DREAM2 GPIO Guide

DREAM2 GPIO Setup Guide

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Table of Contents

GPIO Circuits for DREAM2

In the installation of Dream II/CC1 based Editing systems, it is occasionally a requirement to provide remote or external trigger buttons and indicators for various console functions. Such remote controls can be achieved by using the common PC Parallel port, and the Dream II "GPIO" implementation.

The following is a quick guide to deploying such remote controls, assuming the use of a DELL T3400 model PC. FairlightAU cannot provide configuration details for every possible permutation of PC motherboard/parallel port and Dream/Xynergi version. However, the following should provide enough information to guide the astute technician though the required processes.

Please note that while the hardware part of the system is fairly easy to configure, it relies on custom-coded software macros to interpret and interact with the GPIO controls. The creation of such macros is not for the faint-of-heart. Should you require a customized macro for a given task, please contact Lukas (Lukas@fairlightau.com) for assistance.

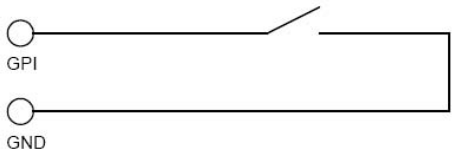
GPIO

Description: General Purpose I/O for Dream.
Connector: D 25 Female Parallel "Printer port"

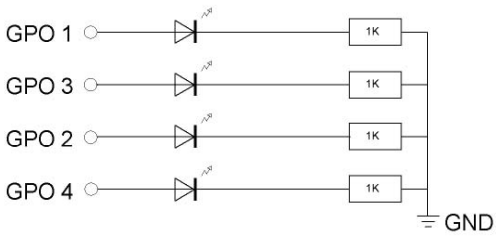
Input: low < 0.8 volts
high > 3.5volts < 5 volts
Input voltages higher than 5 volts may cause damage to internal circuitry.

Output: low < 0.8 volts
high >= 3.5 volts

GPI "trigger button" schematic

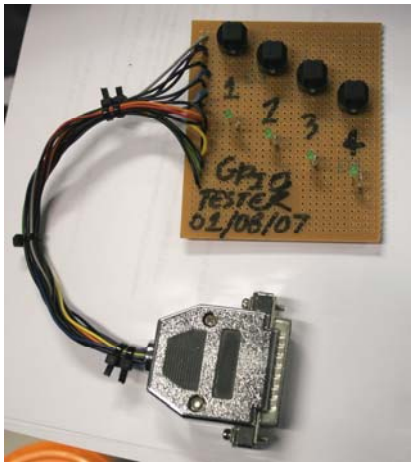


GPO L.E.D. schematic



Dream GPIO connector Pin out (Dsub 25pin PC Printer Port)

Parallel printer Port			
Line	**DB 25 male (Dream computer)**		**GPIOs**
Strobe	1	→	
Data bit 0	2	→	GPOutput 1
Data bit 1	3	→	GPOutput 2
Data bit 2	4	→	GPOutput 3
Data bit 3	5	→	GPOutput 4
Data bit 4	6	→	
Data bit 5	7	→	
Data bit 6	8	→	
Data bit 7	9	→	
Acknowledge	10	←	GPInput 4
Busy	11	←	GPInput 3
Paper out	12	←	GPInput 2
Select	13	←	GPInput 1
Autofeed	14	→	
Error	15	←	
Reset	16	→	
Select	17	→	
Signal ground	18	↔	if necessary
Signal ground	19	↔	if necessary
Signal ground	20	↔	if necessary
Signal ground	21	↔	if necessary
Signal ground	22	↔	if necessary
Signal ground	23	↔	if necessary
Signal ground	24	↔	if necessary
Signal ground	25	↔	if necessary
Shield	Cover	↔	



Example Hardware GPIO test rig, featuring 4 trigger buttons, and 4 Output L.E.D. tally lights

Configuring DreamII/Xynergi for G.P.I.O.

GPIOs are handled on the Printer Port of the Host PC. In this example, we will be specifically configuring a Dell Precision T3400.

