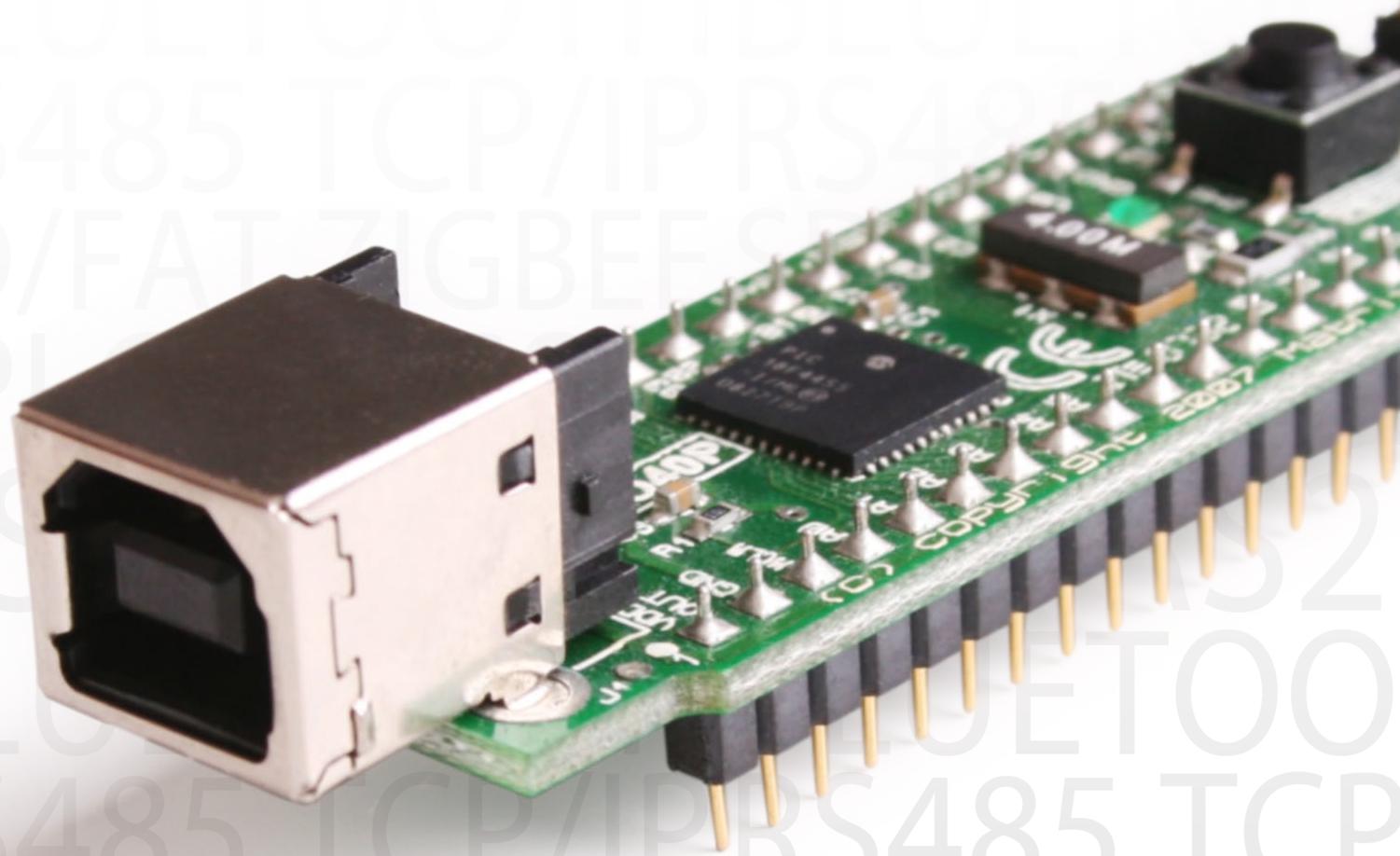


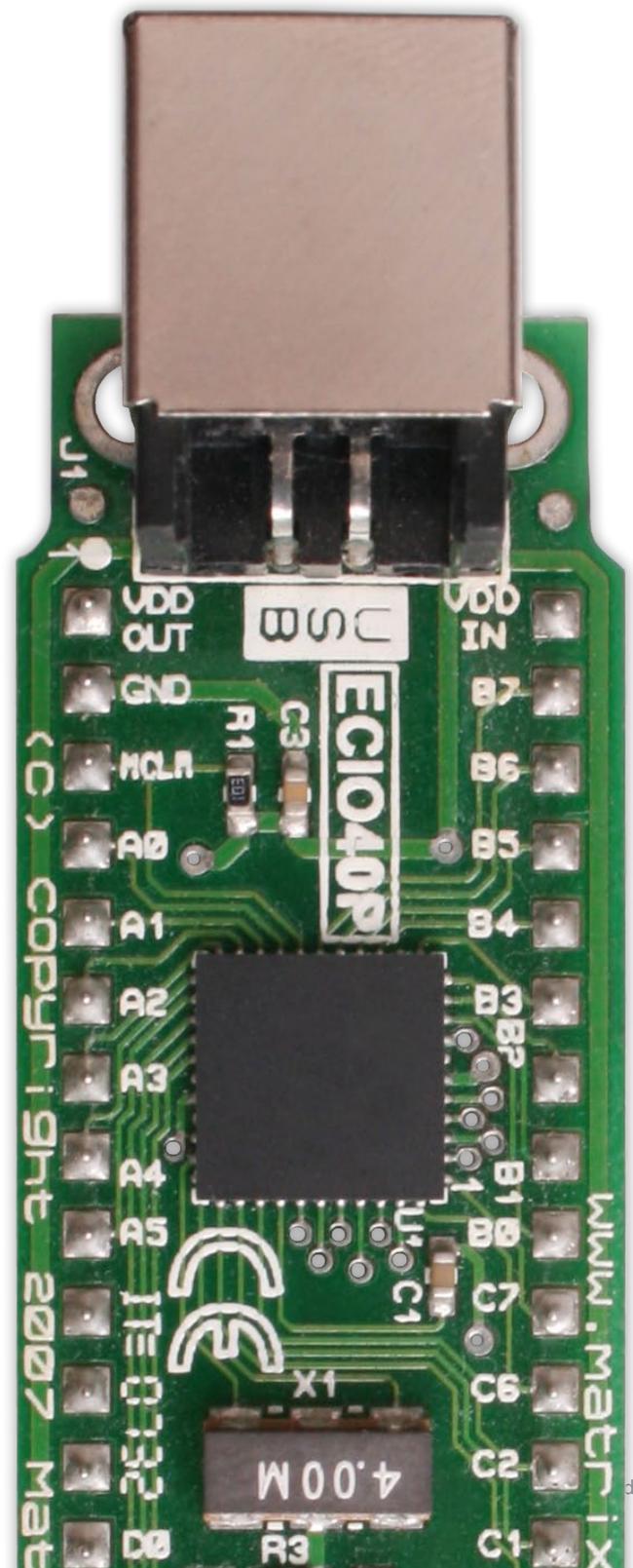


User guide



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Installing the USB drivers

The USB drivers allow the ECIO to be connected to a computer, allowing the device to be programmed.

Windows 7/Vista

For Windows 7 and Vista please download the latest drivers from the Learning Centre on our website.

You must run the driver executable which is appropriate for your operating system; it will be either 32 or 64 bit. To find out whether your Windows 7 or Vista computer is 32 or 64 bit you can go to Control Panel > System.

dpinst_amd64.exe - For users with 64 bit computers. This driver works for most processor types Intel or AMD.

dpinst_ia64.exe - For users with 64 bit computers and Itanium processors.

dpinst_x86.exe - For users with 32 bit computers, regardless of processor types.

