

## Gameboy Cart Shield v1.3

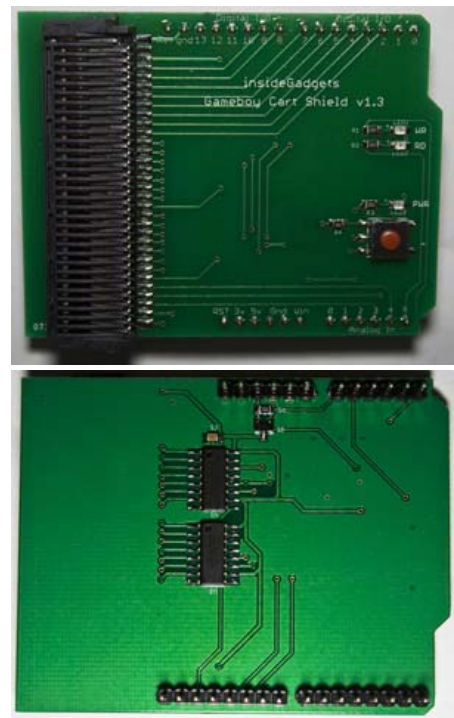
An adapter for Gameboy cartridges to read the ROM and read/write to the RAM using an Arduino. Uses the GBCartRead program to communicate with the Arduino.

### Features

- Backup your Gameboy/Gameboy Colour games ROM to your PC
- Backup your Gameboy/Gameboy Colour save games to your PC and ability to restore them

### Requirements

- Arduino Duemilanove or Uno - 5V versions (will work with other 5V Arduinos but requires custom re-wiring)



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### Specifications

PCB Board: 69mm x 53mm

Input voltage: 5V

Weight: 18 grams

### How to Use

1. Connect the Gameboy Cart Shield to the Arduino and plug the Arduino in.
2. Open the \GBCartRead\_v1\_7\_Arduino\GBCartRead\_v1\_7.ino file and program it to your Arduino. Note down the COM port number in use; you can find this out from the Arduino software by going to Tools -> Serial port.
3. There are two choices to communicate with the Arduino – using the C program or the Python program.

#### Python Program

- a. Download and install Python 3.2 (<http://www.python.org/download/>) and pySerial (<http://pypi.python.org/pypi/pyserial>)
- b. Open up the "GBCartRead\_v1\_7\_Python\_Interface.py" script by right clicking it and selecting "Edit with IDLE".
- c. Change the "COM2" serial port to the serial port that your Arduino is connected on, save the file and press F5 to run it.
- d. A new window will appear, after 2-3 seconds you'll have some options available.

#### C Program





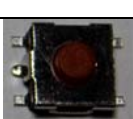
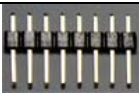
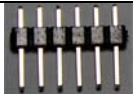
- a. Open config.ini and change the COM port number to the serial port that your Arduino is connected on and save the file.
- b. Run "GBCartRead\_v1\_7\_C\_Interface.exe" in Windows or re-compile the source for your OS

4. At this stage you should insert your Gameboy cartridge and press the power button, the power LED should light up.
5. Press 0 to read the header and verify that it looks correct. If it doesn't look correct, press the power button to power off the Gameboy cartridge, remove and re-insert it and power it up again.
6. Press 1 to Dump the ROM, 2 to Backup your RAM or 3 to Load your RAM file. Hashes (#) will start printing every few seconds and a file called <gametitle>.gb or .sav will be created if you chose option 1 or 2. If you choose option 3, it will load the save from <gametitle>.sav.

We recommended verifying your Gameboy ROM using BGB (a Gameboy emulator) or "xgbfix.exe -v -d <your\_rom.rom>" found in the project called "ASMotor" (we've included it). It's a good idea to verify your save files too by running the ROM when the save file is present in BGB.

## Kit Contents

To assemble the kit you will require a soldering iron and solder.

Picture	Name	Description	Qty
	PCB	Gameboy Cart Shield v1.3 PCB	1
		Gameboy Cart Slot	1
	U1, U2	74HC595 Shift Register SO-8	2
	Q1	P Channel Mosfet SOT23 - BSS84	1
	R1 – R5	10K Resistor SMD 0805 (reads 1002)	10
	C1	0.1uF Capacitor SMD 0805	1
 - +	LED1 – LED3	Red LED SMD 0805 (note the positive and negative sides)	3
	S1 – S4	4.3mm Tactile SMD Switch	1
		8 pin male header	2
		6 pin male header	2

## Build Instructions



Firstly you will need to snip off the ends of the GBA Game Cart Slot otherwise when you try to insert the Gameboy cartridges they won't fit.



Next you need to bend the GBA Game Cart Slot pins by 45 degrees or thereabouts otherwise the pins will sit a few millimetres above the board. The GBA Game Cart Slot may also have two small little plastic bits on the bottom which you will need to shave off.

Solder all the SMD packages first, then the Gameboy Cartridge header and lastly the male headers. If you find the silkscreen hard to read, the PCB placement guide pictures are included.

## Revision History

### v1.3 Rev. 1 – 12/Feb/2015

- Added power circuit/button to switch power on or off to the Gameboy Cartridge, allows you to easily switch between cartridges without needing to unplug your Arduino (thanks to Frode vdM. fvdM1992@yahoo.no for the suggestion)
- Moved SCK wire from pin 12 to pin 13 for SPI
- Updated GBCartRead to v1.7

### v1.2 Rev. 3 – 14/Nov/2014

- Updated GBCartRead to v1.5

### v1.2 Rev. 2 – 21/Jul/2014

- Updated documentation as GBA Game Cart Slot from DX has changed what it looks like

### v1.2 Rev. 1 – 3/Jan/2014

- Updated to include LEDs for WR and RD pins
- Changed pin 13 to pin A3 as some Arduino's may have issues with pin 13
- Corrected issue with VCC not being connected to the 74HC595D VCC

### v1.1 Rev. 1 – 2/Jul/2013

### v1.0 Rev. 1 – 14/Mar/2013

- Initial Release

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