What is a GB Cart Flasher?

GB cart Flasher is a cartridge reader and programmer for use with Gameboy consoles and was designed as cheap and easy to build alternative for existing devices. It is connected to your PC via serial port (RS232) or USB.
It supports games backup from cartridges you have purchased, reading and writing game saves and programming of your own games to cartridges with replaced ROM chip.

How to build GB Cart Flasher?

First, decide which version you want to build. We designed two versions.

RS232 version:	USB version:
serial communication	communication and power via USB interface
powered externally	will need more experience in soldering and electronics
external power supply necessary	recommended for new PCs

After your decision you have to order all necessary electronic parts (look at the schematic). Try to find a local chip distributor on the web and order online. We suggest to buy a damaged Gameboy Classic console (there are many on internet auctions) and desolder the cartridge connector. It should be a Gameboy Classic console because other consoles (i.e. GB Pocket and Color) have a different connector which won't fit. The most difficult thing to produce/get is the Printed Curcuit Board (PCB). Print PCB artwork on a laser printer and remember to check the board dimensions. There are many tutorials on the web, describing how to make good PCBs. Here is an example http://www.efymagonline.com/pdf/Pcbs.pdf. The ATMEL ATMEGA8515 Microcontroller is used in both versions and needs to be programmed before working correctly.

For the microcontroller programming you will need an In System Programmer http://www.atmel.com/dyn/products/tools_card.asp?tool_id=2726 or parallel programmer for Atmel microcontrollers. Microcontroller programming is needed only once. After programming you have to program the fuse bits to value *0xC91F*. Now you can start soldering all parts onto the PCB (use a socket for the microcontroller). Before connecting the flasher to your PC you have to install the programming software. For the USB version it's necessary to install the additional FTDI driver, which is included in the installer package. You can also download it from www.ftdichip.com.

For the RS232 version you will need a Null Modem cable and for the USB version a USB TYPE A-B cable.

Null Modem Cable:

	25 Pin	9 Pin		9 Pin	25 Pin	
FG (Frame Ground)	1	-	X	-	1	FG
TD (Transmit Data)	2	3	-	2	3	RD
RD (Receive Data)	3	2	-	3	2	TD
RTS (Request To Send)	4	7	-	8	5	CTS
CTS (Clear To Send)	5	8	-	7	4	RTS
SG (Signal Ground)	7	5	-	5	7	SG
DSR (Data Set Ready)	6	6	-	4	20	DTR
DTR (Data Terminal Ready)	20	4	-	6	6	DSR

Troubleshooting guide

P: PC program freezes during read/write operation.
S: Try to run it in Safe Mode. If it won't help try to change -0 parameter in program shortcut to other value from -0 to -7 to force different process priorities.

P: I have a very slow computer and sometimes read/write operation fails, displaying "Timeout!".
S: Close all not necessary applications. If this won't help you can change communication speed between programmer and your PC. To force lower speed, bypass microcontroller pin 29 with 30 (check twice, you can damage your microcontroller) and run program with additional -lowspeed parameter.

P: Which flash chips will work with GB Cart Flasher?
S: It depends on what cart size you want to have. We recommend 29F040 (512kB, not tested yet, but should work), 29F080 (1MB, not tested), 29F016 (2MB, not tested) or 29F032 (4MB, not tested) flash chips. But there are some other chips that will be suitable as well, for example 49F002 (256kB, tested by us) and 49F040 (512kB, also tested).

P: When I start PC program it hangs on detecting device message and/or interferes with other devices connected to COM ports.
S: You can switch off programmer automatic detection. Just run program with -commanual parameter, then select appropriate COM port manually.

P: Why are ROM/RAM sizes unavailable for some **M**emory **B**ank **C**ontrollers (MBC)?
S: It's due to their limitations. If you don't know which type of MBC is in your cartridge select MBC AUTO (default at startup).

P: I programmed RAM with a correct game save file, but it does not work when I play games on a GB(C) console.
S: Probably RAM data is corrupted. It may happen when you are inserting/ejecting cartridges while power is on (green LED on). Eject or insert cartridges only when power is off.

Disclaimer

If you have any questions contact us at mailto:gbflasher@interia.pl . We are not selling PCBs or electronic parts. This project was created for educational purposes only and is intended for your own Gameboy programming and development. This project is free and any kind of commercial usage is prohibited.