Instructions to set up GPIO functionality using a Dell Precision T3400:

Step 1 - BIOS Config (press F2 on startup):

- Onboard Devices > LPT Port Mode

  - Set parallel port mode to ECP

- Onboard Devices > LPT Port Address

  - Set parallel port address to 378h (DELL default)

- Onboard Devices > LPT Port DMA

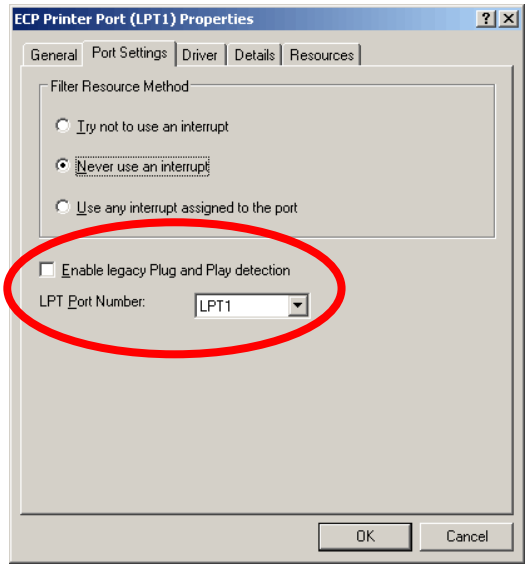
  - Set parallel port DMA to OFF (DELL default)

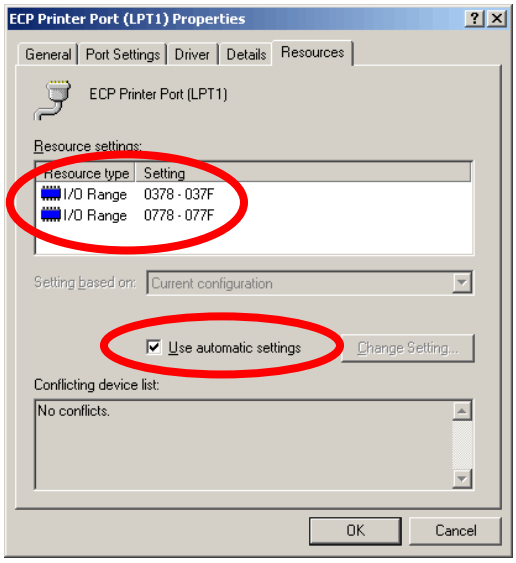
Step 2 - Windows Device Manager Config:

Windows Device Manager-> Ports (COM & LPT)-> ECP Printer Port (LPT1)-> Properties:

- Port Settings tab

  - Check that “LPT Port Number” is set to LPT1 (See image at Right)





- Resources tab –

- ensure 'Use automatic settings' is checked (See image at Left)

- Click “OK” to accept the changes
- If the system asks to confirm the changes, simply click “YES” to continue
- Close and exit all Device Manager windows.

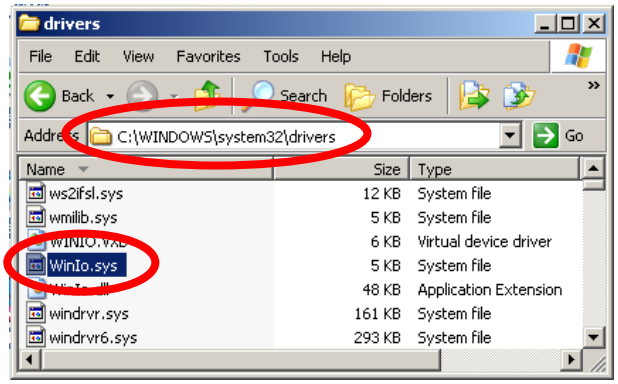
Step 3 - WinIO.sys driver Config:

- Ensure WinIO.sys is located in the following folder

C:\Windows\System32\drivers

If it is NOT contained in this folder, it can be sourced from

C:\Program Files\Fairlight\Drivers



Step 4 - MacroCompiler files setup:

- Obtain required MacroCompilerComponent.dll

Each version of DreamII/FMC uses a specific version of the MacroCompiler. In some cases, the MacroCompiler in a given DreamII/FMC installation may not be compatible with the currently installed FMC version. (Such as if the current installation is the result of repeated up/downgrades).

