

## X3M

User Manual



MIDI + USB Sound Module:

Supports hardware wavetable synthesis + audio playback, multifunctional MIDI DIN connector.



# Contents

Introduction	3
Resources	3
Specifications	4
Board Overview	5
Pinout	6
Using the X3M	8
As a USB MIDI device	8
USB Audio Playback	10
USB Audio Digital Recording	10
X3M Upload Software	11
Overview	11
Uploading Soundbanks	11
SoundBank upload process	12
Uploading Presets	13
Preset upload process	13
X3M Preset Editor	14
X3M Routing	15
X3M Chorus Acoustic Settings	15
X3M Equalizer / Amp Settings	16

# Introduction

Thank you for purchasing the X3M.

The X3M is a MIDI wavetable board which is fully General MIDI compatible. It comes with 64 MB of flash memory, has a USB interface and is software configurable.

Software development tools are available which let the user easily program the on-board flash memory. This lets the user control properties of the device such as the volume output, or swapping the L & R channels.

The user can also tweak the sound characteristic to their liking. Reverb, Chorus as well as Bass and Treble can be configured with great detail.

We hope you are satisfied with this product and enjoy it!

## Resources

The X3M is an advanced wavetable board, having features and functions not found in other wavetable modules.

Because the flash memory is user upgradable, check the product page for any updates, information and support.

Resources	URL
X3M Downloads	<a href="http://www.serdashop.com/X3M">http://www.serdashop.com/X3M</a>
CleanWave SoundBank 8 MB	<a href="http://www.dream.fr/pdf/Serie5000/Soundbanks/GMBK5X64.pdf">http://www.dream.fr/pdf/Serie5000/Soundbanks/GMBK5X64.pdf</a>
CleanWave SoundBank 16 MB	<a href="http://www.dream.fr/pdf/Serie5000/Soundbanks/GMBK5X128.pdf">http://www.dream.fr/pdf/Serie5000/Soundbanks/GMBK5X128.pdf</a>

# Specifications

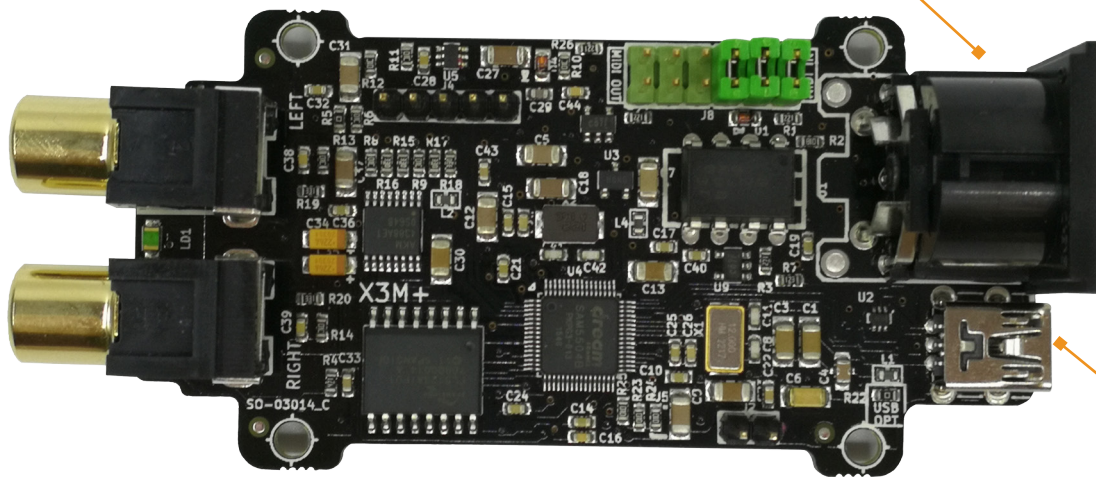
- Small form factor MIDI PCB: 80 mm x 36 mm
- Black color PCB
- Dream 5000 series synth chip with 54 voices polyphony, high quality effects engine
- Real MIDI in through DIN connector. Can be changed to MIDI out with the jumpers settings on pins J8.
- Low latency <1 ms
- 64 MB flash for Soundbank data
- USB connector for flashing the internal flash memory
- USB connector functions also as a full MIDI interface. Tested with Windows XP, Vista, 7, 8, 8.1 and 10. Should also work on Linux, Mac OS X, ...
- Preloaded with a high quality 16 MB Dream General MIDI SoundBank
- X3M Preset Editor software: For creating and modifying profiles to tweak the sound signature
- X3M Upload software : For flashing the X3M via USB

