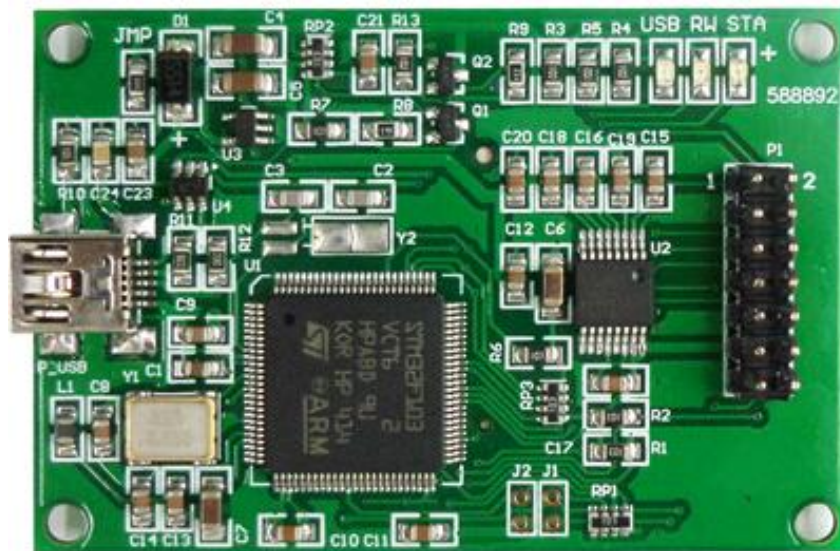


I . Introduction

1.1 Overview

- UC600 module, transparent transmission mode, the serial data sent to a file (FAT32 file system) shape storage in SD card on the module. Connect the USB port, the module emulation into U disk, without any extra drivers program, the host computer can read files directly, you can also remove the SD card reads files directly from the card reader.

- UC600 module interface is simple, easy to connect a variety of embedded and signal acquisition device, especially for long-term preservation application of huge amounts of data and require the data exchanged.



Front module



The back of the module

II. the functional description

1.1 The main function

2-wire serial interface, the serial data sent transparently saved as files stored on the SD card.

- High-speed serial data stored in the 115200 baud rate, the memory speed is greater than 10KByte / sec (small file size In 300Mbyte).
- Use the FAT32 file system on the SD card.
- Merge multiple data can be saved as a file.
Can save controlled split into multiple files can also be saved automatically split the data into multiple files based on file size.
- Adaptive more capacity SD card.
- USB ports can be directly read out the document.
- You can remove the SD card reads files directly from the card reader.

1.2 The main index

Power supply voltage: DC 5V, powered directly by the USB port as a U disk operation.

Temperature range: Industrial (-40 °C - 70 °C), (excluding SD card itself).

Power consumption: <95mA (DC5V, SD card operation), <50mA (DC5V, standby).

Interface level: LVTTTL or optional RS232 level.

Size: 63 * 42.5 * 2.0mm (including connectors height).

1.3 Hardware Description

1.3.1 Mechanical Dimensions

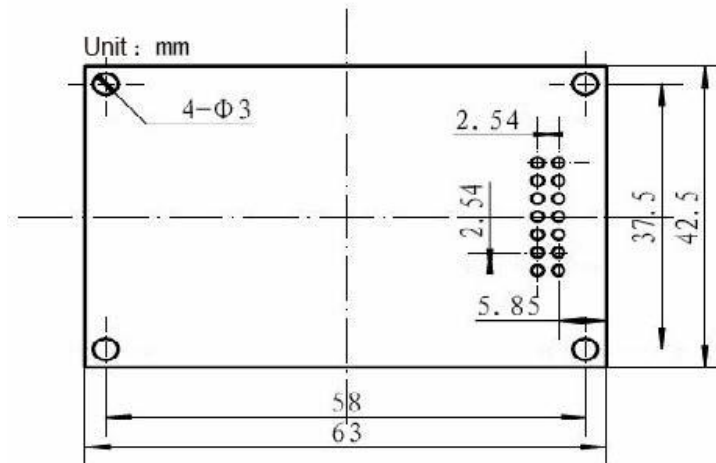


Figure 1

1.3.2 Electrical Characteristics

Table 1 Electrical Characteristics

Parameters	Symbol	Rating	Unit
Supply voltage	5V	+ 4.75-5.25	V (dc)
Working current	I	<45	mA
Input High	VIH	0.7 * Vcc - Vcc	V
Input low	VIL	0-0.3 * Vcc	V
Output high	VOH	Vcc-0.4 - Vcc	V
Output low	VOL	0 - 0.4	V
Operating temperature	Ta	-40 - 70	°C

