

NitrOS9 Installation Guide

Last update 9/5/24

It is assumed that you are able to boot FLEX on your system. If you are not, you should get your system booting FLEX before attempting to boot NitrOS9.

Hardware Modifications

1. Motherboard - The 680 ohm pull up SIPs were not called for in some of the Corsham MB instructions. These must be installed.
2. A 1000 ohm pull down resistor needs to be added to the PB2 line on the Parallel board. Connect the 1000 ohm resistor from PB2 to Ground. This modification could be made to the SD-Shield but would be easier to do to the Parallel board. This modification may not be required depending on the version of the SD Card System. Our test system would not work unless the modification was made. One user reported his system worked without the resistor and stopped working when the resistor was added to PB2.

Configuration of Motherboard

This is the configuration of our test system.

- Slot select - Serial board - place jumper in 0 and 1.
- SD Shield - place jumper in 6

RS3/UD4 - installed

RS2/UD3 - installed

JP23 - installed

JP22 - FIRQ

JP8 - E000 position

JP13, JP14, JP15 - 16 position

JP9, JP12, JP18, JP19 - Installed - Baud Rates - Install as needed for your system

Typically JP2 - will need to be installed - Power enable

Configuration of Serial board

IRQ must be enabled for the serial board you use.

Configuration of Parallel board

Jumper IRQ for Port A. No jumper for Port B.

SD Card System

The SD Card System must have the clock installed. Early versions of the SD Card system used a plug in clock board. The clock board provides a source of interrupts for NitrOS9s software clock and for task switching.

EPROM Installation

Download the EPROM here:

<https://peripheraltech.com/Corsham-NitrOS9-Boot.bin>

This image should be programmed in a 2764 or 28C64.

Install EPROM in the CPU board - IC7 - may be different IC number for early board.

SD Card Preparation

Download the SD Memory image here.

[https://peripheraltech.com/Corsham SD Files.zip](https://peripheraltech.com/Corsham%20SD%20Files.zip)

Unzip file and place contents on a MicroSD card.

Insert SD card in SD Shield

System Startup

Power up computer - It is very important that you turn the computer on and off by **breaking the 120/240V connection**. A switch between a wall mounted power supply on the 7.5V DC side and the motherboard does not allow the processor board to reset properly, and the system will often hang due to this.

Turn power on. In about a second you should see these messages:

```
DAT Init
Boot Init
```

A few seconds later, depending on how fast the SD card system starts. You should see this:

```
.....
NitrOS-9/6809 Level 1 V3.3.0
Corsham 6809
(C) 2014 The NitrOS-9 Project
Wed Aug 28 15:57:56 2024
http://www.nitros9.org

* Welcome to NitrOS-9 Level 1 *
*   on the Corsham 6809 SS-50   *

August 28, 2024  15:57:59

Shell

OS9:
```

The dots appear one by one while NitrOS9 is loaded from the SD card. Each dot is 256 bytes of data being loaded.

The SD Card system may blink the LEDs differently depending on versions of the Arduino code. The latest version does this. On power up the LEDs blink in sequence, red, yellow and green about a second apart. Then yellow will blink in a few seconds after the system starts loading NitroS9; the green LED will start to blink after NitroS9 finishes loading. On our test system the Green LED blinks at 2 second intervals.

If you are having trouble, it's possible the software in your SD card system is too old. There was a change in the command codes at some point in the past. You will need to download the Arduino IDE and update the program in the Arduino board.

This version of NitroS9 was changed to use **slot 0 for the serial port**. Typically in SS50 systems this is E004h. By placing a jumper in 0 and 1 for the serial card. It will respond at either E004h or E010h. We expect to have a version of FLEX for the SD system that uses slot 0 in the future. This will make the Corsham system more compatible with other SS50 systems.