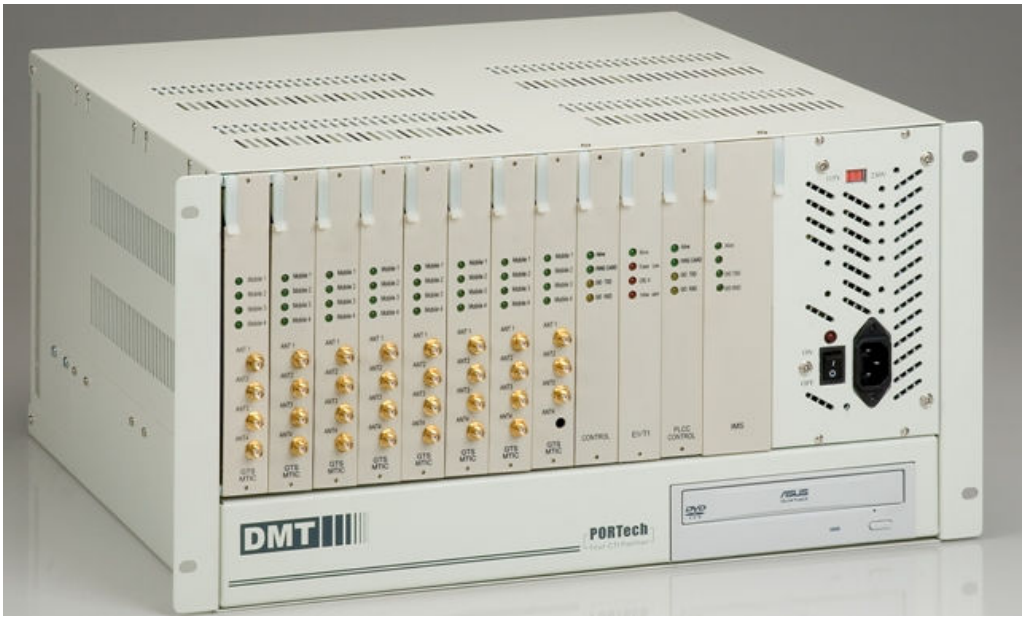
DMT

E1/T1 GSM Channel Bank

User Manual



PORTech Communications Inc.

【Content】

1. Introduction

Digital Mobile Trunk (DMT) accepts incoming call from E1/T1 PRI of PSTN or PBX or VoIP Trunk Gateway and chooses one GSM channel to dial out according to the prefix of the destination mobile number. In this way, we can have least cost routing (LCR). DMT can provide Call Detail Record (CDR) for traffic and accounting management.

- ✓ Besides PRI to GSM, you may also apply GSM to PRI (two ways).
- ✓ Besides GSM, you may also apply CDMA (WCDMA or CDMA20000)/UMTS.
- ✓ GSM ,CDMA can be mixed in one DMT

2. Products illustration

Please contact our agents if there are any parts missing.

2.1 Hardware

GTS Card (back-up use)　　Antenna

PC Disc: DMT disc, Trend disc;

