

MY-GPRS007C

Product User Manual

Version 1.0

Revision History

Version	Description	Time
V1.0	Initial Version	2014/12/20

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Chapter 1 Product Overview

1.1 Product Description

MY-GPRS007C GSM/GPRS module which based on Telit™ GL868-DUAL and GL865-DUAL, is newly designed by MYiR. GPRS007C supports 900/1800 dual and quad-band 850/900/1800/1900 GL865 and GL868 is the smallest on the market, using the adhesive surface of the module packaging technology, making it suitable for a variety of products in compact design.

MY-GPRS007C is an ultra-low power, low-cost wireless communication module. MY-GPRS007C module support for Internet, mobile communications, GSM, GPRS and other functions, is widely used in industrial wireless control, location tracking to identify products.

1.2 Product Overview



Figure1-1 MY-GPRS007C Module

Chapter 2 Product Features

2.1 Product Features

- Temperature:
 - Working Temperature: -40°C ~ 85°C
 - Storage Temperature: -40°C ~ 85°C
- Voltage:
 - Working Voltage: 5V/3.3V
 - Communication Voltage: 3.3V
- Band: Dua-Band EGSM 900/1800MHz Quad-band EGSM850/900/1800/1900MHz
- Nominal Output Power
 - Class 4(2W)@900MHz
 - Class 1(1W)@900MHz
- Sensitivity
 - 108dBm(typ.)@900MHz
 - 107dBm(typ.)@1800MHz
- GPRS Data: GPRS class10& Extended TBF
- SIM Card
- Two telephone audio interface (Call input and call output)
- Extended Interface(A double 20PIN interface, 2mm pitch)
 - 2 Power Interfaces (5V and 3.3V)
 - 4 Signal interfaces(TXD/RXD/RTS/CTS)

2.2 Supporting Products

MY-GPRS007C module has been tested in following MYIR development board

Please buy it with confidence.

Development Board	CPU	Operating System
MYD-SAM9X5 series	Atmel™ SAM9x5	Linux
MYD-SAM9X5 series	Atmel™ SAM9x5	
MYD-SAMA5D3X series	Atmel™ SAMA5D3x	
MYD-AM335X series	TI™ AM335x	
MYD-AM335X-Y series	TI™ AM335x	
MYD-AM335X-J series	TI™ AM335x	
MYD-IMX28X series	Freescall™ i.MX	

Development Board	CPU	Operating System
	28	

Table 2-1

Chapter 3 Hardware Design

3.1 Interface

NO	Interface	Description
J1	Module interface	Pin definition refer to 3.2
J3	GSM Audio Input	
J4	GSM Audio output	
J5	SIM Card	
J6	Antenna Module	

Table 3-1

3.2 Pin Definitions

J1 provide 5V and 3.3V power supply and a serial communication interface.

J1

+5V	1	2	+3.3V
GND	3	4	DNP
TXD	5	6	RXD
RTS	7	8	CTS
NC	9	10	NC
NC	11	12	NC
GND	13	14	NC
NC	15	16	NC
NC	17	18	NC
NC	19	20	NC

Figure 3-1

3.3 Serial Ports

GL865-DUAL module serial port level is TTL 1.8V, chip SN74AVC4T245 can convert, it is shown in figure 3-2.

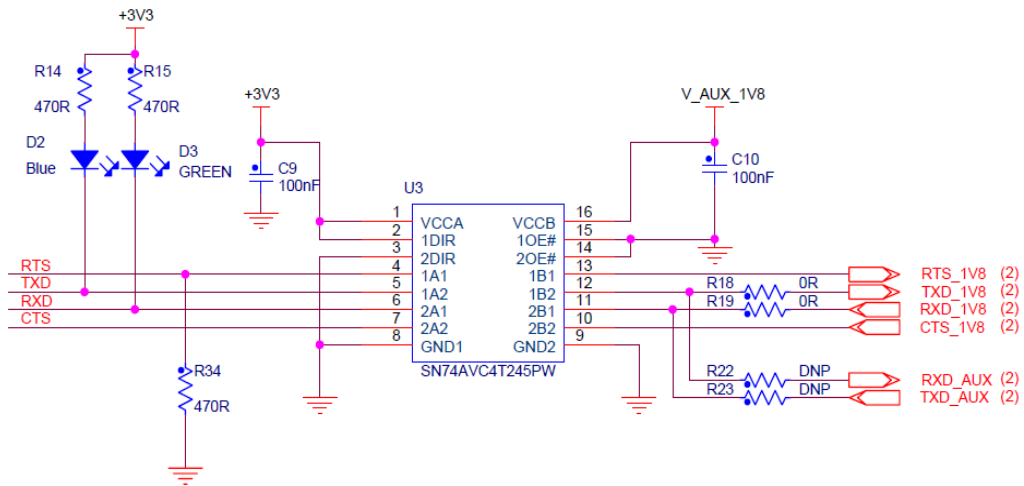


Figure 3-2

3.4 Power Supply

GL865-DUAL module power supply requires 3.8V, use RT9018A convert to. It is shown in figure 3-3.

