

## FC CoolGirl红白机烧录卡DIY手焊自带卡带指南

笔记本： 阅读

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URL: [https://www.bilibili.com/opus/993115658548936710?from=search&spm\\_id\\_fro...](https://www.bilibili.com/opus/993115658548936710?from=search&spm_id_fro...)

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### 前言：

自己做一张游戏卡带是小时候的梦想，我要将所有我要玩的游戏都装在一张卡带上。那可多酷啊！

### 准备工具：

- 1.电烙铁(推荐用T12-K或T12-BC2)
- 2.锡线
- 3.助焊膏(不建议用松香)
- 4.USB Blaster(建议提前做好转换板)
- 5.coolgirl写入器(建议用STM32版本，ATMega版本也可以，只是慢而已)
- 6.放大镜或显微镜
- 7.洗板水及配套的清洗袋
- 8.预编译好coolgirl的CPLD EPM1270固件
- 9.预编译好coolgirl合卡的NES文件

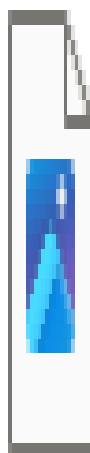
焊接耗时大约3小时，最好预留5小时，以有充足的时间去排查问题。和事后收拾

大体步骤：

- 1.焊EPM1270
- 2.写入EPM1270固件
- 3.焊PRG部分的电平转换、LDO
- 4.焊PRG SRAM
- 5.测试PRG SRAM是否正常
- 6.焊PRG FLASH
- 7.测试PRG FLASH并写入NES文件
- 8.焊CHAR部分电平转换及CHAR RAM
- 9.测试CHAR RAM并全部测试
- 10.补上退耦电容
- 11.再次测试后上机

## 正式开工：

开工焊接前，习惯测量一下5V与GND是否短路、VCC与GND是否短路。因为不止一次试过PCB板拿到手时短路，特别是4层板



6d73f59801e57b466f62f1c083bbb842406861...