Windows XP/2000

If you received a CD with your ECIO then insert the Flowcode CD into the CD ROM drive on your computer and click on the Start menu and click Run. Type the following command into the run dialogue and click OK.

```
D:\etc\drivers\ECIO\ECIO_Driver_Install.exe
```

Where D is the letter of your CD ROM drive.

If you did not receive a CD then you can download the ECIO drivers from our Learning Centre in the "Products Drivers" section:

http://www.matrixmultimedia.com/lc_index.php

Click Next and then when asked click to agree with the license agreement. Then click Next again and click Continue Anyway to finish. This needs to happen only once and will pre-install the drivers so that they are ready



for when you plug your ECIO into the USB.

When the ECIO is plugged in, the "New Hardware Wizard" may appear, if it does, select "Install the software automatically (recommended)". Select "Continue Anyway" when prompted.



Windows Vista

The Vista install is very similar to the XP / 2000 install with the difference of an extra UAC screen which you must agree to before proceeding.

Once the driver has been installed on Windows Vista you must insert a USB cable between the computer and the ECIO and switch the ECIO power jumper to USB. Then you have to right click on my computer and select properties. Then select device manager and scroll down to Universal serial bus devices. Inside the Universal serial bus devices option there should now be a device called ECIOXP. Double click the ECIO and then click on the Power Management tab. Un-tick the box that says allow this device to be powered down to save power.



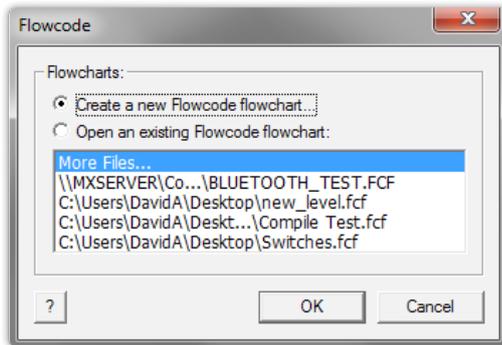
Installing Flowcode

For help installing Flowcode please refer to the Flowcode manual available from the Flowcode section of our website:

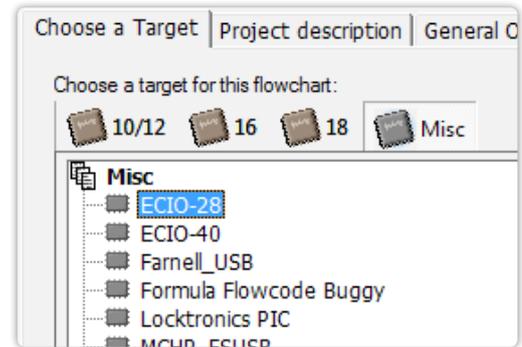
<http://www.matrixmultimedia.com/flowcode.php>

