [Win] DOS-Backslash, but Slash is used.

```
[40] set gif_files [list \  
[41] "r:/GIFs/running_dog.gif" \  
[42] "r:/GIFs/bg_grau13.gif" \  
[43] "r:/GIFs/ds-digi.gif"]  
.  
.  
.  
[64] set table_fname "r:/tmp/gif_table.tbl"  
.  
.  
.  
[88] proc send_gif { fname addr } {  
[89]   set tmp_fname "r:/tmp/tmp.bin"  
....
```

This concludes the most important preparations.

Under Windows, you should now keep an eye on the device manager so that you can find out which (virtual) COM port is being used. When the module is connected for the first time, a port for normal operation is installed. If you start the boot loader (with "ESC [e") in any terminal program via this interface, the "Normalport" will be closed and a new port will be installed, which will then be used by SAM-BA. For all subsequent operations, the same ports are always used as long as you do not change the USB port on the host PC.

When the SAM-BA port is ready, open a console (CMD or Command) and change to the directory where the TCL script was copied into. Here then can the Flash.bat (possibly with leading path, if the file is not in the same directory) are executed. A log file is also created in the TCL directory, but unfortunately there is no other feedback.

After uploading the files, the module must be restarted (voltage off / voltage on), after which it will revert to the default virtual port.

Because of the better clarity, three graphics are loaded via the TCL script, which can be called up according to the manual. "bg\_grau13.gif" has only one layer, "running\_dog.gif" has 7 layers, and "ds-digi.gif" has 20 layers. In the attached Lua script, the GIFs are called one after the other: "ds.digi.gif", but only as a countdown from 9 to 0 (= 10 layers), then briefly the pattern is displayed and finally "Running Dog" as an endless loop until they is aborted with 'CTRL-C'.

The archive also includes the free Microsoft animator (can be run directly). This allows you to easily view the properties of the GIFs and create your own GIFs.

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