Below is a quick reference table of the DreamII/FMC version and matching MacroCompiler version.

DreamII software Release version	Matching MacroCompiler version
1.20.6 and earlier	2.3
1.20.20	2.4
1.50.6	2.5
1.60.0b17	2.6

If you have a “clean” Dream 2 installation, the MacroCompilerComponent.dll file version <should> match.

However, if you are unsure, contact John D (johnd@fairightau.com) or Joe (joe@farlightau.com) for a known working version.

- Ensure MacroCompilerComponent.dll is copied into the following location

  C:\Program Files\Fairlight\FMC\Utils

- Register MacroCompiler with the DLL registry
- Launch a DOS command prompt

  This can be achieved by launching the following path

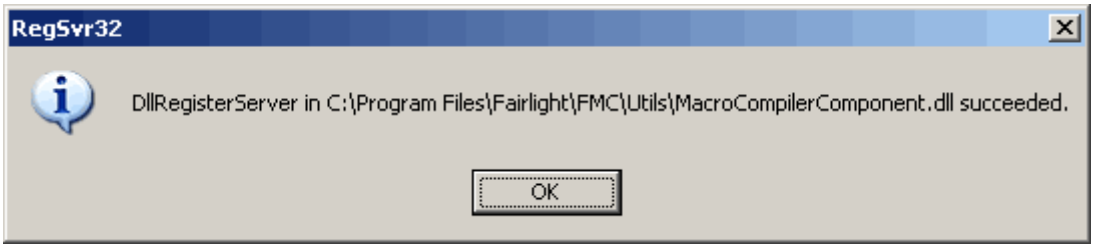
  START > All Programs > Accessories > Command Prompt

- At the prompt, Manually Enter the following command string

  Regsvr32 “C:\Program Files\Fairlight\FMC\Utils\MacroCompilerComponent.dll”

- hit the “Enter” key on your keyboard

If all is well, you should be presented with the following report message.



- Click “OK”, and close the DOS Command prompt window

Step 5 - Obtain the required Macro Files

As mentioned previously, the creation of the software macros that actually interact with the GPIO is a highly customized process. For the purposes of this document, we will assume you have had these files created and tested off-site, and confirmed working OK.

- Ensure Events.txt and Macros.fmm are copied to the following location

  C:\Program Files\Fairlight\FMC\Data\USER\Dream

NOTE! “Dream” will represent the profile name that the end user logs onto Windows with!!!

For reference, it is worth keeping in mind that Events.txt represents the “trigger” half of the GPIO system. IE it nominates which Macro procedure is called when a given hardware Trigger Input is received at the Parallel port.

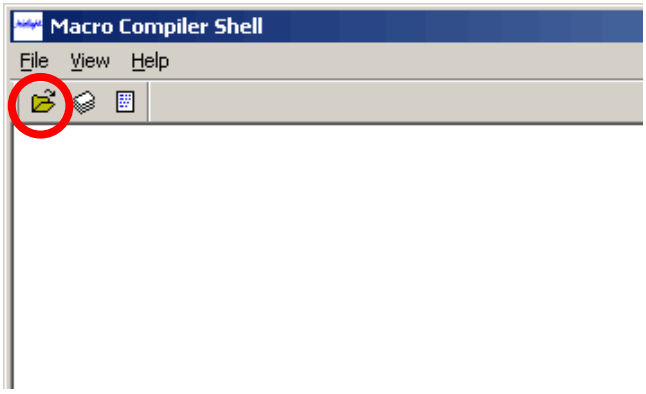
Macros.fmm is the actual Macro Procedure, written as code. It controls the Output lines of the Parallel port, in response to calls from the Macro Procedures.

