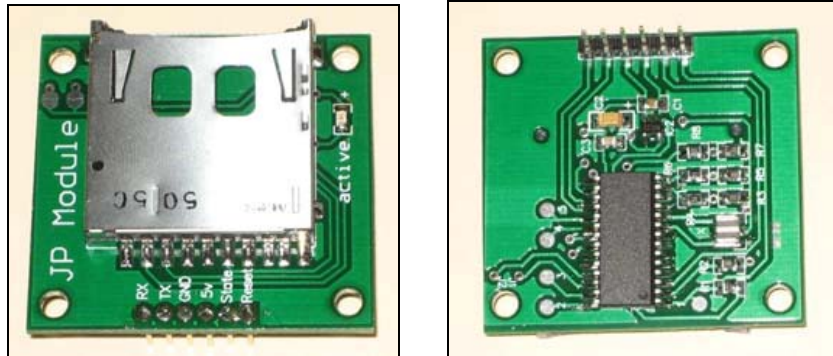


JP Module



JP Module is a MMC/SD card data logger and consumes low power. It allows creating, appending and reading data to files stored on MMC/SD media card. The files are stored in FAT16 format and can be directly read using a PC with an MMC/SD card reader. JP Module also can format MMC/SD card with FAT16.

SPECS

Power: 5V VDC <25mA
Size: 42mm x 40mm (1.65" x 1.57")
Speed: 2400, 4800, 9600 or 19200 Baud.
Media: Uses MMC or SD memory cards from 32 MB to 2GB.

PIN FUNCTIONS

RX: Serial input connection to JP Module. The module allows 2400, 4800, 9600 or 19200 baud based on J1 and J2 settings.

TX: Serial output connection to JP Module. The module allows 2400, 4800, 9600 or 19200 baud based on J1 and J2 settings.

J1 and J2 Settings:

J1	J2	Baud
-	-	2400
x	-	4800
-	x	9600
x	x	19200

- = connected

x = disconnected

GND: Power supply and serial ground. This MUST also be connected to ground on the device to allow the serial data to be sent to the module.

5V: Supply voltage to module. V_{in} may be 5.0V ($\pm 0.5V$), with 25 milliamps of current.

State: This pin shows the module work state. If the module is working fine, the state output level will be high (Active light will be on) If the module stops working for any reason, the state pin output level will be low (Active light will be off).

Reset: This pin can be set at the low level to restart module, if the module stops working for any reason.

SERIAL DATA FORMAT

The serial data format is eight data bits, no parity and 1 stop bit (8N1). Characters are sent using standard ASCII values. Baud rate may be 2400, 4800, 9600 and 19200 depending on the settings of J1 and J2.

COMMAND FORMAT

JP Module can be easily used with some simple commands to create a new file, write a date and save data to MMC/SD card.

- 1) Input operates command: MC!
 - a) MC = create a new file and write data to MMC/SD card.
 - b) MW = open an existing file and clear it, then write new data to it.
 - c) MA = open an existing file and append data to this file.
 - d) MD = delete an existing file.
 - e) MR = read data from an existing file.
 - f) MF = format MMC/SD card with FAT16.
 - g) MI = obtain file information.
- 2) Key in file name: XXXXXXXX.XXX! (FILENAME.TXT or FILENAME.CSV)
- 3) Write a date on file: yyymmddhhmmss! (20070529123030 means 05/29/2007 12:30:30)
(Note: 1) the command must be 2 characters in uppercase!
2) The file name must be 8 characters in uppercase or number.
3) Ext. name must be 3 characters in uppercase.
4) “!” is command end of character)

Then you can start to input your data to MMC/SD card. The module can write 1 – 128 serial data to MMC/SD card every time, for example:

1234.11, 2345.45, 3456.33, 5678.99!!

2222.03, 3333.22, 4444.08, 2399.44!!

.....

Data will be automatically written to MMC/SD card.

(Note: The module will send data to MMC/SD card after it gets “!”. It needs a pause to process those characters without missing the next data. So the module will turn state pin in “low”, then turn it in “high” after finishing the process.)

If you want to close a file and open another file, just input “##” in your last data., for example:

3489.12, 4586.07, 2785.37, 5475.75##.

(Note: The module will close the file and wait to open another file when it gets “##” characters.)

FORMAT MMC/SD CARD:

JP Module can format MMC/SD card with FAT16.

- 1) Input operates command: MF!
- 2) Input volume label: XXXXXXXXXXXX!! (11 characters in length. If less than 11 characters are provided, the label will be padded with spaces. If null string is passed volume will not labeled.)

(Note: When the module formats MMC/SD card, the state pin will be turned to “low” and it will turn to “high” after it finishes formatting.

WARNING: Formatting will erase **ALL** data on your MMC/SD card!)

MEDIA CARD SETUP:

The file system must be FAT16 (just FAT under windows) format. You need a card reader to format the card. Insert the card in the reader then go to My Computer and right click the drive which represents your card. Then choose "Format". Make sure that you do not format your HDD! In format options dialog under "File system" chose "FAT" (there should also be the options "FAT32" and "NTFS"), press "OK" and your card will be formatted. You can use JP Module to format your MMC/SD card also.

LIABILITY WARNING

This device should be used only for experimental purposes. It has **NOT** gone through extensive testing and it could erase or corrupt some or all data on media cards that are inside the device. You assume to take your own risk when you purchase this device, and release the responsibility and liability from the manufacturer with no harm.