Power Cord:　Network cable

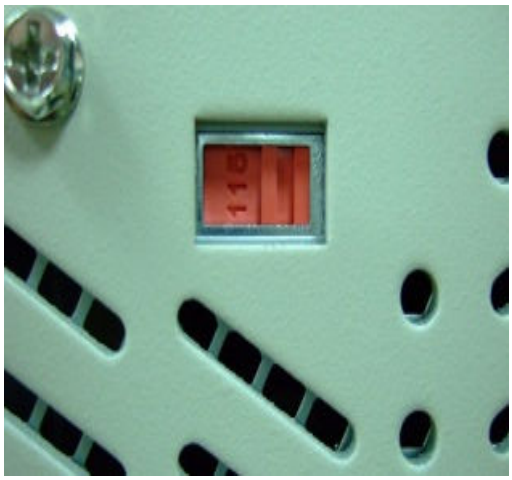
2.2「DMT」Main Body

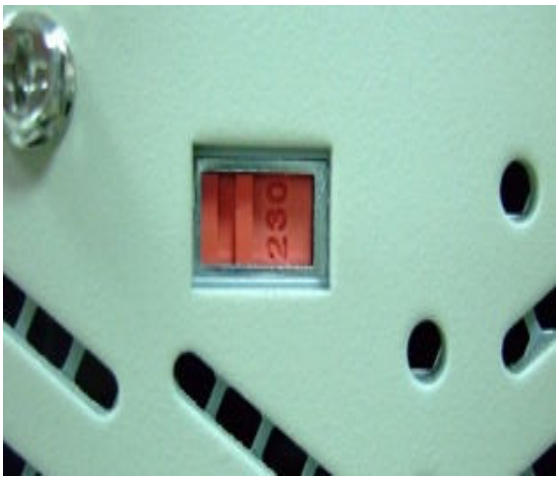
3. Dimension: 43d×48w×24h cm

4. Chart of the device

4.1 Turn on DMT

Please check power voltage (110-120V or 220-240V), then turn on.





4.2 Light signal (right to left)

1) IMS

- Alive (Every flicker for 3 seconds)
- STO TXD: Light on when sending to GTS Card
- STD RXD: Light on when receiving from GTS Card

2) PLCC Control

- Alive
  - ✓ Normal: light on for 3 seconds, off for 3 seconds by turns
  - ✓ Disconnect: Light on for 1 second, off for 1 second
- STO TXD: Light on when sending to GTS card

- ◆ STD RXD: Light on when receiving from GTS Card

3) E1/T1

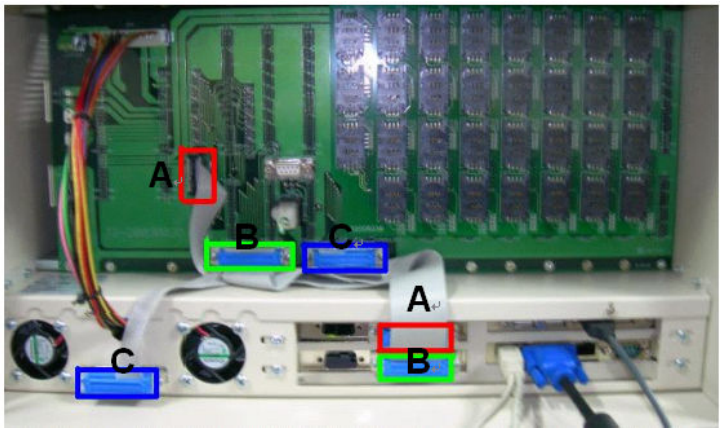
- ◆ Alive (light on for 3 seconds, off for 3 seconds by turns)
- ◆ Frame Loss, CRC-4, and Yellow alarm light only when E1 got trouble.

4) GTS MTIC: Flickering in 2 seconds by turns

NOTE:

If everything is settle down, but no signal shows on the monitor; please try Crtl+Alt+F1 to remove Screen Saver mode

4.3 Back of DMT



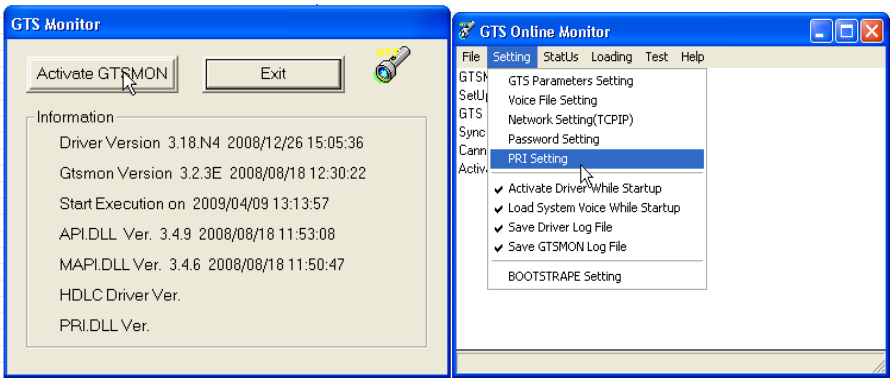
1) Connect to monitor, mouse, keyboard and network.
2) A to A; B to B; C to C (The connecting is settled down)