Steps to creating your first program

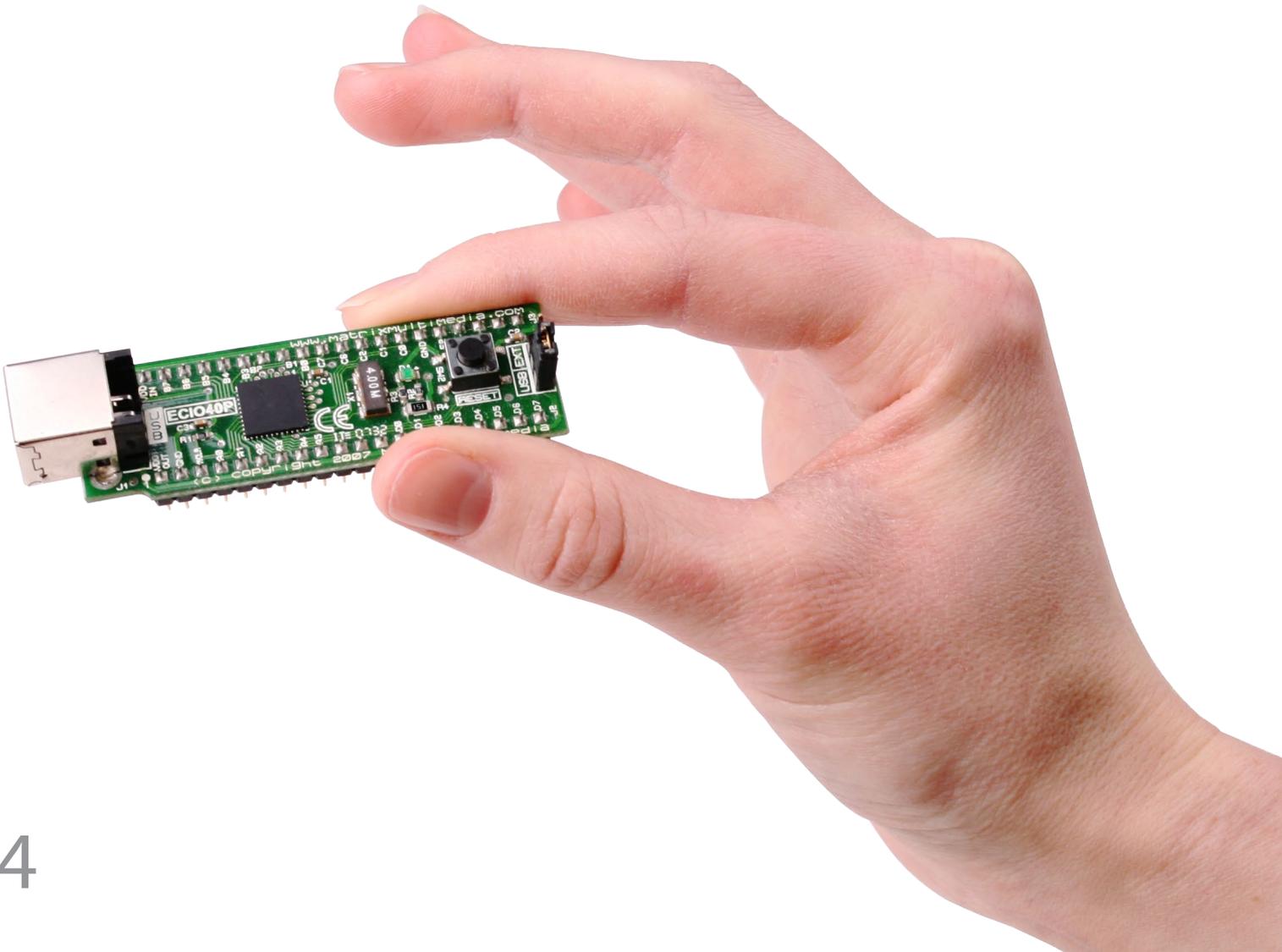
1. Create a new flowchart



2. Go to the "Misc" tab when prompted to "Choose a Target"
3. Select one of the ECIO devices



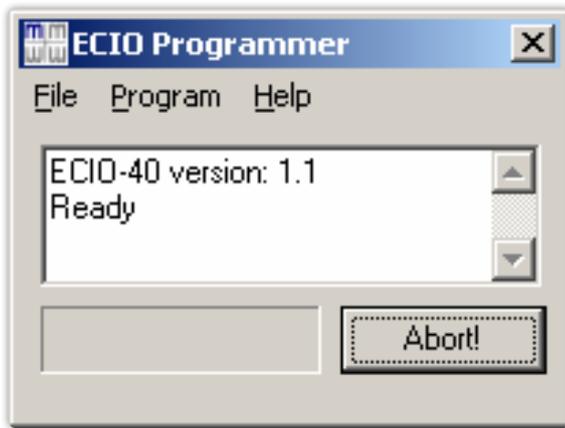
4. Create your program



The ECIO programming software

The ECIO programming software is used to transfer users programs into the memory of the microcontroller onboard the ECIO module. The programming tool is included with versions of Flowcode V3.2 onwards. It is recommended to update your version of Flowcode to the latest version by downloading the latest patch from our website. The tool is located within the Flowcode directory named "ECIOprog.exe". If you intend to use the ECIO without Flowcode then you will need to download the programming tool from the Learning Centre section of our website.