Latency	Low latency < 1 ms
Flash	64 MB, for soundBank data
USB	For flashing the internal flash memory Functions also as a full MIDI interface
Output	Stereo line out, using a high quality 24 bit DAC
SoundBank	Preloaded with a high quality 16 MB Dream General MIDI SoundBank
Software	<b>X3M Preset Editor software:</b> For creating and modifying profiles to tweak the sound signature <b>X3M Upload software:</b> For flashing the X3M via USB
PCB Color	Black
PCB Size	80 mm x 36 mm
Manufacturer	Serdaco B.V.B.A.
Country of Origin	Belgium

# Board Overview

2 X RCA  
Left & Right Audio.

DIN Connector  
MIDI in (default) or MIDI out

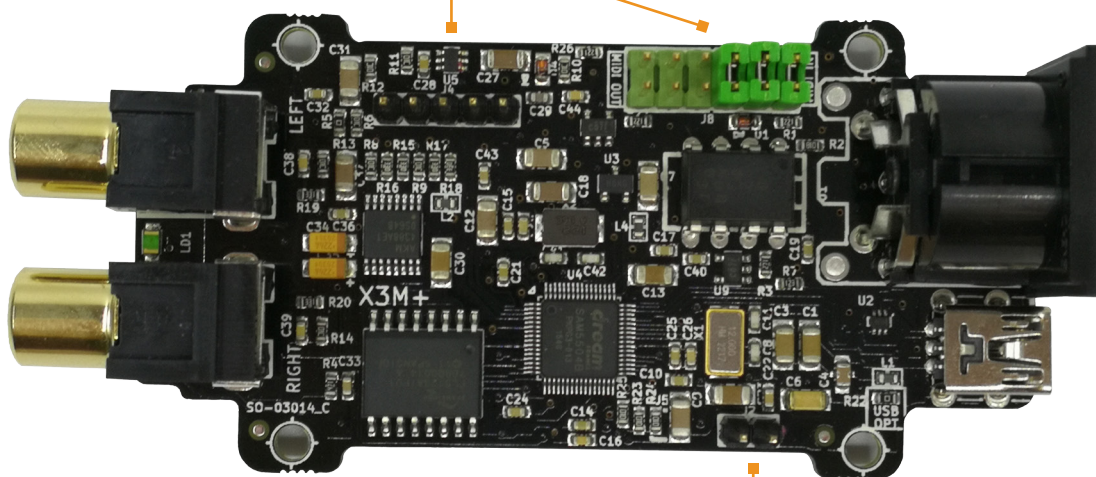


X3M - Connectors

Mini USB interface used for flashing the X3M and as a MIDI interface

J4 Proprietary program header for the Dream DSP chip

J8 DIN connector jumper header

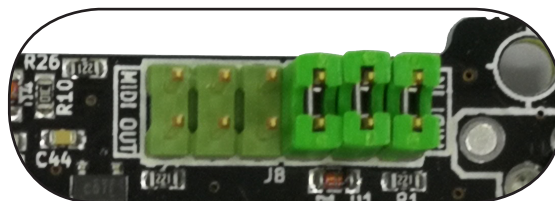


X3M - Pinout

J2 Bootup jumper header

## Pinout

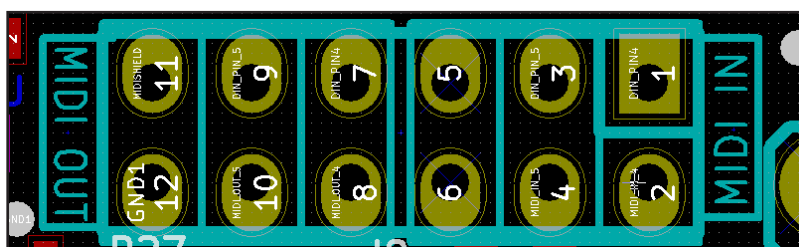
### J8 DIN connector jumper header



The 3 jumpers can be positioned, either:

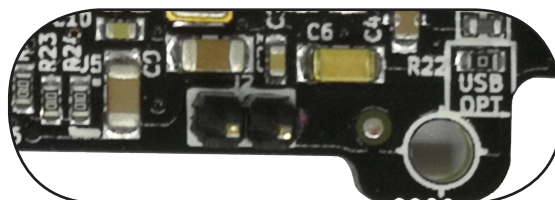
- Left side: MIDI Out
- Right side: MIDI IN [default]

This configuration does provide the relative MIDI In or Out to the DIN connector. By default, the DIN connector has been configured to MIDI In.



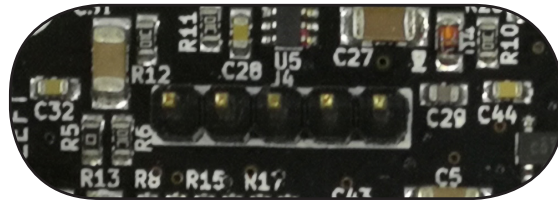
The text “MIDI IN” & “MIDI OUT” has been printed on the PCB to prevent any misunderstanding. All 3 jumpers have to be positioned either on the left, or either on the right side.

### J2 Bootup jumper header



When a jumper has been connected to the J2 connector, the X3M will boot “clean”. This without loading any preset configuration.

#### J4 Proprietary program header for the Dream DSP chip



This jumper is a proprietary header for the Dream DSP Chip and is used with initial setup of the board by the manufacturer.

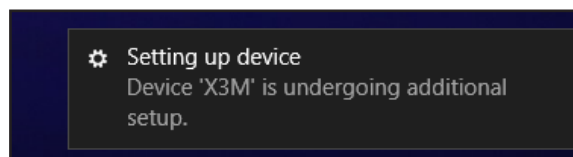
This jumper is irrelevant for the user.



# Using the X3M

## As a USB MIDI device

The USB interface of the X3M is a full MIDI interface. Connect the X3M to a USB port to your PC and after a short while the X3M will appear as a MIDI device:



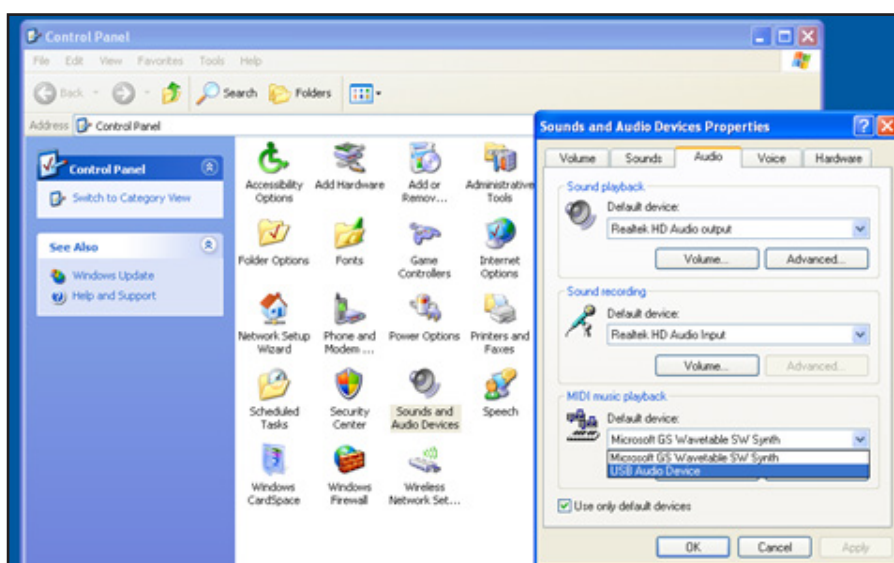
Windows supports several MIDI devices, so it's important to configure the software so that the X3M is actually being used, rather than the default Microsoft GS SoftSynth.