REGULATORY WARNING

This device is intended solely for experimental purpose, it is not in finished product form and is **NOT** FCC approved. If you wish to install these modules into non-experimental final finished products, you will be responsible to have the modules approved by the FCC at your own cost.

Basic Stamp ® Example Programs

```

=====
' File.....JP Module Test.BSP
' Purpose.....This test code for JP Module
' Auther.....Jianping Sun
' Email.....JP@JianpingUSA.com
' Started.....Feb 08, 2008
' Updated.....Jul. 08, 2008
=====
' {$STAMP BS2e}
' {$PBASIC 2.5}
'
' Stamp connect to JP Module
'
' BS2E      JP Module
' -----
' P15 ----> RT (Serial in)
' P14 <---- TX (Option)
' P13 <---- State (Option)
' P12 ----> Reset (Option)
#SELECT $STAMP
#CASE BS2, BS2E, BS2PE
    T2400 CON 396
    T4800 CON 188

```

```

T9600 CON 84
T19K2 CON 32
#CASE BS2SX, BS2P
T2400 CON 1021
T4800 CON 500
T9600 CON 240
T19K2 CON 110
#CASE BS2PX
T2400 CON 1646
T4800 CON 813
T9600 CON 396
T19K2 CON 188
#ENDSELECT

```

```

i VAR Byte
j VAR Byte

```

```

SerData VAR Byte(10)
FileName VAR Byte(12)
FileName(0) = "J"
FileName(1) = "P"
FileName(2) = "M"
FileName(3) = "O"
FileName(4) = "D"
FileName(5) = "0"
FileName(6) = "0"
FileName(7) = "0"
FileName(8) = "T"
FileName(9) = "X"
FileName(10) = "T"
FileName(11) = "!"

```

```

SOUT          PIN      15
S_IN          PIN      14
StatePin      PIN      13
ResetPin      PIN      12
LED           CON      11
Baud          CON      T2400
'Baud CON T4800
'Baud CON T9600
'Baud CON T19K2

```

```

PAUSE 1000

```

```

Main:

```

```

HIGH LED          'Start test indication
'*****
'                Format MMC/SD Card with FAT16
'  Warning: Format will erase ALL data on your MMC/SD card!
'=====
'  GOSUB Formatting      'IF your MMC/SD Card need format
'=====

```

```

GOSUB CreateFile

```

```

GOSUB AppendFile

```

```

GOSUB OpenFile

```

```

GOSUB DeleteFile

```

```

LOW LED          'finish test indication
END

```

```

'===== Format MMC/SD Card =====

```

```

Formatting:

```

```

SEROUT SOUT, Baud, ["MF!"]           'Format MMC/SD Card
PAUSE 50
SEROUT SOUT, Baud, ["JPModule!!"]    'Volume label
PAUSE 1000

Waiting:
IF StatePin = 0 THEN
    GOTO Waiting
ELSE
    'Format finish
ENDIF
PAUSE 1000
RETURN

'===== Create 10 text files =====
CreateFile:
FOR i = 0 TO 9
    FileName(7) = 48 + i
    SEROUT sout, Baud, ["MC!"]
    PAUSE 10
    SEROUT sout, Baud, [STR FileName\12]
    PAUSE 10
    SEROUT sout, Baud, ["20080229080808!"] '= 2/29/2008, 08:08:08
    PAUSE 480
    SEROUT sout, Baud, ["This is a test file number = ", FileName(7)]
    PAUSE 180
    SEROUT sout, Baud, ["ABCDEFGHJKLMNOPQRSTUVWXYZ!!"]
    PAUSE 180
    SEROUT sout, Baud, ["1234567890##"]
    PAUSE 180
NEXT
RETURN

'===== Append new data to 10 files =====
AppendFile:
FOR i = 0 TO 9
    FileName(7) = 48 + i
    SEROUT sout, Baud, ["MA!"]
    PAUSE 10
    SEROUT sout, Baud, [STR FileName\12]
    PAUSE 10
    SEROUT sout, Baud, ["20080229181808!"] '= 2/29/2008, 18:18:18
    PAUSE 200
    SEROUT sout, Baud, ["Append new data to file number = ", FileName(7)]
    PAUSE 180
    SEROUT sout, Baud, ["abcdefghijklmnopqrstuvwxy!"]
    PAUSE 180
    SEROUT sout, Baud, ["1234567890##"]
    PAUSE 180
NEXT
RETURN

'===== Open 4 files and clear them, write new data =====
OpenFile:
FOR i = 0 TO 4
    FileName(7) = 48 + i
    SEROUT sout, Baud, ["MW!"]
    PAUSE 10
    SEROUT sout, Baud, [STR FileName\12]
    PAUSE 10
    SEROUT sout, Baud, ["20080229181808!"] '= 2/29/2008, 18:18:18
    PAUSE 200
    SEROUT sout, Baud, ["Write new data to file number = ", FileName(7)]
    PAUSE 180
    SEROUT sout, Baud, ["abcdefghijklmnopqrstuvwxy!"]
    PAUSE 180
    SEROUT sout, Baud, ["1234567890##"]
    PAUSE 180

```

NEXT
RETURN

```
'===== Delete #4 file =====  
DeleteFile:  
  FileName(7) = 48 + 4  
  SEROUT sout, Baud, ["MD!"]  
  PAUSE 10  
  SEROUT sout, Baud, [STR FileName\12]  
  PAUSE 10  
  SEROUT sout, Baud, ["20080229181808!"] '= 2/29/2008, 18:18:18  
  PAUSE 150  
RETURN
```

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