Step 6 - Compile the Macro Files

- Launch the Macro Compiler

  the Macro compiler can be located at

  C:\Program Files\Fairlight\FMC\Utils\MacroCompiler.exe

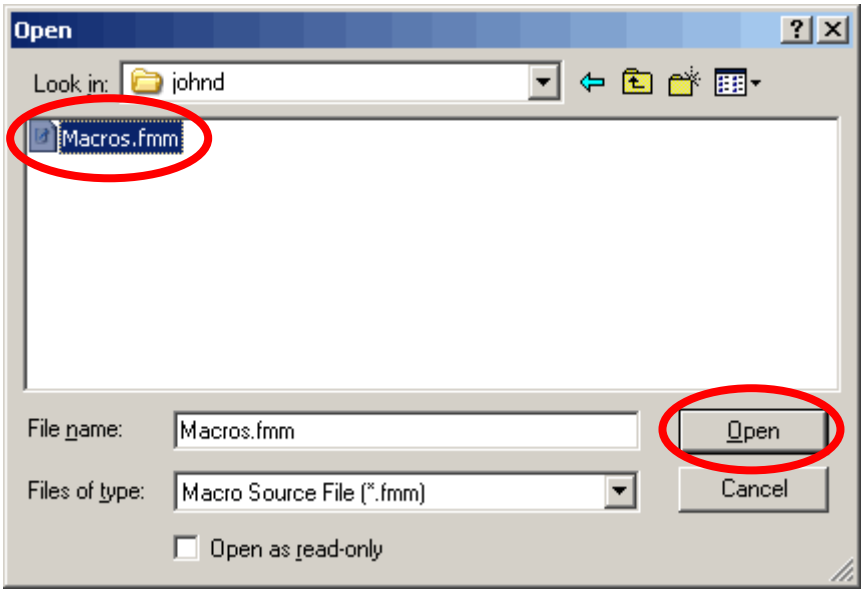


- Click the “Folder” icon to open the required Macro.fmm file

  Browse to *C:\Program Files\Fairlight\FMC\Data\USER\Dream*

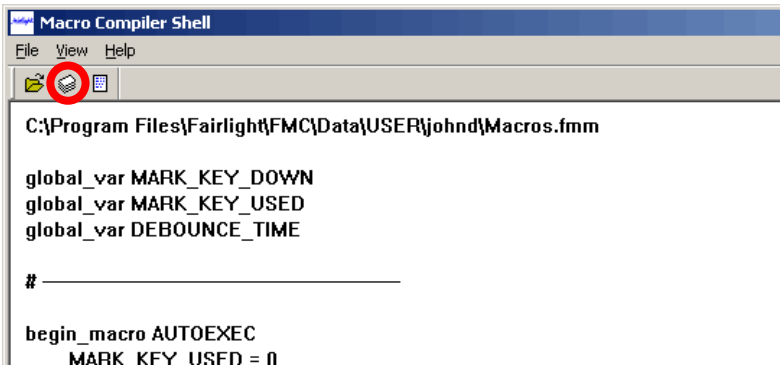
  And locate the Macro.fmm file you copied into this location earlier

Select the file, and click “Open”



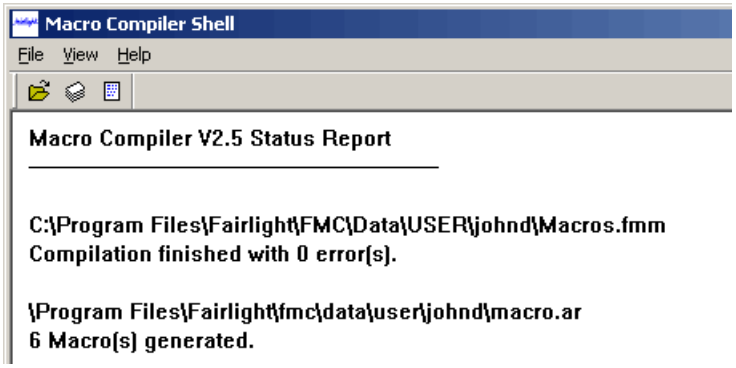
The content coding of the Macro.fmm file will now be displayed in the Macro Compiler window.

- Click the “deck of cards” icon to compile the macro



If all is as expected, you should see a message to the effect of

“Compilation finished with 0 errors : X macro(s) created”
(NB that this will also confirm the version of Macro Compiler that was used).