To ensure that the X3M is the default MIDI device it, is recommended that you are using applications that let you select the MIDI device.

Examples of such applications are:

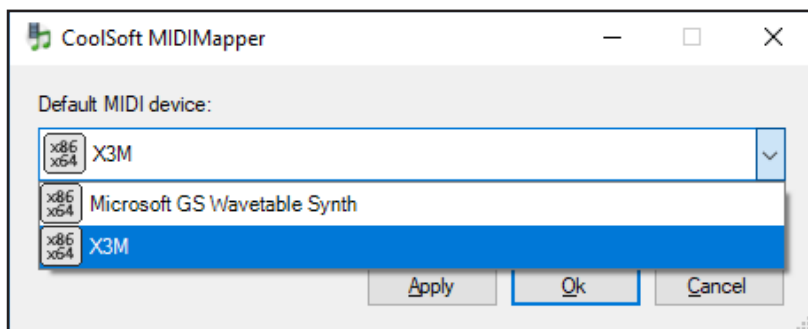
- DOSBox
- Falcosoft SoundFont Midi Player
- Midibar midi player (included with MIDI-OX)

Under XP the default MIDI device can be easily changed in the control panel:





With newer versions of Windows, applications are supposed to offer the selection of MIDI device, however not every application supports this. In such a case you need to use a tool, often referred to as MIDI Mapper, to select the default MIDI device of your system. We recommend the CoolSoft MIDIMapper:



Once you have configured the X3M as the default MIDI device, you can use most media players to play MIDI files. It will then also work with DOSBox and ScummVM without having to change the MIDI device internally.

The X3M will output music through the RCA stereo out connectors to speakers or a mixer.

## USB Audio Playback



The X3M can be used for USB audio playback.

This is interesting when the USB audio playback is used in combination with the MIDI In.

The advantage is that there is no need for mixing anymore. All the sound, audio + MIDI, is provided by the same device.

It is quite interesting to use this device with a Raspberry Pi, as it provides a 'complete' sound card solution.

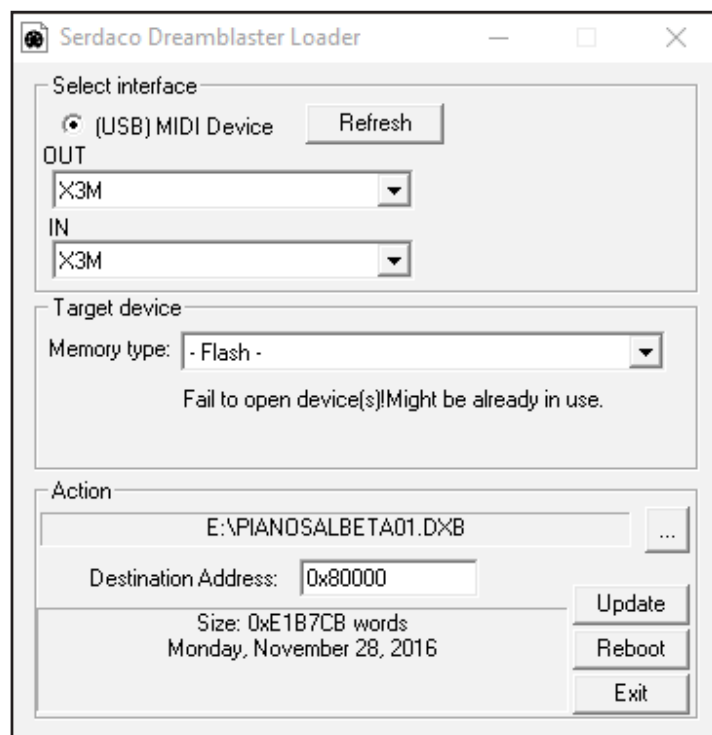
## USB Audio Digital Recording

The X3M is ideal for USB audio digital recording of MIDI + Wave Output.