Table 2 pinout

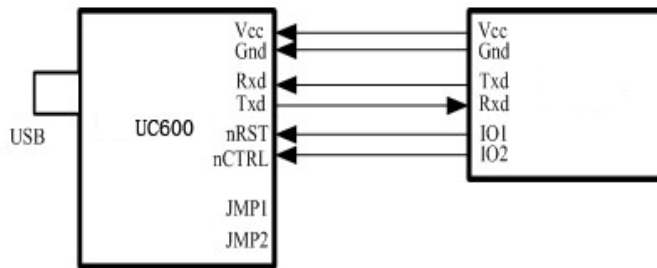
Explanation	Pin	Pin	Explanation
NC	1	2	nCTRL
NC	3	4	TX_232
nRST	5	6	RX_232
TXD	7	8	5V
RXD	9	10	GND
3V3	11	12	JMP-1
GND	13	14	JMP-2

Table 3 Pin Description

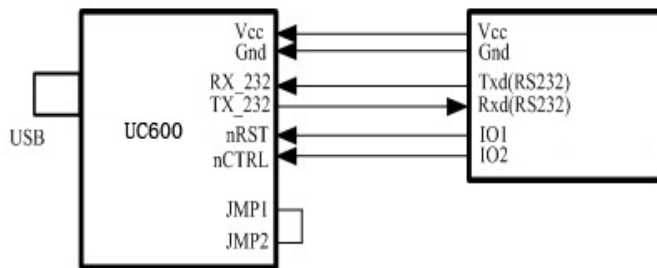
Name	Pin	Direction	Explanation
NC	1		No, keep open.
nCTRL	2	IN	Control input, active low. Configuration is set to automatic mode, each time the signal is valid, The file name automatically increases for dividing the resulting file, when not suspended.
NC	3	OUT	No, keep open.
TX_232	4	IN	RS232 level output, the timing of increasing the output of a byte, content is 0 - 255, About every second to send a check this byte can check the working status of the module when not It can be left open.
nRST	5	IN	Reset, active low, when not suspended. Under the configuration set to automatic mode, the signal Every effective, the file name automatically increases for dividing the resulting file.
RX_232	6	IN	RS232 level input, jumper selectable RS232 mode, data will ensure the signal line Saved as files, jumper selectable LVTTTL mode, the signal line is invalid, when not suspended Empty.
TXD	7	OUT	LVTTTL level output, the timing of increasing the output of a byte, content is 0 - 255, About every second to send a check this byte can check the working status of the module when not

			It can be left open.
5V	8	Power supply	DC5V power input
RXD	9	IN	Data LVTTTL level input, jumper selectable LVTTTL mode, this signal line will Save as file When jumper selectable RS232 mode, the signal line is invalid, when not suspended.
GND	10	Ground	Power Ground.
3V3	11	Power supply	DC3.3V power output.
JMP-1	12	JMP	Jumper 1, when the short jumper 2, select RS232 mode. Corresponding pin 4,6 Effective; otherwise select LVTTTL mode, the corresponding pin 7,9 effective.
GND	13	Ground	Power Ground.
JMP-2	14	JMP	Jumper 2, when the short jumper 1. Select RS232 mode. Corresponding pin 4,6 Effective; otherwise select LVTTTL mode, the corresponding pin 7,9 effective.