5. System Setting

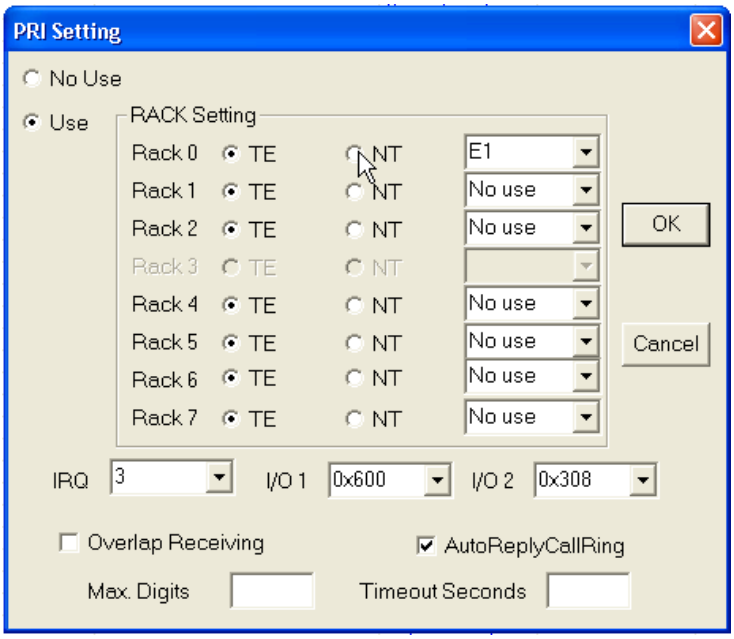
5.1 Enter the default password: PORTech

5.2 Click GTS Monitor on bottom right

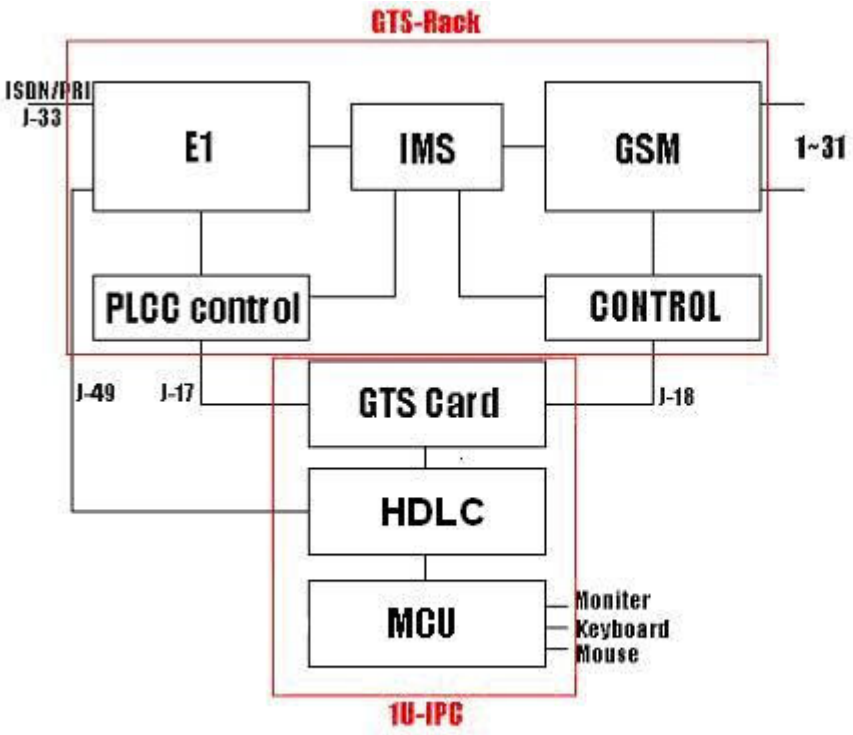
5.3 Activate GTSMON → Setting → PRI Setting



1) Rack 0 is for E1
2) The parameter of TE and NT can not be the same as front end device (Trunk Gateway or others)