2024-11-26 12:10, 44.5 KB

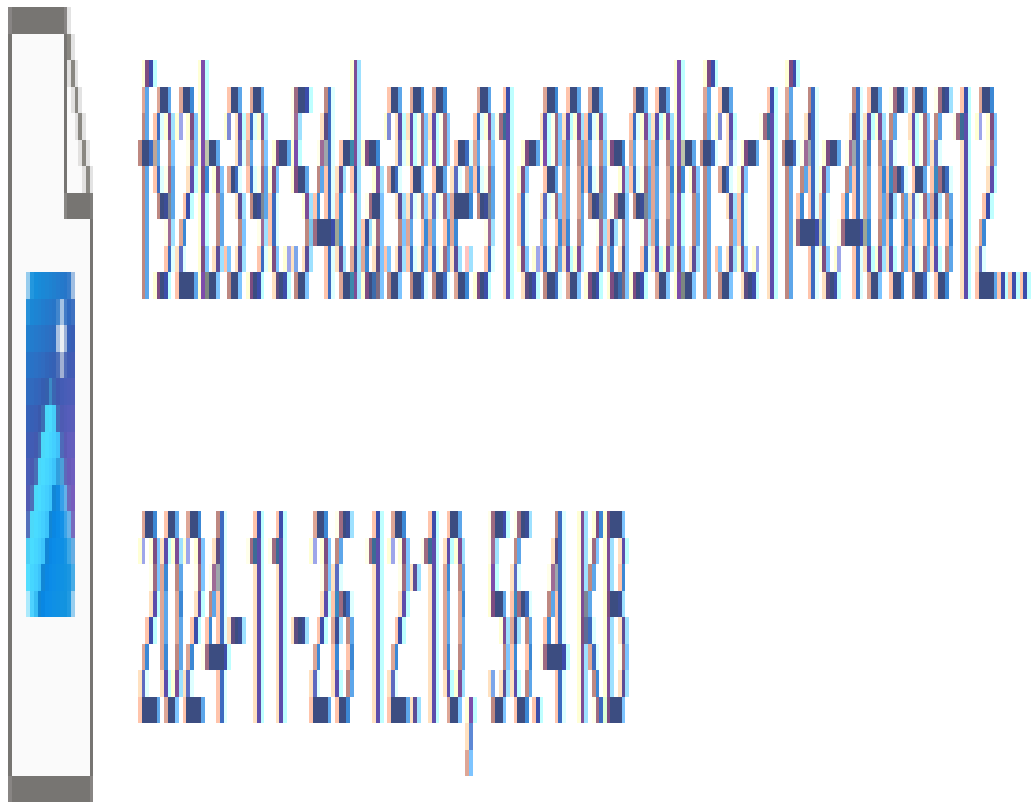


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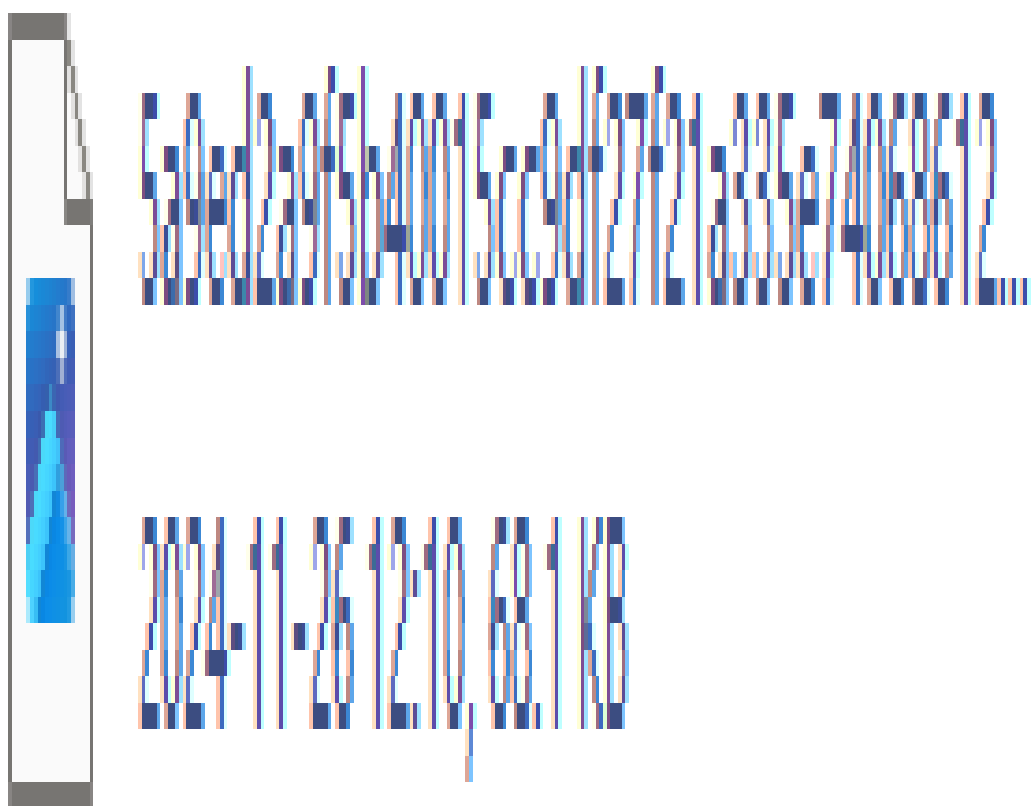
2024-11-26 12:10, 51.4 KB

## 第1步.焊EPM1270

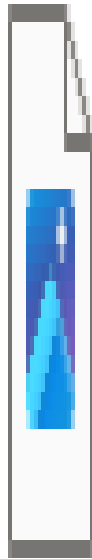
1.将EPM1270四边都涂上助焊膏



2.EPM1270放到PCB上，开对好



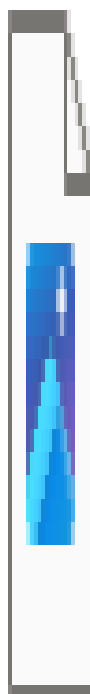
发现有不对齐情况，立即调整，特别是一开始的时候如果发现对不准要立即调过来。越到后面越难调。



6f43c7e67737e8cd0cd055a0c86dc05d6406861...