1.3.3 Typical applications



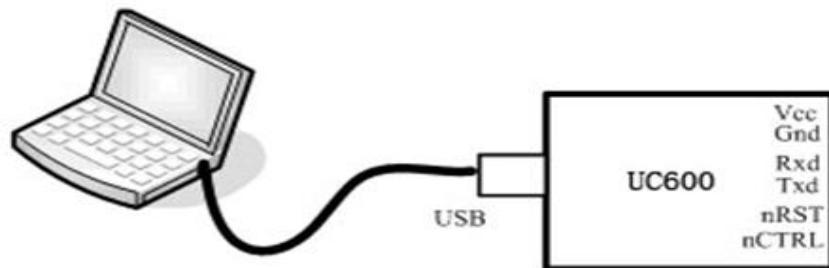
Application (LVTTTL level mode) to save the data in Figure 2 when



3 Save the application (RS232 level mode) when data

- Vcc and Gnd application equipment supplied by the UC600 module power supply, Vcc is DC5V, the 5V pin (pin section 8 feet) DC5V power supply.
- UC600 module JMP1, JMP2 shorted, select RS232 level mode; when less then a LVTTTL Level mode.
- Data from the application of the device to the serial signal line modules Rxd txd pin, all data saved to the SD transparency Card.
- Txd Pin n UC600 module periodically sends a byte to the increasing applications, through the word section signal detection module work.
- Applications by IO, can be controlled nRST module reset operation..
- In automatic mode, the application device via IO lines, control nCTRL module generates a new file, enter save the row of subsequent data, save the data to achieve multiple file segmentation.

- Non-automatic mode, the signal is invalid.
- Simple connection, the module is only Vcc, Gnd, Rxd to be connected to the signal line.
- In addition to the serial port using RS232 signal line, the other using the same signal line.



4 PC to read application data

- UC600 module is connected to the host computer through a USB cable USB port directly as U disk operation.
- When operating as a U disk, no USB port powered by the host computer, UC600 module of additional power supply powered by.

III. the parameter configuration

1.1 Introduction

It requires UC600 module configuration information provided by the configuration file (config.ini) SD card. Config.ini file is a text file on the UC600 module power when reading from the SD card. Therefore, config.ini file only at each when the effective power. Config.ini file located in the root directory of the SD card, the editable according to demand.

If no configuration file on the card, will automatically generate a profile when you first power up. This configuration file (Config.ini) the default following parameters:

```
BPS=115200;
FrameCharNumber=2000;
FrameTime=1000;
FileName=data.dat;
WorkMode=NORMAL;
FileMaxLen =10000000;
```

UC600 module operates in AUTO mode, it will automatically generate a new file in the root directory **NUMBER**, the file package No. including the need for new generation of file names, can not handle. When you delete a data file, you can delete the file, the module will **NUMBER** automatically generate a new file, and rebuild the new file numbers start at 0.

1.2 Profile Description

A profile replacement following

- **BPS**=115200;
- **FrameCharNumber**=100;
- **FrameTime**=20;
- **FileName**=data0001.dat;
- **WorkMode**=NORMAL;
- **FileMaxLen** =10000000;

1.2.1 Baud rate setting (**BPS**)

Serial connection applications is 8 bits, 1 stop bit, no parity mode. Serial port baud rate settings By the BPS = xxx; specify. xxx for the baud rate, ranging from one of the following values among: 1200,2400,4800,9600,19200,38400,57600,115200, if not one of these values, the module default Serial 9600.

Example: **BPS** = 19200;
Set the baud rate of 19200.

1.2.2 The number of bytes per frame (**FrameCharNumber**)

Since the serial connection applications is transparent transmission, UC600 module in order to improve efficiency, not every byte to be written to the file once; but the serial number of bytes received reaches the number of bytes per frame or stop receiving byte time byte delay time is exceeded only once data is written to the file of the process.

The value of the number of bytes per frame, you can select the appropriate value based on the needs of the application device, a maximum of 4095 bytes.

In principle, if the serial port speed, should increase the buffer size to avoid data loss.

Example: **FrameCharNumber** = 100;

When setting the serial port received 100 bytes, once data is written to the file operation.