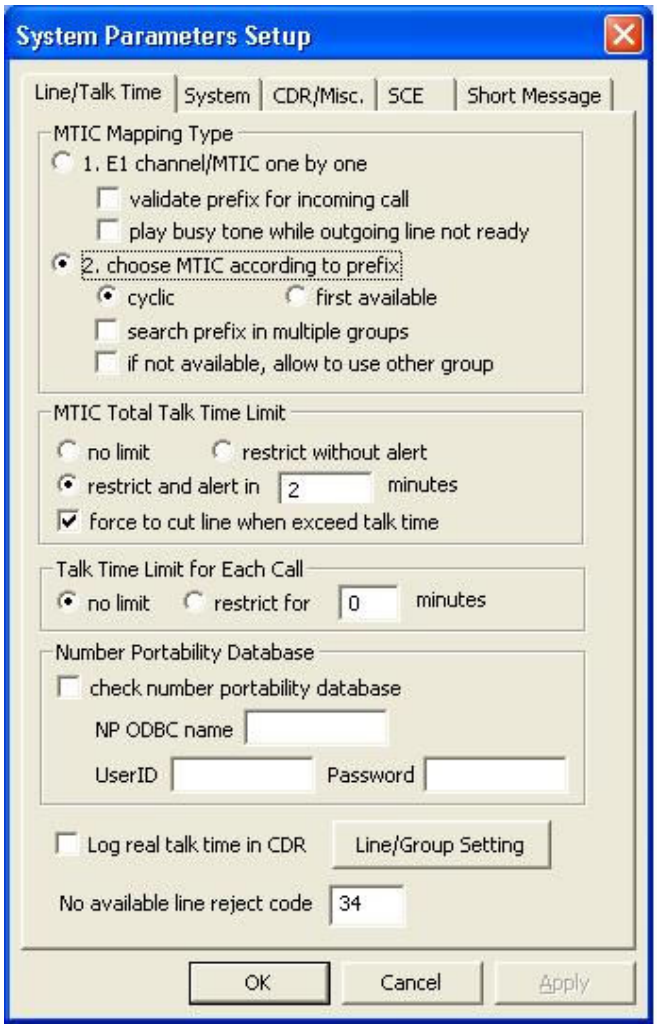


6. Structure of DMT(E1/T1 PRI)



7. DMT System Parameters Setup

7.1 Line/Talk Times



7.1.1 MTIC Mapping Type

1) E1 Channel/ MTIC one by one

When you select type 1), DMT E1-PRI (channel 0 to 29) will go with MTIC (channel 32 to 62).

- For example, when an incoming call from E1 (channel 0), it will be dialed out from MTIC (channel 32); an incoming call from E1 (channel 1) will be dialed out from MTIC (33); an incoming call from E1 (channel 29) and dialed out from MTIC (61).
- In that way, if MTIC (channel 62) doesn't go with any line of E1, the channel 62 won't be used.

There are two other functions:

- Validate prefix for incoming call: to select incoming call by prefix number.
- Play busy tone while outgoing line not ready: if MTIC is not ready, E1 Channel will answer busy tone.

2) Choose MTIC according to prefix

When you select type 2), E1-PRI will dial out the call according to prefix groups of MTIC; and divided into “cyclic” and “first available”

There are two other functions:

- Search prefix in multiple groups
- If not available, allow to use other group

7.1.2 MTIC Total Talk Time Limit

You can setup talk time limit for each MTIC SIM Card.

- Not limit
- Restrict without alert
- Restrict and alert in (_) minutes

  *E.g. when user reaches the talk time limit, it will send out DO DO tone to alert

  *force to cut line when exceed talk time

7.1.3 Talk Time Limit for Each Call

In this type, you can select to setup the limit minutes of each talk.

7.1.4 Number Portability Database

In this part, you can check number portability databases

- If yes, you need to input User ID and Password

7.1.5 Log real talk time in CDR

To setup the real talk time minutes in CDR

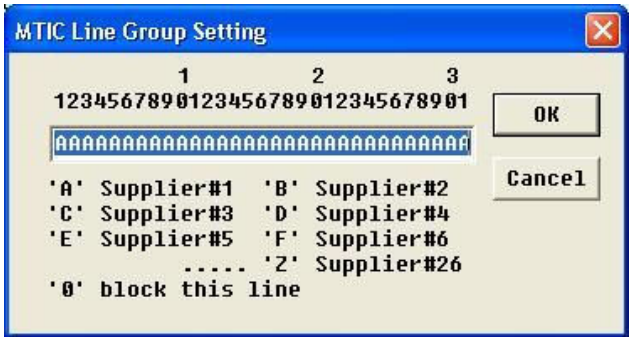
- If you don’t mark this, the system will write your billing charge according to your GSM operator into CDR database

7.1.6 Not available line reject code

- When there’s incoming call from E1 but cant’ find any available MTIC line, it will report to Protocol Q931