http://www.matrixmultimedia.com/lc_index.php



The software can be used to transfer a program to the ECIO, read the program back from the ECIO, erase the ECIO or restart the ECIO. There is a help file that accompanies the programming tool, which shows users exactly how to use the tool with command line parameters etc.

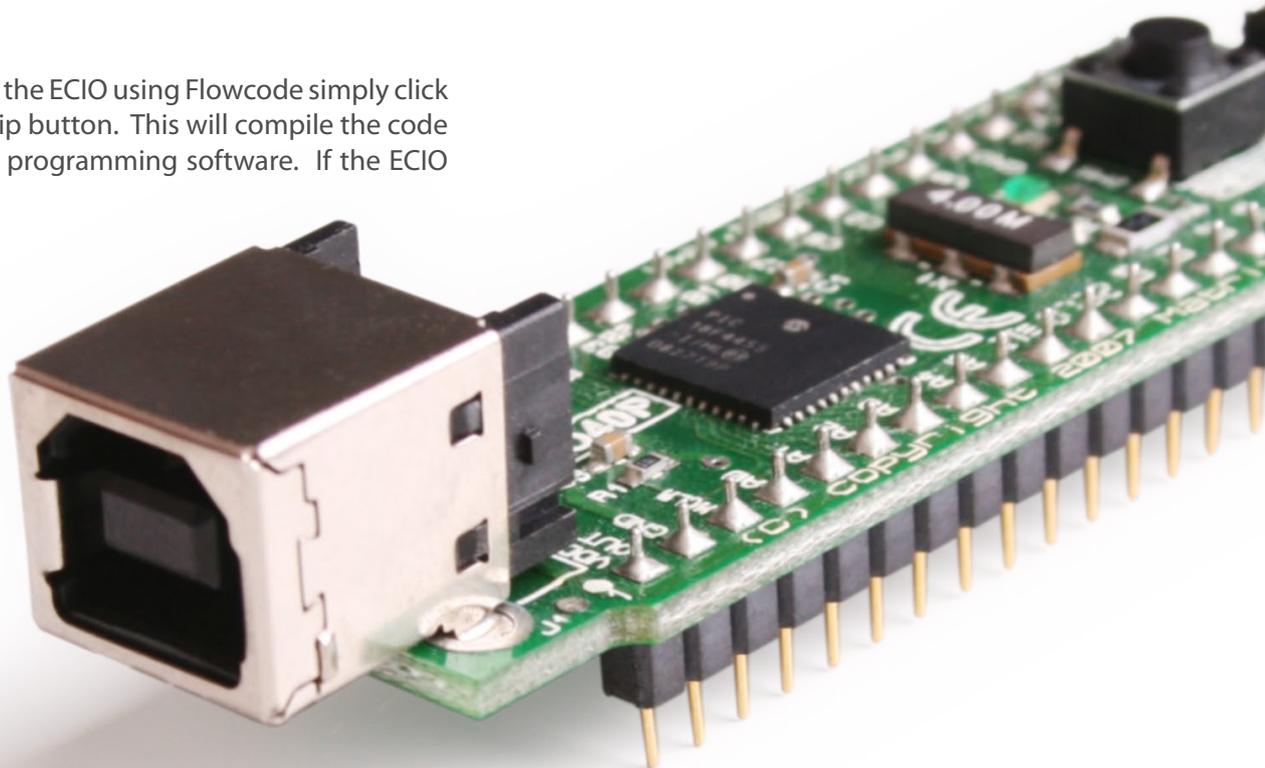
Using Flowcode

To send a program to the ECIO using Flowcode simply click on the compile to chip button. This will compile the code and then launch the programming software. If the ECIO

is plugged into the USB and it is in bootloader mode then the ECIO will be automatically programmed. If the ECIO is not plugged into the USB then insert the ECIO to begin programming. If the ECIO is not in bootloader mode (the LED onboard the ECIO is not flashing) then make sure that the USB is connected and that the ECIO is powered, then press the reset button on the ECIO.