1.2.3 byte latency time (**FrameTime**)

Serial data is received, it can be controlled by byte delay time parameter, when the serial port receiving end of the last word festival, if more than FrameTime time still not received the next byte of data, the module will be received as one, once data is written to the file operation.

Byte delay time delay unit is ms, depending on the application needs to send the device baud rate and data features Set the appropriate value, and with the combined effects of the number of bytes per frame.

If the serial port speed, should increase the buffer size while increasing byte latency time to reduce sd card read and write operations, to avoid losing data.

Example: **FrameTime** = 20;

Set the serial port to receive time between two data than 20ms, once data is written to the file operations

1.2.4 file name (FileName)

This parameter can only **WorkMode** = NORMAL under effective; specifies the serial data sent, save to SD file name on the card.

This parameter is used short file name, file name does not exceed 8 bytes, extension 3 bytes.

Example: **FileName** = data0001.dat;

Serial data files saved to SD card data0001.dat in.

1.2.5 operating mode (WorkMode)

- This parameter sets the operating mode, **NORMAL, AUTO** species.
- **WorkMode = NORMAL**, the normal mode:
In this mode, the serial port to receive the data is saved to the file specified in FileName.
- **WorkMode = AUTO**, in automatic mode:
In this mode, the file name: DATAxxx.dat. xxx from 0000, each signal line ctrl level have Effect once, xxx automatically increases by one; that is, each signal line ctrl low once, automatically generate a new file name, file name is automatically incremented to achieve conservation serial input data into multiple files. Generating a plurality of files that can be real Now split data read out for easy operation, but also improves safety.
When set to automatic mode, each power will automatically generate a new file. USB ports up and down the power, not create a new file.

1.2.6 Automatic mode the maximum file size (FileMaxLen)

FileMaxLen parameter module in automatic mode, the length of the saved data file reaches this parameter when the specified value, automatically generates a new data file, to file segmentation purposes.

- Only in the automatic mode (**WorkMode = AUTO**), this parameter is valid.
- **FileMaxLen** parameter value is 0, do not save data file segmentation.
- **FileMaxLen** parameters Maximum Value of less than 4Gbyte.

IV. the use

1.1 Hardware connection

1.1.1 Power

- In normal operation (data recording) mode without using a USB cable, power supply module from the signal line terminal lead into. When using DC5V power, introduced by (5V, PIN8).
- Current DV3,3V module (PIN11) pin output modules generated DC3.3V power, DC3.3V power supplied less than 100mA.
- In normal operation (data recording) mode, if no external DC5V power supply can also be used (PIN11) Pin directly to the power supply module, power supply voltage DC3.3V. In this case, the upper left corner of the label should be removed module as JMP 0 ohm, then, USB cable will not be independent of the modules.
- In the upload file mode, connect the USB cable, power supply module DC5V powered by USB.

1.1.2 Data Entry

- In normal operation (data recording) mode, the data entered by a serial cable.
When selecting LVTTTL level mode, JMP-1, JMP-2 disconnected, RXD (PIN9) as an input signal

lines, so with LVTTTL level.

When selecting RS232 level mode, JMP-1, JMP-2 connection, RX_232 (PIN6) as an input signal line, Using RS232 levels.

- In the upload file mode, after connecting USB, the signal input function is disabled, can not store data; when disconnecting USB When connected, the signal functional recovery.

1.1.3 Output signal

In normal operation, the signal line TXD (PIN7) (LVTTTL mode) or TX_232 (PIN4) (RS232 mode) The timing of increasing the output of a byte, contents 0--255, about every second to send a check this byte Job status check module and can be suspended when not in use. When the USB connection, not the output of the signal.

1.1.4 Level Select

- Select LVTTTL level mode, JMP-1, JMP-2 off.
- Select RS232 level mode, JMP-1, JMP-2 short-circuit connection.