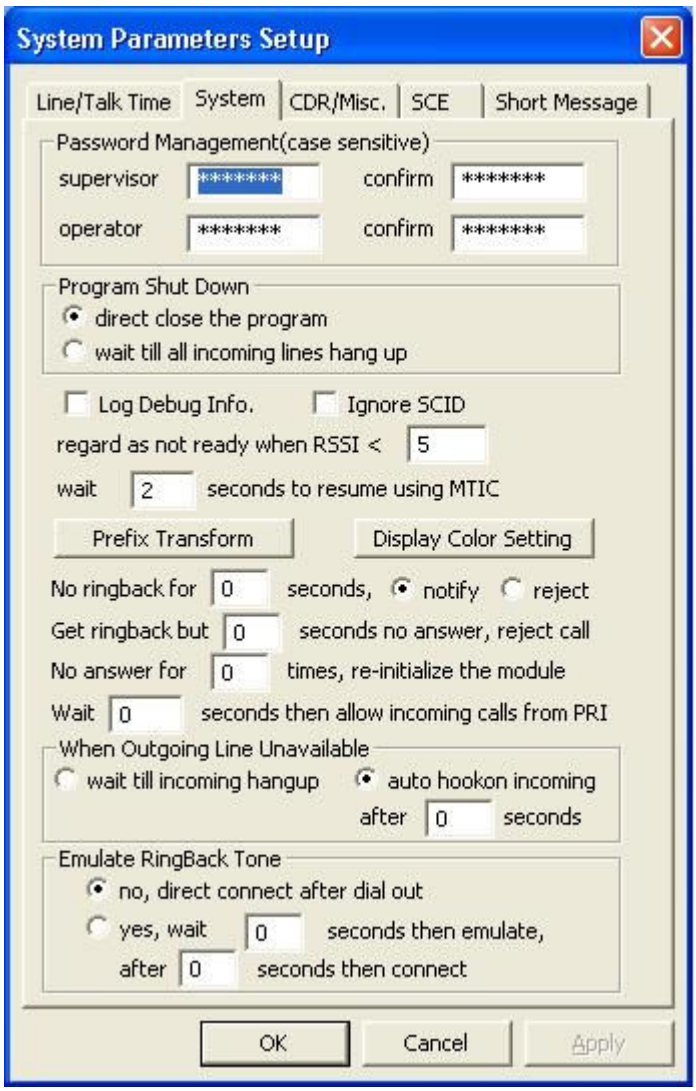
7.1.7 Line / Group Settings:

Here’s screen shot showing all the setting



- You can make open use and line group setting for 31 ports of MTIC.
- If you put “0”, the line will be blocked.
- Total: 26 groups (A to Z)

7.2 System



7.2.1 Password Management

Please input a series password to enter DMT

- There are two password managements: “Supervisor” and “Operator”
- When “operator” is selected, the user can’t revise any parameters in the system, only checking data is available.

7.2.2 Program Shut Down

- Direct close the program: the user can direct end the all system.
- Wait till all incoming lines hang up: Until all incoming lines hang up, the user may close the system.

7.2.3 Log Debug Info

- When you mark this, DMT will automatically save all the following process for debug
- Remember to close this function when log debug is done because it will take lots of CPU-Time and Discs Space.

7.2.4 Ignore SCID

Normally, after registering GSM operator, the SIM Card message will be showed up during MTIC process.

- If mark it, you can choose to show SIM Card information or not when MTIC is starting.
- Otherwise, MTIC will be ready while registering is done.

7.2.5 Regard as not ready when RSSI < 5

MTIC will show the intension of internet signal, and the maximum will be 31

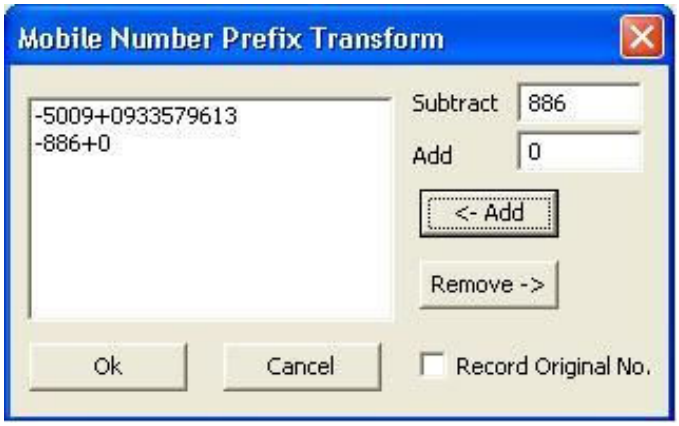
- E.g. MTIC should not be used when the signal value is under 5.