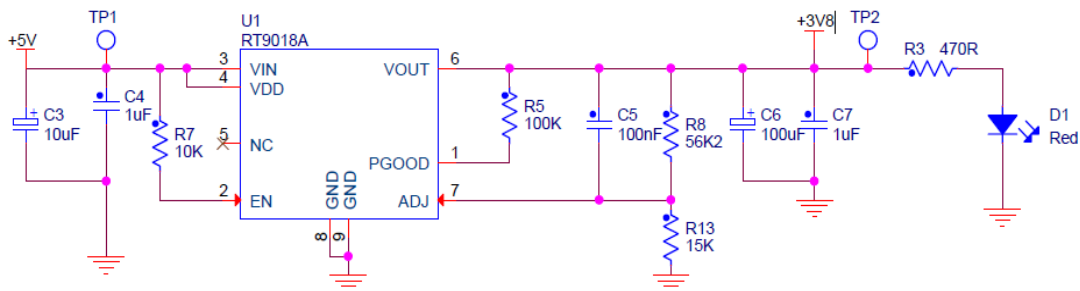


Figure 3-3

3.5 SIM Card

SIM CARD is shown in figure 3-4, 33pF capacitor filter out interference or clutter to ensure stability of entire system.

NOTE: SIM card is not hot swappable defaultly, be sure to power down before replace the SIM card.

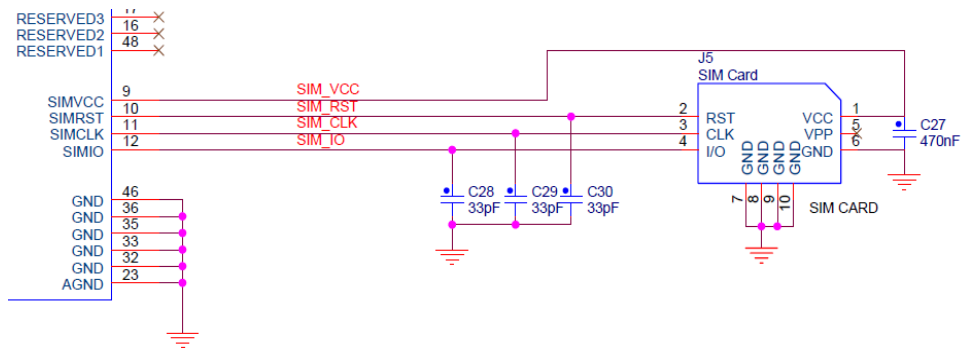


Figure 3-4

3.6 Antenna and Audio Design

Antenna Design and Audio is shown in figure 3-5:

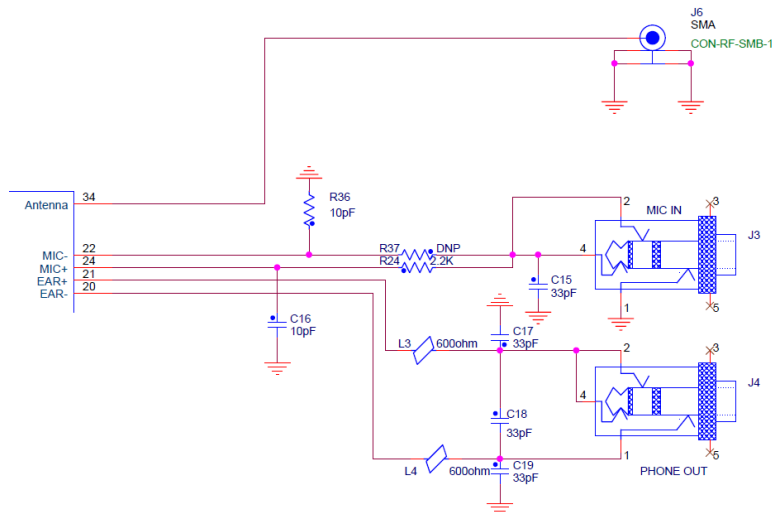


Figure 3-5

Chapter 4 Linux Applications

Mobile network requires PPPoE dial-up connect, the following describes how to access mobile network in embedded Linux.