This is very useful for the digital recording of game soundtracks. All sounds from the game, sound effects + MIDI, are provided by the X3M.

# X3M Upload Software

## Overview



## Uploading Soundbanks

At the time of this publication, these Soundbanks are available which are compatible with the X3M:

- GMBK5X128.DXB : Dream 16M GM Bank (Copyright Dream S.A.S France - Only to be used with X2 & X3M)
- GMBK5X64.DXB : Dream 8M GM Bank (Copyright Dream S.A.S France - Only to be used with X2 & X3M)
- NES8.DXB : NES / Famicom (Requires special MIDI files)
- GRANDPIANO\_100.DXB : 'Salamander' Large Piano Beta SoundBank (First instrument = piano)

X3M compatible Soundbanks are binary files in the .DXB format. The X3M and Dreamblaster X2 use the same Soundbanks.

## SoundBank upload process

Plug the X3M in a USB port and the USB MIDI driver X3M will become available.

Start X3MUPLOAD and in the “Select interface” section **select the right MIDI device**: X3M for OUT and IN. Look under “Target Device” and confirm the model and firmware version.

In the “Action” section, click on the button with the three dots and **select a SoundBank** in the DXB-format. The Destination address should update automatically to 0x80000 (this is the default address for the SoundBank).

**Press the “Update” button** and the flashing procedure commences. Uploading the GMBK5128.DXB takes approximately 120 seconds.

After the SoundBank is uploaded, **press “Reboot” button**. You might hear a confirmation sound from the operating system.

The X3M is now ready for use!

## Uploading Presets

Presets are profiles that let you change the sound signature of the device. A Preset editor is supplied and will be covered in the next chapter.

A set of default Presets are available from the X3M product page for download:

- Factory default Preset
- Dry Preset (No Reverb and Chorus effects)
- Boombastic (Factory default Preset with bass boost applied)
- Serdaco Preset (A balanced Preset with slight Reverb and Chorus effects)

## Preset upload process

Plug in the X3M in a USB port and the USB MIDI driver X3M will become available.

Start X3MUPLOAD and in the “Select interface” section **select the right MIDI device**: X3M for OUT and IN. Look under “Target Device” and confirm the model and firmware version.

In the “Action” section, click on the button with the three dots and **select a Preset in the DXP-format**. The Destination address should update automatically to 0x70000 (this is the default address for the Preset).