Using your own compiler

To use the ECIO with your own compiler you will have to make sure that the hex file generated will work with the bootloader software. To do this you must make sure that the code resides after location 0x800. The bootloader entry points are 0x800 (reset vector), 0x808 (high priority interrupt vector) and 0x818 (low priority interrupt vector). Your compiler should have documentation, which will show you how to achieve this. Once you have allowed for the bootloader you can compile your program and then use the ECIO programming software to transfer the hex file to the ECIO. The sample hex files that are supplied with the test files have already been shifted into the correct memory locations using Flowcode. There is a help file that accompanies the programming tool, which shows users exactly how to use the tool with command line parameters. This will allow you for compiler to automatically program the ECIO as part of the build process.



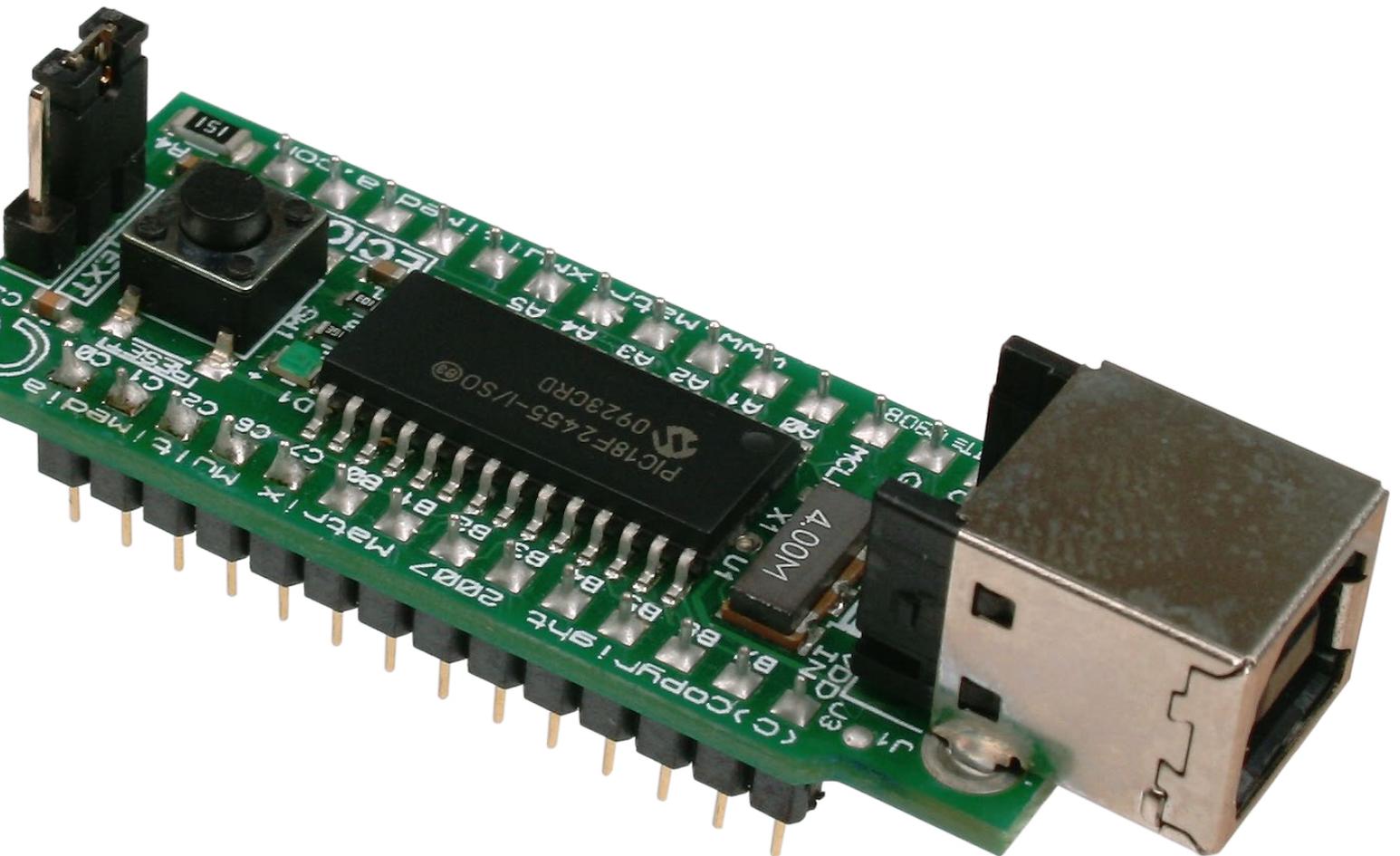
Testing your ECIO

There are text files available which will help to test the ECIO modules. The test file is available from the Learning Centre section of our website.

http://www.matrixmultimedia.com/lc_index.php

You can test the functionality of the ECIO modules by doing the following:

1. Run the ECIO programming software "ECIOprog.exe"
2. Load the test file that matches your ECIO module "ECIOXXP Flash.hex" by clicking on File and Open
3. Connect a USB cable between the ECIO and a PC with drivers installed (see section on installing drivers)
4. Make sure that the jumper on the ECIO is set to USB
5. Click on Program and Send Program to send the hex file to the ECIO
6. If your programmer software is not finding the ECIO module then press the reset button to initialise the bootloader
7. Using a multimeter or an LED verify that pins B0 and B1 are toggling on and off every second



Troubleshooting and support

ECIO not running as expected