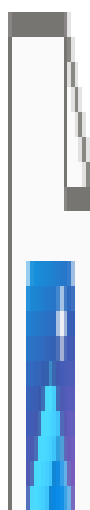
2024-11-26 12:10, 50.4 KB

4.再次对EPM1270上一遍助焊膏



9744063c464ce16672eb668047c04e0406361...

2024-11-26 12:10, 61.0 KB



1. The first part of the document is a title page. It contains the title of the document, the author's name, and the date of the document. The title is "The History of the United States of America". The author is "John Adams". The date is "1776".

2. The second part of the document is a table of contents. It lists the chapters of the document and the page numbers where they begin. The chapters are "The Declaration of Independence", "The Constitution", "The Bill of Rights", "The Federalist Papers", and "The American Revolution".





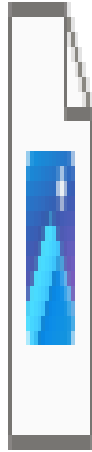


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485df5d46f9a48eccf854bbc163b8bc8406861...

2024-11-26 12:10, 46.2 KB



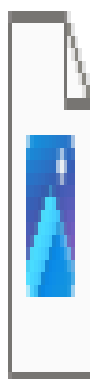
84d679502f4793c16ffe762b96c6ff3d4068612...

2024-11-26 12:10, 25.0 KB

### 3.烧写coolgirl固件

推荐win7，注意一下 QuartusII 的版本不能太新（我用 10.1sp1）。新版是不支持EPM1270，只支持 5M1270！

特别要注意提前将无关的USB都拔掉，因为只要在烧写时USB设备有变动，立即写入失败。（特别是USB转串口这些一定要拔掉。）



8e230b2ff733b8b01abdb08b4467db0540686...

2024-11-26 12:10, 28.5 KB



fa913fa8907faa6b8444f0f4545b414a4068612...

2024-11-26 12:10, 41.9 KB

选择固件(注意: V2.1的固件与V6.4固件是**不通用**, 不要刷错固件)然后像截图那样9个勾都勾上, 就可以写了。



c6271adb636dba922b86aefbe3759a3440686...

2024-11-26 12:10, 25.9 KB

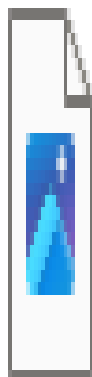
写入中.....



667508de62d1592bd2ff2a06ec0d682b406861...

2024-11-26 12:10, 31.5 KB

能成功烧写固件那么已经成功了1/3



05d293d22716f201e3988902ff47e5984068612...

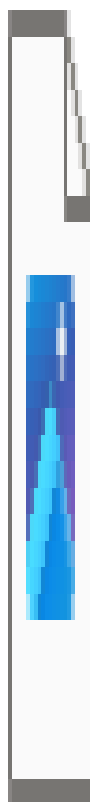
2024-11-26 12:10, 34.8 KB

### 第3步.焊PRG部分的电平转换、LDO

1.先焊中间的这些阻容



0d075f7d3add5fb07bd3957d829bfb7140686...



