

# **BurgerDisk Smartport Hard Disk for Apple II**

## **User manual**

Version 1.0.1

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## Table of Contents

Index of Figures.....	ii
Index of Tables.....	ii
Introduction.....	3
BurgerDisk Configuration.....	4
Warning: connection configuration.....	4
Presenting disk images to the computer.....	4
Troubleshooting.....	5
Serial debug output.....	5
Blinking LED, no image mounted.....	5
Compatibility.....	5

## Index of Figures

## Index of Tables

Table 1: Example config.txt.....	4
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## **Introduction**

BurgerDisk is a Smartport hard disk, with storage backed on a microSD card, for the Apple II line of computers running ProDOS.

It is compatible with the Smartport-enabled models:

- The Apple //c (apart from the ROM255 version, which can be upgraded)
- The Apple IIgs
- Slotted Apple II computers with a DiskII controller and a SoftSP card.

It is daisy-chainable, which lets you use other storage devices with it.

## BurgerDisk Configuration

### Warning: connection configuration

As Apple has repurposed some pins in the DB19 cable over time, please consider which computer you will connect your BurgerDisk to, in order to avoid frying the BurgerDisk's microcontroller: the /DRV2 signal, used on Apple IIgs and //c+ to select one or the other external 5.25" drives, is a +12 volts line on the 5.25" floppy disks controllers.

This signal is suppressed by default in case you want to connect your device to such a controller. You will need to close the corresponding jumper "IIgs", **only** if you use your BurgerDisk exclusively with natively Smartport-capable computers (and only if you use two 5.25" drives).

### Presenting disk images to the computer

Different image formats are supported:

- .po (in ProDOS-ordered format, unlike .dsk)
- .hdv
- .2mg

These images can be either 140KB, 400KB, 800KB, or an arbitrary number of blocks up to 32MB (65535 blocks).

The BurgerDisk does **not** support .woz, .nib, .edf, .dsk, .do images.

BurgerDisk uses these disk images to present to ProDOS. They are stored as files on the MicroSD card, formatted as FAT.

By default, the firmware will search for four files: PART1.po, PART2.po, PART3.po, PART4.po, and present them if they exist.

You can also put images with arbitrary names, and reference at most four of them in the **config.txt** file at the root of the MicroSD's filesystem.

Table 1: Example config.txt

A2DeskTop-1.5-en\_800k.2mg

Total Replay v5.2.hdv  
Documents.po

Afterwards, you can insert the MicroSD card in its slot (face up, connector down), connect your device to your Apple II, and boot it.

## Troubleshooting

### Serial debug output

If you are investigating a problem or experimenting with your own modifications of the firmware, you might want to enable debug output on the Arduino's serial port.

This can be enabled with a **debug=1** line, inserted at line 5 of **config.txt** (leave empty lines between your last image and the fifth line if you have configured less than four images).

Afterwards, you can open the enclosure, locate the UART port, and connect an UART to USB adapter to it. Connect the UART's **GND** to the adapter's **GND**, and the UART's **TX** to the adapter's **RX**.

### Blinking LED, no image mounted

If after booting the Apple II, a small delay happens, followed by the BurgerDisk's LED blinking 4 times per second, and none of its volumes are visible by ProDOS, this means that the MicroSD card initialization failed, or that zero valid images were found on the card. Verify its presence and contents.

### Compatibility

So far, the BurgerDisk has been tested on:

- Apple //c ROM3, model A2S4000
- Apple //c ROM4x, model A2S4100
- Apple IIgs, ROM01
- Apple IIe, DiskII controller + SoftSP card

Various daisy chaining configurations have been tested:

- only the BurgerDisk on the Smartport bus
- Unidisk 3.5", then BurgerDisk
- BurgerDisk, then Disk //c
- Unidisk 3.5", then BurgerDisk, then Disk //c
- Unidisk 3.5", then BurgerDisk, then another BurgerDisk, then Disk //c

Note that the usual Apple II daisy-chaining rules apply:

- First the "dumb" 3.5" drives ("Apple 3.5 Drive", A9M0106)
- Then Smartport 3.5" drives ("Unidisk 3.5", A2M2053)
- Then the other Smartport devices (BurgerDisk, SPIISD, Fujinet, etc)
- Then 5.25" drives (Disk //c, etc)

Compatibility with the SPIISD, Fujinet, or other Smartport-based devices has not yet been tested.