If you are using the ECIO in USB power mode then firstly make sure that the USB cable is connected to both the ECIO module and the PC supplying the power. Also be aware that the ECIO will enter programming mode for approximately 5 seconds when the USB is connected and when the device is reset.

If you are using the ECIO in external power mode then make sure the ground and 5V connections are the correct way round. Also make sure that the supply is stabilised by adding a 10 μ F or a 100 μ F electrolytic capacitor as near as possible to the ECIO power connections. Also be aware that the ECIO will enter programming mode for approximately 5 seconds when the USB is connected and the device is reset.

ECIO is not recognised by Windows

If the ECIO is not being recognised by Windows then the problem is most likely to be with the Windows drivers. Try downloading the latest drivers from the Learning Centre;

http://www.matrixmultimedia.com/lc_index.php

ECIO not programming Vista / XP

Due to a problem with several types of USB root hubs shipped with certain motherboards, Windows will disable the power to the ECIO and not allow programming to be performed. To enable programming you will have to do the following.

1. Right click on My Computer and then click on Properties
2. Click on the hardware tab (XP only)
3. Click on the device manager link
4. Open the menu item for Universal Serial Bus Devices
5. Set the power jumper on the ECIO to USB
6. Inset the ECIO into the USB and press reset
7. Find the ECIO device and double click it
8. Click on the power management tab
9. Press reset on the ECIO again to refresh the USB connection timeout
10. Un-tick the box "Allow this device to be powered down"
11. Click OK
12. Close device manager
13. Close system properties

Further support

For further help with the ECIO or Flowcode you can visit the online forums at;

<http://matrixmultimedia.com/mmforums>

There is also the online support FAQ are at;

<http://matrixmultimedia.com/support>

You can also email Matrix Multimedia directly at;

support@matrixmultimedia.co.uk



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