4.1 Kernel Configuration

The Linux kernel can support with PPP protocol, modify the kernel configuration and add PPP support. Steps are as follows:

Open kernel configuration menu:

```
$ make menuconfig
```

Add following options to kernel configuration:

```
Device Drivers --->
  Network device support --->
    <*> PPP (point-to-point protocol) support
    [*] PPP multilink support (EXPERIMENTAL)
    <*> PPP support for async serial ports
    <*> PPP support for sync tty ports
    <*> PPP Deflate compression
    <*> PPP BSD-Compress compression
    <*> SLIP (serial line) support
    [*] CSLIP compressed headers
```

4.2 Compile pppd

Here we use pppd version 2.4.4. Copy source package ppp-2.4.4.tar.gz to Linux host and execute the following commands. You can download from website or found in the product CD-ROM directory “/Linux/PPP” to get source package.

```
$ tar xvzf ppp-2.4.4.tar.gz
$ cd ppp-2.4.4
$ ./configure
```

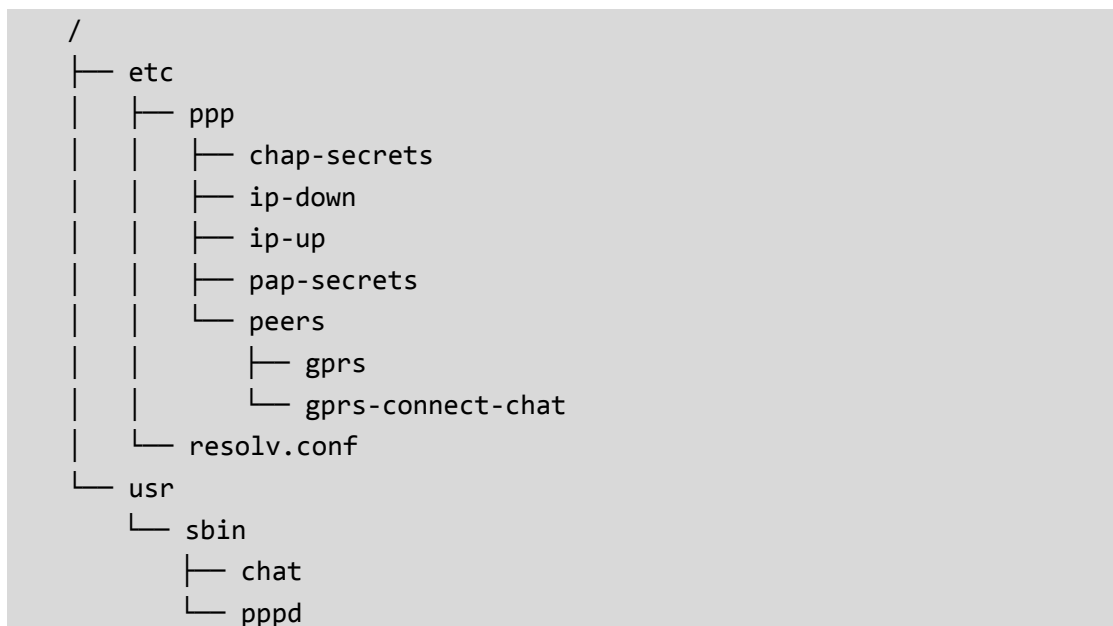
Use “CC” parameter of “make” command to declare target platform and compiles. For example:

```
$ make CC=arm-linux-gnueabi-gcc
```

After compiled successfully, it will generate executable files “pppd” in the pppd catalog and “chat” a in the chat catalog

4.3 Setup pppd

Product CD provided executable file, and script file in the directory “/Linux/Examples/PPP script”.The following is a list of necessary files to run pppd. Copy them to the destination file system.



4.4 Dial

Command format for dialing:

```
# pppd call <ScriptFile>
```

For example:

```
# pppd call gprs
```

Parameter <ScriptFile> is a script file for configuring dial which called /etc/PPP/peers/ in the directory by default, if your script file is not in the directory or name is different, please modify, for example:

```
# pppd call /usr/share/edge
```

4.4.1 Modify serial node

Different hardware platforms, the serial port used by Modem module node is different, modify corresponding parameters in the < ScriptFile >. For example, the

“/etc/ppp/peers/gprs”:

```
.....
/dev/ttyO1
115200
.....
```

Modify to:

```
.....
/dev/ttyS2
115200
.....
```

In addition, the node can be set using the following format:

```
# pppd /dev/ttyS2 call gprs
```

4.4.2 Modify AT command script

For different carriers, AT command is different, must modify the corresponding parameters of AT command if it is different.