7.2.6 Wait 2 seconds to resume using MTIC

- E.g. MTIC will wait for 2 seconds after another call coming

7.2.7 Prefix Transform

Here is screen shot in this parameter:



To setup Mobile Number with “Subtract” and “Add” function:

- E.g. As the above picture, the setup value is -886+0
  So when E1 receive the number “8869331234”, it will transfer the number to “09331234” and dial out.

7.2.8 Display Color Setting

You can use your favorite colors to indicate DM T free time and answers status.

7.2.9 No ringback for 0 seconds notify or reject

To setup the ringback seconds while MTIC is dialing out.

- To Notify Do Do alert or Reject the calls when there’s no answer within setting time
- E.g. If the setup value is 0, it won’t response any ringback.

7.2.10 Get ringback but 0 seconds no answer, reject call

To setup the response within ringback seconds while MTIC is dialing out

- To Reject the calls when there’s no answer within setting time
- E.g. If the set value is 0, it won’t response any ringback.

7.2.11 No answer for 0 times , re-initialize the module

- When there’s continuous no answers for couple times, it will re-initialize the MTIC system.
- E.g. If the value is 0, it won’t make the difference.

7.2.12 Wait 0 seconds then allow incoming calls from PRI

- To setup the waiting seconds to allow incoming calls while DMT system is settle down.
- Mostly, when DMT is done, E1 channel will be ready before MTIC

channel.

- In that way, you can adjust the waiting time for MTIC to prepare.

7.2.13 When Outgoing Line Unavailable

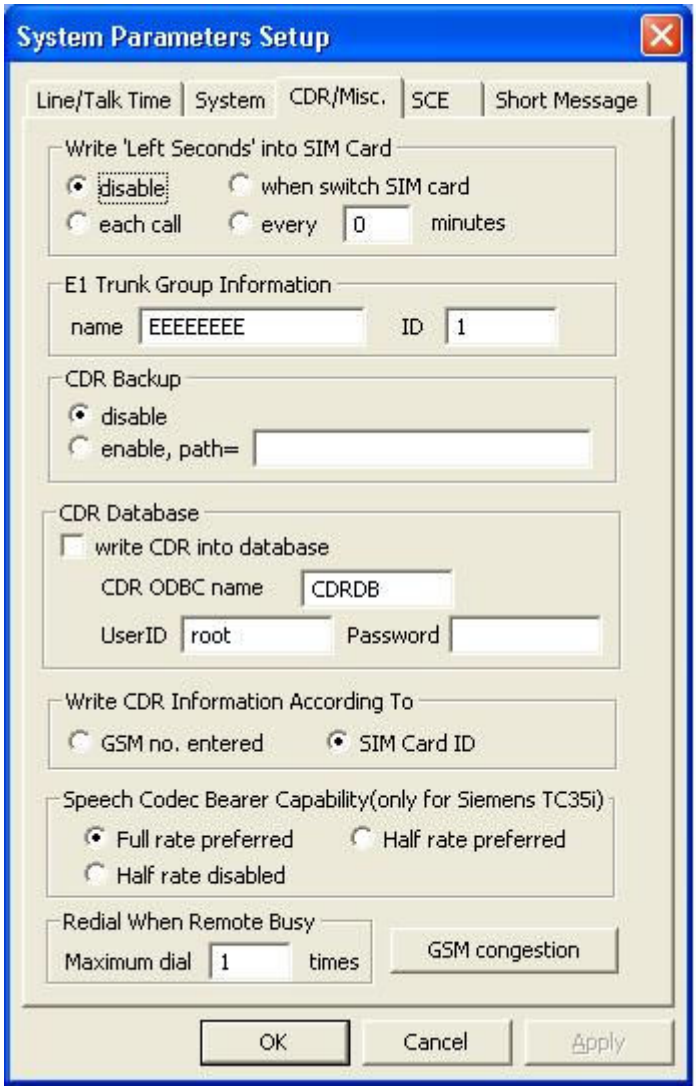
- If all MTIC channel are busy and can't go with outgoing E1 channel, you can make the calls to wait till incoming hang up or auto hook on incoming after 0 seconds.