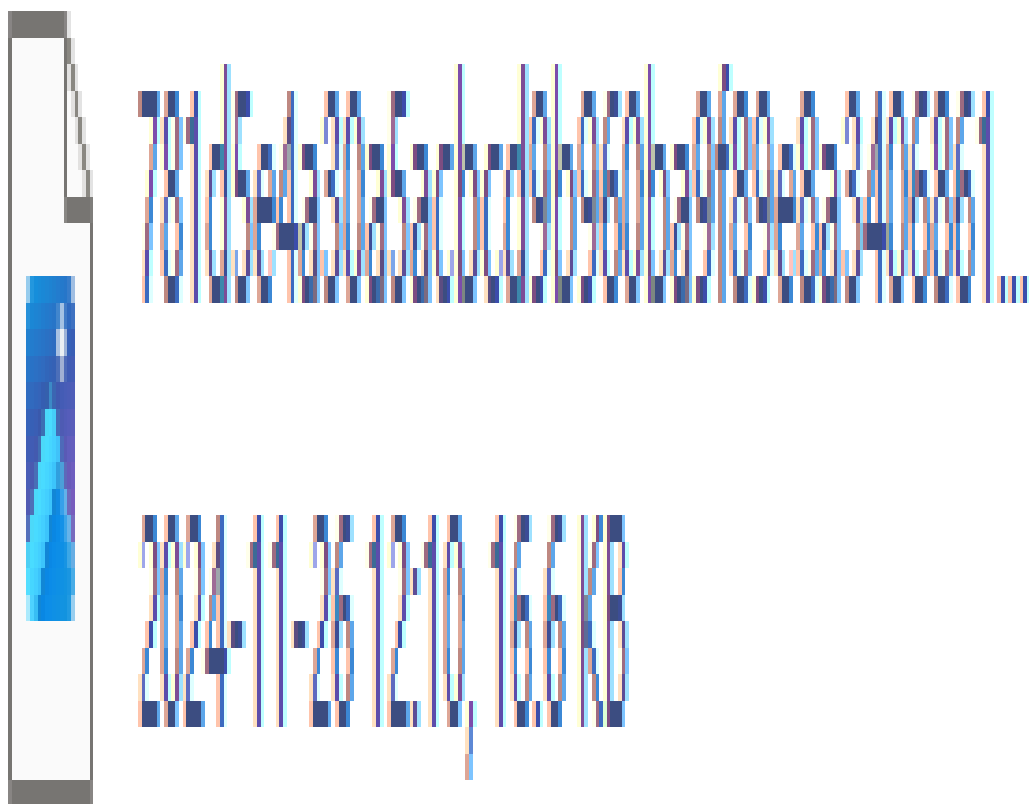
195608033400302010157040107400306

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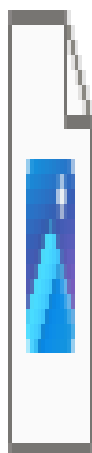


每焊一组都要用放大镜检查





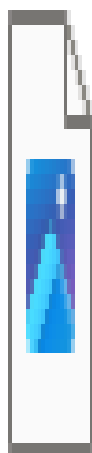
焊完PRG电平转换



6caa3eafaa0c20ef8cdd19ff02806a874068612...

2024-11-26 12:10, 54.7 KB

之后将LDO和SRAM相关的阻容焊好

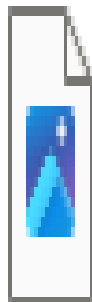


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2024-11-26 12:10, 37.2 KB

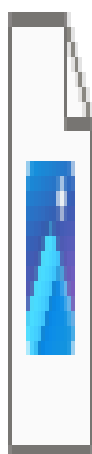
## 第5步.测试PRG SRAM是否正常

将卡带插到写入器中，然后测试



5b48ced4ef82e29cbac14a5256633222406861...

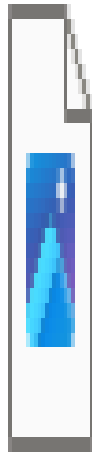
2024-11-26 12:10, 23.8 KB



31dddfbc72d9fe259b81d5518d7567dcf406861...

2024-11-26 12:10, 59.8 KB

**第7步.测试PRG FLASH并写入NES文件**



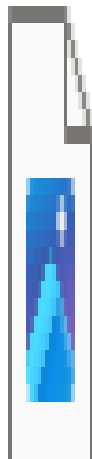
f625cbe42b6ddd4f24f34c2a3c231d36406861...

2024-11-26 12:10, 94.7 KB

检查FLASH的信息是否正确命令：

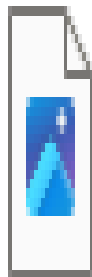
famicom-dumper.exe info-coolgirl

如果不能读取就要检查是有连锡，TSOP56的FLASH比较容易连锡



d0cf404dc9bc0bb6a97ad362f421078f406861...