Red line access point and dial number.need to modify in “/etc/ppp/gprs-connect-chat”,

```
.....
OK          ATE0V1
OK          AT+CGDCONT=1,"IP","CMNET"
OK          ATDT*99***1#
CONNECT     ''
.....
```

Modify user name in “/etc/ppp/peers/gprs” (if necessary), Generally can be arbitrary:

```
.....
noipdefault
defaultroute
user "cmnet"
0.0.0.0:0.0.0.0
#ipcp-accept-local
.....
```

Script file “gprs-connect-chat” and “gprs” in product CD, is configured for China mobile 2G

network. How to set up a specific dial-up parameters please consult network operator, refer to Appendix A.

4.4.3 Ping Public network test

- (1) Connect hardware device.
- (2) Start pppd, use background to start dialing:

```
# pppd call gprs &
```

- (3) External network testing.

```
# ping www.myr-tech.com
```

NOTE: If unable to ping the domain name directly, may be domain name is not correct, add DNS server, for example:

```
# vi /etc/resolv.conf
```

Adding:

```
nameserver 8.8.8.8
nameserver 114.114.114.114
```

4.5 GSM Test

For convenience, GSM function test has been integrated in an application. Please refer to the documents "Telit_AT_Commands_Reference_Guide_r21.pdf" and "Telit_Modules_Software_User_Guide_r13.pdf" in the CD directory "/Document/DataSheet/" for more functions. Unzip the "App.tar.gz" in the CD directory "/Linux/Examples/". Cross-compile source program, and generate executable file "gprstest". Copy it to development board and run.

```
# ./gprstest /dev/tty01
```

Menu:

```
=====
```

- 1.send english message.
- 2.send chinese message.
- 3.receive message.
- 4.dail.
- 5.receive phone.
- 6.hung up.

7.exit.
=====

4.5.1 Call function test

(1) Call a phone number

Sent AT command "ATD<num>" to the module through serial port can call a number, where "<num>" is matching parameters, here to represent a phone number.

After running test program, type the number '4' and press "Enter" to test it.

(2) Call Answering

Sent AT command "ATA" to the module through serial port to answer the call.

After running test program, type the number '5' and press "Enter" to test it.

(3) Hung up control

Sent AT command "ATH" to the module through serial port to hung up the call.

After running test program, type the number '6' and press "Enter" to test it.

4.5.2 Message function test

(1) Send message

Here to send text messages in English for example.

① Set up receive and transmit format through AT command "AT + CMGF = [<mode>]", < mode > 0 set to PDU mode and < mode > 1 set to TXT mode, if English text please use "AT + CMGF=1".

② Set up receive number through AT command "AT + CMGS = <num>", "<num>" represents a phone number, after module sends back a response character '>', start input message content, and use '0x1a' as terminator.

After running test program, type number '1' and press "Enter" to send short messages in English and type number '2', Chinese short messages can be sent.

(2) Read message

Set up SMS system to enter TXT mode through AT command "AT+CMGF=1", then Sets up message number through AT command "AT+CMGR=<n>", "<n>" represents SMS

number. List all messages through AT command “AT + CMGL = “ALL””.

Run the test program, type the number '3' and press “Enter” to test it.

Appendix A mobile network dial

China Mobile:

Item	GPRS	EDGE	2G WAP	TD-CDMA
APN	cmnet	cmnet	cmwap	cmnet
Dial	*99#	*99***1#	*99***2#	*98*1#
Account	vain	vain	vain	vain
Password	vain	vain	vain	vain

Note: *99***1# represent channel 1, *99***2# represent channel 1, Account and password can be vain or any.

China Unicom:

Item	GPRS	WCMDA
APN	UNINET	3gnet
Dial	*99#	*99#
Account	vain	uninet
Password	vain	vain

China Telecom:

Item	CMDA2000
APN	vain
Dial	#777
Account	card or ctnet@mycdma.cn
Password	card or vnet.mobi

Appendix 1 Warranty & Technical Support Services

MYIR Tech Limited is a global provider of ARM hardware and software tools, design solutions for embedded applications. We support our customers in a wide range of services to accelerate your time to market.

MYIR is an ARM Connected Community Member and work closely with ARM and many semiconductor vendors. We sell products ranging from board level products such as development boards, single board computers and CPU modules to help with your evaluation, prototype, and system integration or creating your own applications. Our products are used widely in industrial control, medical devices, consumer electronic, telecommunication systems, Human Machine Interface (HMI) and more other embedded applications. MYIR has an experienced team and provides custom design services based on ARM processors to help customers make your idea a reality.