7.2.14 Emulate RingBack Tone

MTIC line will take a little time while receiving the ringback tone.

- By this part, you can emulate ringback tone for this blank time or not
- If yes, you need to setup the period of ringback time after MTIC is dialing out and how long to stop the connection time
- When MTIC is receiving the real ringback tone, the system will automatically stop the emulating tone.

7.3 CDR/Misc.



7.1.2 Write “Left Seconds” into SIM Card

In this part, you can decide whether to write (record) left seconds into SIM card.

- If no, please mark “disable”
- If yes, you can make the record timing; like after each call, when switch SIM card or after every (___) minutes

7.1.3 E1 Trunk Group Information

- Enter the name of DMT and ID for your reference

7.1.4 CDR Backup

- If backup is necessary, please mark “enable” and enter the path for CDR backup save.

7.1.5 CDR Database

- Write CDR into database, and put those following information
  * CDR ODBC name
  * User ID and password.

7.3.5 Write CDR Information According To

- To decide to write CDR information into GSM no. or SIM Card ID

7.3.6 Speech Codec Bearer Capability(only for Siemens TC35i)

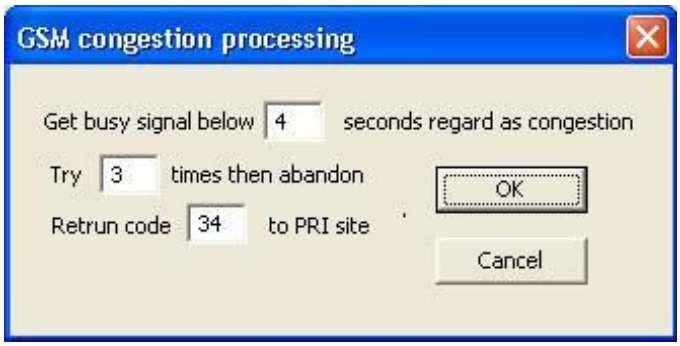
- If your DMT is Siemens TC35i, you can use Speech Codec Bearer Capability

7.3.7 Redial When Remote Busy

- To setup remote busy times after MTIC line is dialing out.
- If not, please input 0 for it.