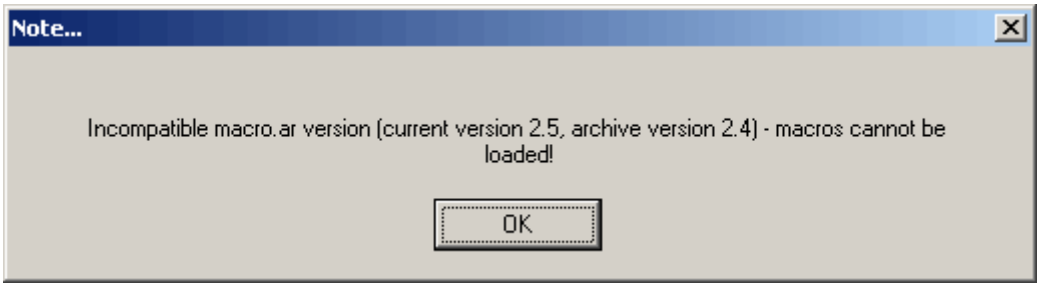


Close the Macro Compiler, and all open application windows. Restart the Host PC.

Step 7 – Configure FMC System Variables

Launch DreamII and FMC. If you receive an error message during FMC's initialization phase, the currently installed MacroCompilerComponent.dll file is not the matching version for the current Dream/Xynergi installation.

(Example shown below,
Dream expected to load a macro compiled by MacroCompiler version 2.5,
but received a macro compiled using version 2.4 ☹)



To obtain the correct MacroCompiler version, contact either

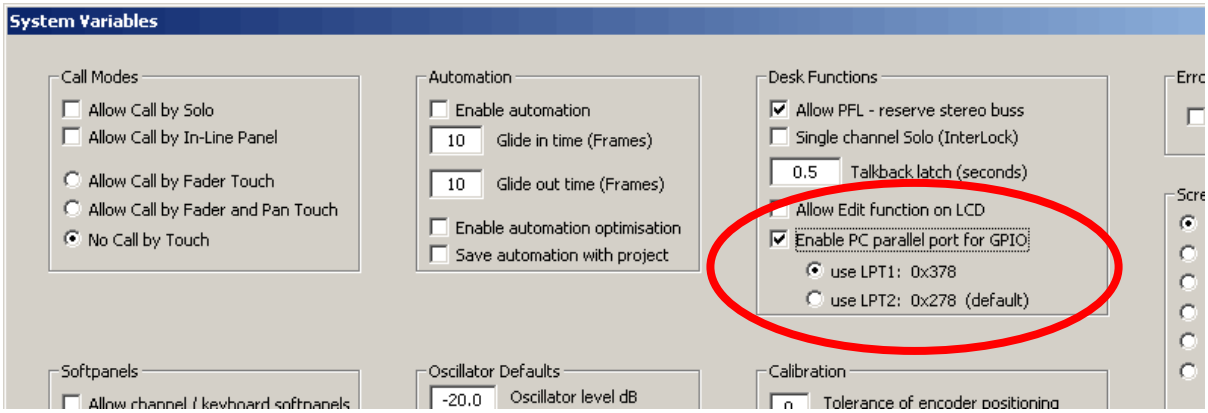
John D (johnd@fairlightau.com),
Joe (joe@fairlightau.com), or
Lukas (lukas@fairlightau.com)

for the correct version.

After ensuring the correct MacroCompiler version is installed, you will need to re-run through the above procedure again, starting at "Step 4 - MacroCompiler files setup" .

Assuming DreamII ***HAS*** launched correctly, you can access the System Variables dialog box by hitting SHIFT + CTRL + U

In the "Desk Functions" area, you will see the following settings which may need to be configured.



Enable PC parallel port for GPIO = Tick!

Select the appropriate LPT port number, based on the previous parallel port BIOS settings.
(In the example, we have set the GPIO port to "LPT1", to match our parallel port).

With these settings confirmed, click "OK", and restart DreamII/Xynergi.

Step 8 – Test your GPIOs

At this point, your GPIO system should be ready for use ☺

To test the system, launch Dream/Xynergi as per normal, and operate your GPIO trigger buttons and LED tally lights to confirm correct operation of your macro as intended.

Regards,
FairlightAU