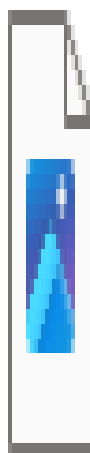
2024-11-26 12:10, 49.0 KB



26b58d0a39d709bad7ad5abde632a42540686...

2024-11-26 12:10, 25.8 KB

**第8步.焊CHAR部分电平转换及CHAR RAM**



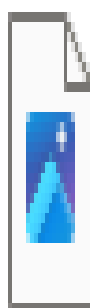
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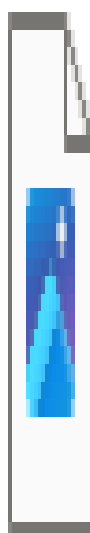


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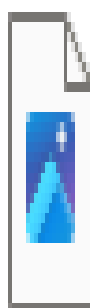
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2024-11-26 12:10, 18.6 KB



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2024-11-26 12:10, 63.2 KB



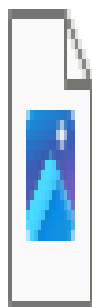
312029e72d0a2b331e1155607e0b6ca7406861...

2024-11-26 12:10, 22.6 KB

那就可以试试512K全测试

命令：

famicom-dumper script --cs-file CoolgirlTests.cs --chr-size 512k - chr



ce8dc357b13e1f2b046efb7e475046f7406861...

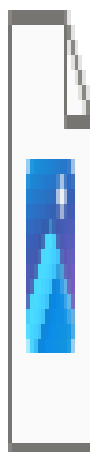
2024-11-26 12:10, 24.4 KB

## 第10步.补上退耦电容

先补0603



afd2157956577b1b6238d53b6486037c406861...



ab8e8c26dc9a5d2b478ae0fb44ce3d1540686...

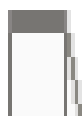
2024-11-26 12:10, 60.0 KB

补完后记得测试是否有短路



42860574f23c07503de84f9f9fa2f3ed4068612...

2024-11-26 12:10, 34.7 KB

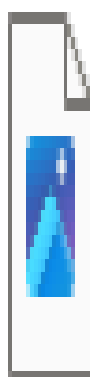


Исходный файл документа



87d0a831155ba123913c7a7f2690f5a0406861...

2024-11-26 12:10, 21.5 KB



6f39c6fdf34e24539efb4e6e7930879a4068612...

2024-11-26 12:10, 44.9 KB



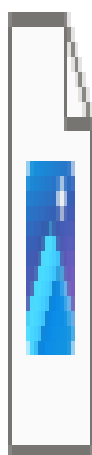
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2024-11-26 12:10, 17.8 KB





2bec2fb5eb6bdf1bbcf4f13d49bb975d406861...



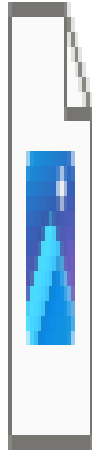
8a0a4a992d9cef80a1573f94314cc3704068612...

2024-11-26 12:10, 31.1 KB

**完结撒花**

**一些细节：**

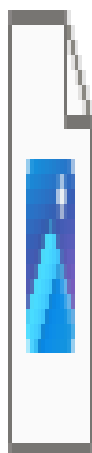
这个二极管建议用LL4148而不是1N5817，因为1N5817压降少，RESET时间不够，可能会花屏，要按FC重启键几次才不花屏



caa291dd089791f4808d55b23c9066ef406861...

2024-11-26 12:10, 58.9 KB

建议外加一个22uF的钽电容，原来的22uF贴片电容供电会不稳定(也可能是我买的贴片电容质量不好)。

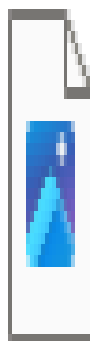


006e4c470c07bd30a0be4d71608c083640686...

2024-11-26 12:10, 59.1 KB

V2.1 **只能在豆机**上运行

V6.4可以豆机也可以全集成(83/84/89原装就没有条件试)



99bc953a9ad8afbde372cc828ae52ef5406861...

2024-11-26 12:10, 32.0 KB