**Press the “Update” button** and the flashing procedure commences.

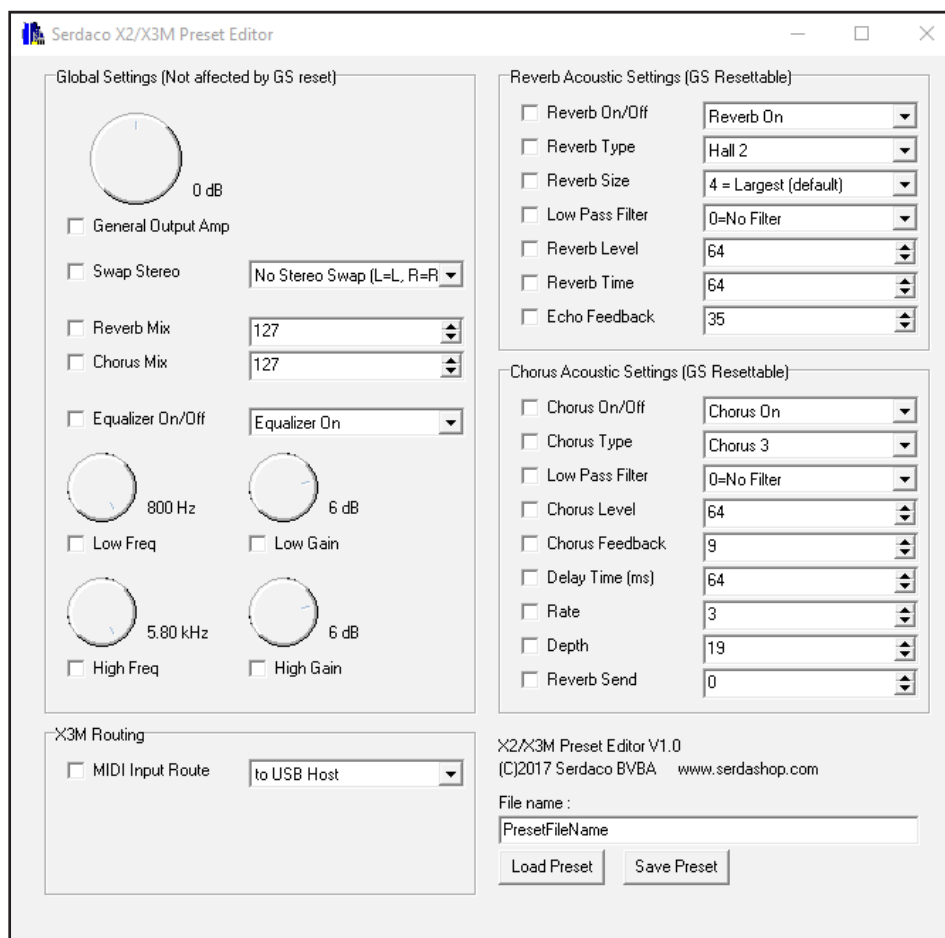
Uploading a Preset happens very fast, within a second.

After the Preset is uploaded, **press the “Reboot” button**. You might hear a confirmation sound from the operating system.

The X3M is now ready for use!

# X3M Preset Editor

In the previous chapter, we have looked at how to upload presets and as Soundbanks. While a range of preset files will be supplied, to get the most out of the X3M, your own presets can be created with the provided Preset Editor:

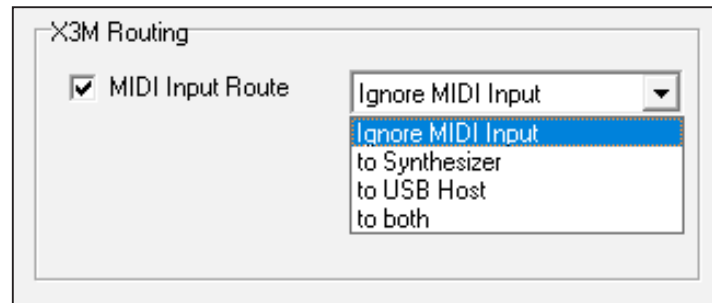


With this utility you can create, read, edit and preset files. Remember that you still have to flash the preset file to the X3M as described in the previous chapter. For easy testing you can have the preset editor, as well as X3MUPLOAD open at the same time.

Only checked / ticked options are saved into the preset file. When the X3M boots, it will first load its default settings, and then override this with any custom settings that is checked.

## X3M Routing

The routing of the MIDI Input can be selected.



The following options are available:

- Ignore MIDI Input: The MIDI input is ignored and is not used
- to Synthesizer: The MIDI input signal is directly sent to the synthesizer.
- to USB Host: The MIDI input signal is sent over USB MIDI to the computer.
- to both: The MIDI input signal is sent directly to the synthesizer and is also sent over USB MIDI to the computer

The X3M can be used as a MIDI interface and generate sound from a computer program. The generated sound can be streamed back to the outputs.

## X3M Chorus Acoustic Settings

Chorus sounds like more of the same instruments are playing, making the sound thicker and more layered.



## X3M Equalizer / Amp Settings

*General Output Amp:* Some sound cards clip or distort with wavetable boards and certain games that output loud music. With this setting you can adjust the volume to avoid this.

*Swap Stereo:* It can be necessary to correct left sounds coming out of the right speaker and vice versa. You can use this option to swap them around and correct this behavior.

*Equalizer:* This lets you adjust the low and high frequencies (bass and treble), further adjusting the sound signature to your taste.