1.1.5 control signal

- Profile settings **WorkMode = NORMAL**, the normal mode. In this case, the data entered will self automatically saved to a file; nCTRL signal wire.
- Profile settings **WorkMode = AUTO**, in automatic mode. nCTRL signal line low again, It will automatically generate a new file name. File name is automatically incremented, so the input data into multiple files to save, Enables segmentation of data, ease of operation time of reading, but also improve security.
- nCTRL signal lines need to wait for the serial port does not send data manipulation, to avoid losing data. Enabling this signal at least guarantee 50ms after a new file is held low state, returns high, and start saving.

1.1.6 reset signal

- Applications can control the reset of the module (active low).
- Reset regularly can improve the reliability of operation.
- Reset signal can be suspended when not in use.

1.1.7 Indicators Signal

- During normal operation, the LED STA (yellow) flashes.
- When the card if the write operation, the indicator RW (green) flashes.
- When the USB connection, the indicator USB (blue) flashes.
- When failure, 3 LEDs flash simultaneously.

1.2 SD card

- Before the module using the SD card needs to be initialized to the FAT32 file system.
- Before the module, you need the configuration file (Config.ini) files are copied to the root directory. Module power when the need to start the configuration file to read configuration information.
- Modules can automatically identify the capacity of the SD card, but in principle, smaller capacity cards, upload speed will be faster.

1.3 upload feature

- After connecting the USB interface module stops receiving saved data, automatically converted into U disk.
- It supports all file operations and formatting operations.
- Remove the SD card can also be read directly from the card reader.
- That contains a large number of files on the SD card, the upload speed is slow and the format operation.

V. the use of points

- **Do not power off or reset the data stored in the process, there may cause data loss or corrupted files.** If you really need power-down, reset or connect USB port, you need a period of delay, the delay time should be > 200ms.
- The number of bytes per frame (**FrameCharNumber**) and byte delay time (**FrameTime**) 2 parameters used in conjunction.
When you need to save the data transmission is slow, the frame interval time is longer, can mainly by the number of bytes per frame(**FrameCharNumber**) to decide when to write the card operation. When serial data output is fast and continuous, it can be every frame number (**FrameCharNumber**) byte setting bigger (max. 4095), byte delay time (**FrameTime**)Parameter settings longer to reduce sd card operations, to avoid losing data. In principle, a large number of bytes in the frame (**FrameCharNumber**) parameters (maximum 4095), byte delay time (**FrameTime**) (1000ms), may be implemented now 115200 baud data transmitted continuously (greater than 10KByte / s) without losing saved.
- A single file is too large (greater than 300Mbyte) can result in data retention time becomes longer.
- SD card appears the case file damage, if not hardware damage, it can repair by formatting operation. Regularly SD card format operation can improve the reliability of the module.
- In normal operation, the incremental character checks sent by the module, it can determine its working state, if necessary, through complex bit port reset.
- The first time you connect a PC's USB port, module identification speed may be slower, later normal.
- When the number of files in SD card more, the speed will be slow. Massive file copy, write and format and other operations, to mention high speed, you can remove the SD card, direct manipulation by the reader.

VI. speed test

A single large file size can affect the write speed of the SD card, the following tests carried out in this way.

Test conditions: the serial port settings 115200, n, 8, 1.

1000 bytes per frame of data

Has been used within the SD card file 2, used capacity 100 * 1000 * 1000 bytes.

Profile: BPS = 115200;

FrameCharNumber = 4000; * Changes

FrameTime = 1000;

FileName = data.dat;

WorkMode = NORMAL;

FileMaxLen = 0;

Profiles	Condition	File length Unit (1000 * Byte)	Write speed (Byte / S)	Result
FrameCharNumber=4000	Frame interval 0ms (continuous)	300*1000	11965	No data loss
FrameCharNumber=4000	Frame interval 50ms (continuous)	500*1000	6591	No data loss
FrameCharNumber=4000	Frame interval 100ms (continuous)	700*1000	5540	No data loss

VI. Appendix (profile demo)

Profile Name : config.ini
Storage location : SD card root directory.
File contents demo :

BPS = 115200;
FrameCharNumber = 4000;
FrameTime = 1000;
FileName = data.dat;
WorkMode = NORMAL;
FileMaxLen = 10000000;
http: // shop63922921.