

FB-EXP

3-Slot Cartridge  
Expander for  
Commodore 64/128  
computers

Users Guide

Rev1A

## Introduction

The FB-3XP cartridge expander is supplied with the features outlined in Figure 1 below.

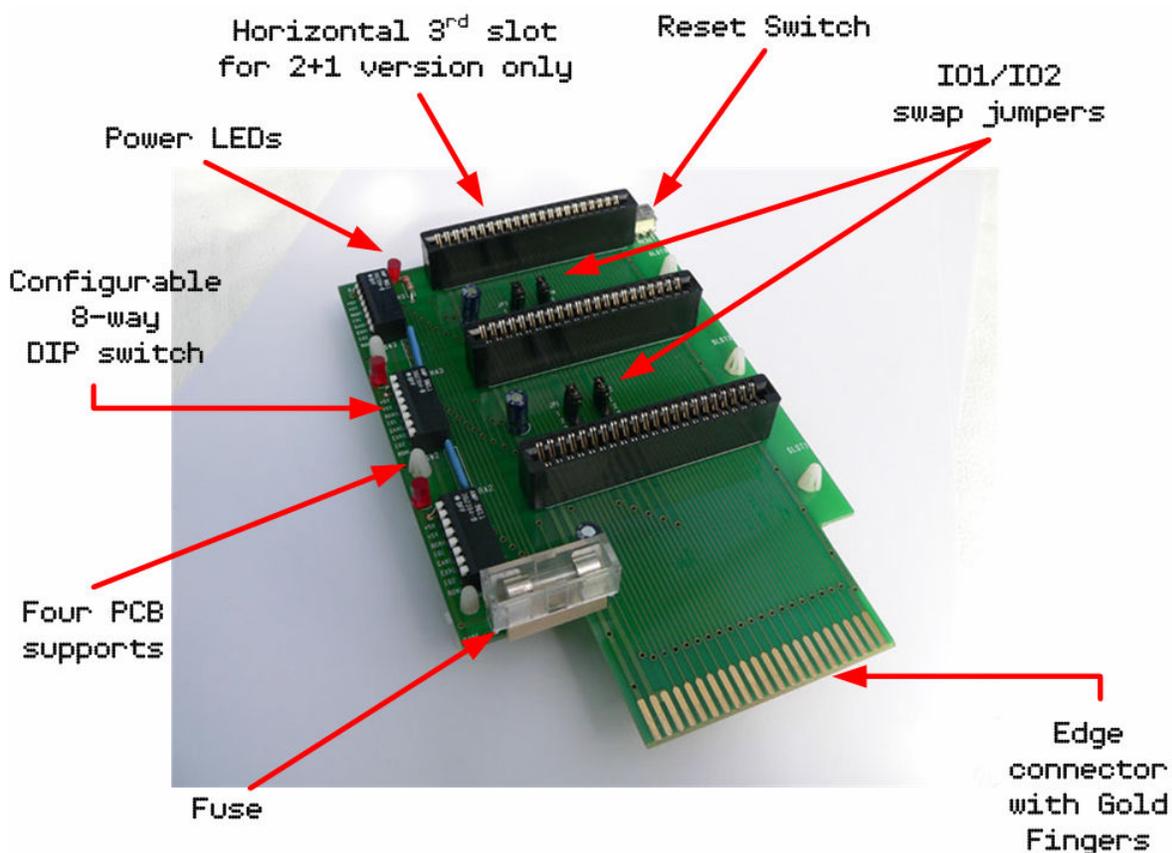


Figure 1: Top view of FB-3XP

The FB-3XP is compatible with both Commodore 64 and Commodore 128 computers. It includes 3 cartridge slots, fuse protection, a reset switch, power LED indicators and configurable DIP switches.

## DIP Switches

Each cartridge slot includes an 8-way DIP switch that can be used to enable/disable individual lines from the Commodore 64/128 expansion port.

Fins 1 and 2 are both connected to the +5V power line.  
Pin 3 is ROMH (ROM High)  
Pin 4 is I01  
Pin 5 is GAME  
Pin 6 is EXROM

Pin 7 is I02  
Pin 8 is ROML (ROM Low)

When DIP switch pins are in the up position, the lines are disabled. When they are in the down position, the corresponding lines are enabled.

DO NOT change the DIP switch settings when the Commodore computer is powered on. Always turn the computer OFF before selecting the required configuration.

### **I01/I02 swap jumpers**

A unique feature of the FB-3XP is that the last two cartridge slots can be configured to swap the I01 & I02 lines.

By swapping the IO lines, a cartridge which was designed to map at memory address I01 (\$DE00) can be forced to map to I02 (\$DF00) and vice versa. In theory, this allows two cartridges to be active at the same time!

Please note that not all cartridges support concurrent use with other cartridges.

The IO jumpers for slot 2 are labeled as JP1/JP2, and for slot 3 as JP3/JP4. In the default configuration, all four jumpers are placed between pins 1 and 2. In order to swap the IO lines for the specific cartridge slot, the jumpers need to be placed across pins 2 and 3.

As an example, to swap the IO lines for slot 2, place jumpers JP1 and JP2 across pins 2 and 3.

DO NOT change the IO jumper settings when the Commodore computer is powered on. Always turn the computer OFF before selecting the required configuration.

### **Reset Switch**

The FB-3XP includes a reset switch mounted on the far right end of the expander. A reset of the computer is performed by depressing the button on this switch. Please note that some programs or cartridges may prevent the computer from being reset correctly when using this switch.

## Installation and Setup

The FB-3XP comes fully assembled and ready for connection to your computer.

1. Turn your computer off before installing the FB-3XP into your computer's expansion port. To avoid damaging your Commodore computer, DO NOT insert the FB-3XP into your computer, or any cartridges into the FB-3XP when the computer is powered on.
2. Configure the IO Jumpers and DIP switch settings for the desired configuration.
3. Insert the required cartridges into the FB-3XP with the front of the cartridge facing towards the computer. *With the 2+1 version of the FB-3XP, the last slot is mounted in a horizontal manner. Insert cartridges with the front of the cartridge facing the top of the expander.*
4. Plug the FB-3XP into the expansion port when the computer is powered off. Ensure that the FB-3XP expander is fully inserted into the Commodore expansion port with the top side being upright as shown in figure 1.

## Troubleshooting

If there's no display or a blank black screen when powering on the Commodore computer with the FB-3XP expander installed, please check the following:

1. Was the FB-3XP expander inserted correctly into the Commodore expansion port? Turn the computer off. Reinsert the FB-3XP as per the instructions included in the Installation and Setup section of this User Guide.
2. Were the cartridges plugged into the FB-3XP with the correct orientation? Please refer to the instructions included in the Installation and Setup section of this User Guide.

If certain cartridges fail to start, please check the following:

1. Does the cartridge start when it's the only cartridge installed in the expander? If yes, then there may be a conflict with another cartridge. Some cartridges will cause conflicts even when they are disabled using the corresponding 8-way DIP switch. This is due to the cartridge in question forcing other lines on the expansion port to either a high or low state even when disabled. The Retro Replay cartridge is known to cause these types of issues. A simple solution is to only enable the +5V pins on the 8-way DIP switch for the retro Replay cartridge even when it's not used! This workaround may also work for other cartridges.

Sometimes, the power LED for a cartridge slot may be active even when the corresponding +5V power pins on the 8-way DIP are disabled. Don't be alarmed. This is normal behavior with some advanced cartridges like the Action Replay.

Many thanks for purchasing this product. Enjoy!