The contents below introduce to customers the warranty and technical support services provided by MYIR as well as the matters needing attention in using MYIR's products.

Service Guarantee

MYIR regards the product quality as the life of an enterprise. We strictly check and control the core board design, the procurement of components, production control, product testing, packaging, shipping and other aspects and strive to provide products with best quality to customers. We believe that only quality products and excellent services can ensure the long-term cooperation and mutual benefit.

Price

MYIR insists on providing customers with the most valuable products. We do not pursue excess profits which we think only for short-time cooperation. Instead, we hope to establish long-term cooperation and win-win business with customers. So we will offer reasonable prices in the hope of making the business greater with the customers together hand in hand.

Delivery Time

MYIR will always keep a certain stock for its regular products. If your order quantity is less than the amount of inventory, the delivery time would be within three days; if your order quantity is greater than the number of inventory, the delivery time would be always four to six weeks. If for any urgent delivery, we can negotiate with customer and try to supply the goods in advance.

Technical Support

MYIR has a professional technical support team. Customer can contact us by email (support@myirtech.com), we will try to reply you within 48 hours. For mass production and customized products, we will specify person to follow the case and ensure the smooth production.

After-sale Service

MYIR offers one year free technical support and after-sales maintenance service from the purchase date. The service covers:

1. Technical support service

- a) MYIR offers technical support for the hardware and software materials which have provided to customers;
- b) To help customers compile and run the source code we offer;
- c) To help customers solve problems occurred during operations if users follow the user manual documents;
- d) To judge whether the failure exists;
- e) To provide free software upgrading service.

However, the following situations are not included in the scope of our free technical support service:

- a) Hardware or software problems occurred during customers' own development;
- b) Problems occurred when customers compile or run the OS which is tailored by themselves;
- c) Problems occurred during customers' own applications development;
- d) Problems occurred during the modification of MYIR's software source code.

2. After-sales maintenance service

The products except LCD, which are not used properly, will take the twelve months free maintenance service since the purchase date. But following situations are not included in the scope of our free maintenance service:

- a) The warranty period is expired;
- b) The customer cannot provide proof-of-purchase or the product has no serial number;
- c) The customer has not followed the instruction of the manual which has caused the damage the product;
- d) Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
- e) Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which have caused the damage of the products or defects of appearance;
- f) Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;
- g) Due to unauthorized installation of the software, system or incorrect configuration or computer virus which has caused the damage of products.

Warm tips:

- 1) MYIR does not supply maintenance service to LCD. We suggest the customer first check the LCD when receiving the goods. In case the LCD cannot run or no display, customer should contact MYIR within 7 business days from the moment get the goods.
- 2) Please do not use finger nails or hard sharp object to touch the surface of the LCD.
- 3) MYIR suggests user purchasing a piece of special wiper to wipe the LCD after long

time use, please avoid clean the surface with fingers or hands to leave fingerprint.

- 4) Do not clean the surface of the screen with chemicals.
- 5) Please read through the product user manual before you using MYIR's products.
- 6) For any maintenance service, customers should communicate with MYIR to confirm the issue first. MYIR's support team will judge the failure to see if the goods need to be returned for repair service, we will issue you RMA number for return maintenance service after confirmation.

3. Maintenance period and charges

- a) MYIR will test the products within three days after receipt of the returned goods and inform customer the testing result. Then we will arrange shipment within one week for the repaired goods to the customer. For any special failure, we will negotiate with customers to confirm the maintenance period.
- b) For products within warranty period and caused by quality problem, MYIR offers free maintenance service; for products within warranty period but out of free maintenance service scope, MYIR provides maintenance service but shall charge some basic material cost; for products out of warranty period, MYIR provides maintenance service but shall charge some basic material cost and handling fee.

4. Shipping cost

During the warranty period, the shipping cost which delivered to MYIR should be responsible by user; MYIR will pay for the return shipping cost to users when the product is repaired. If the warranty period is expired, all the shipping cost will be responsible by users.

5. Products Life Cycle

MYIR will always select mainstream chips for our design, thus to ensure at least ten years continuous supply; if meeting some main chip stopping production, we will inform customers in time and assist customers with products updating and upgrading.

Value-added Services

1. MYIR provides services of driver development base on MYIR's products, like serial port, USB, Ethernet, LCD, etc.
2. MYIR provides the services of OS porting, BSP drivers' development, API software development, etc.
3. MYIR provides other products supporting services like power adapter, LCD panel, etc.
4. ODM/OEM services.



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