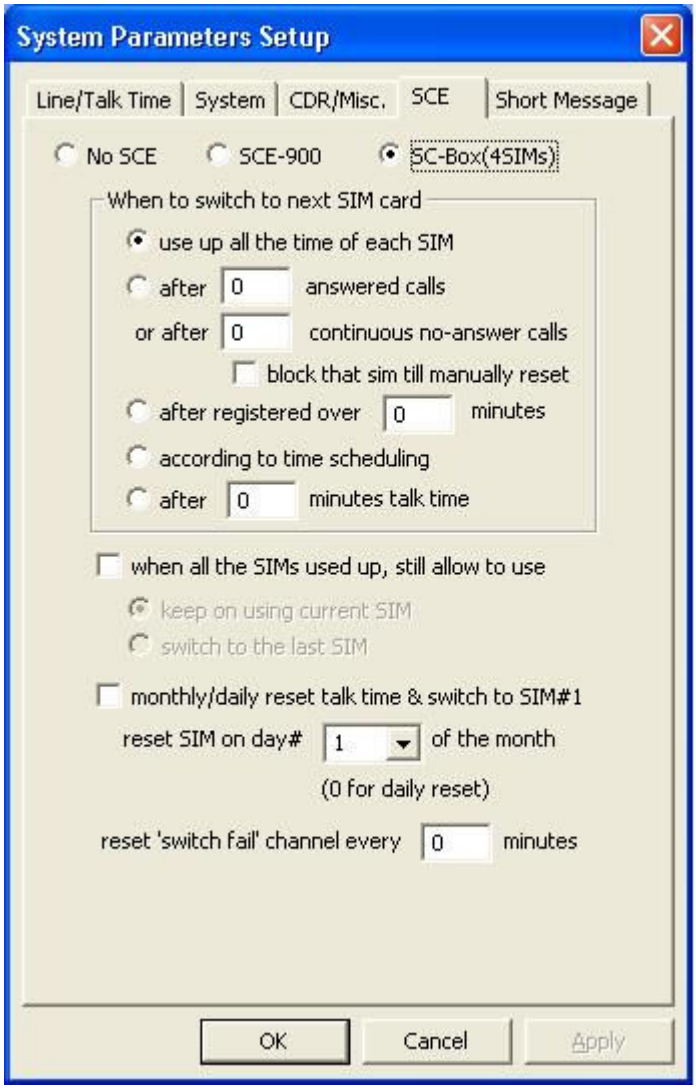
7.3.8 GSM congestion

Here is screen shot in GSM congestion processing



- To define the period of busy signal regard as line congestion
- To try (_) times then abandon
- To return code (__) to PRI site

7.4 SCE



7.4.1 To select SCE type to accommodate with DMT

- No SCE(SCB)

- SCE-900
- SC-Box

7.4.2 When to switch to next SIM Card

To select the timing when to switch the next SIM card

- Use up all the time of each SIM
- After (_) answered calls or after (_)continuous no-answer calls; block that SIM till manually reset
- After registered over (_) minutes
- According to time schedule
- After (_) minutes talk time

7.4.3 when all SIMs used up, still allow use

To continue using SIM card while all SIMs card are used up

- If yes, please select keep on using current SIM or switch to the last SIM

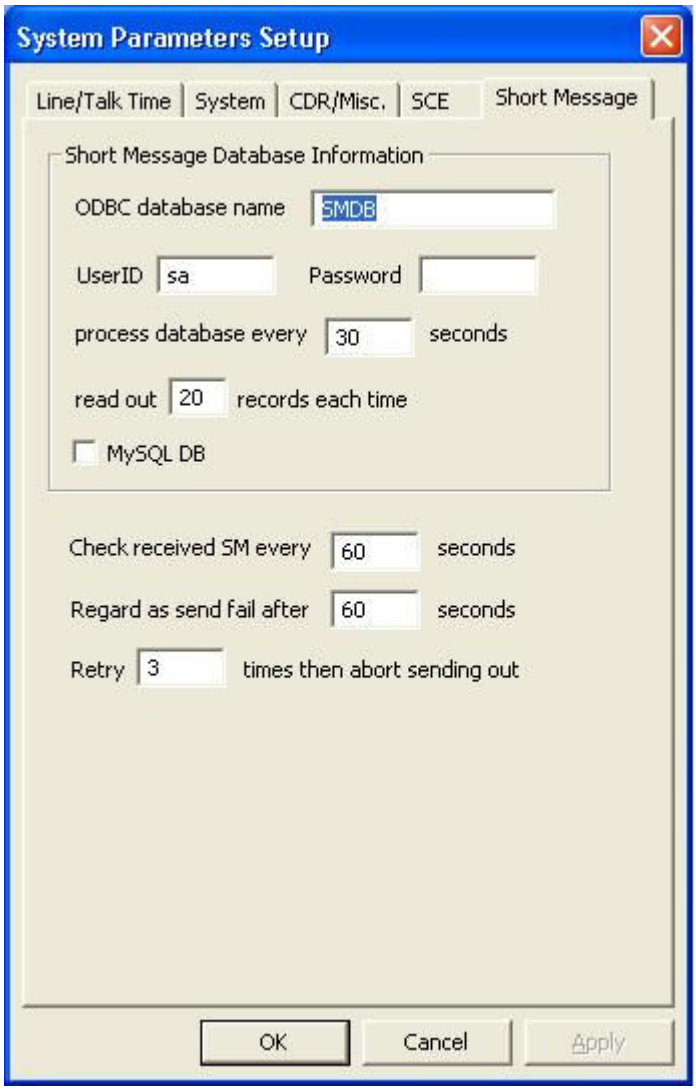
7.4.4 monthly/daily reset talk time & switch to SIM#1

- To setup whether to monthly/daily reset talk time &switch to SIM#1 or not

7.4.5 reset SIM on day# 1 of the month (0 for daily reset)

- To setup the day of the month to reset SIM
- E.g. If you input “0” on it, it will reset SIM talk time everyday

7.5 Short Message



7.5.1 Short Message Database Information

- In this part, you can setup the type of short message: ODBC or SQL
- User ID and password
- process database every (_) seconds
- Read out (_) records each time

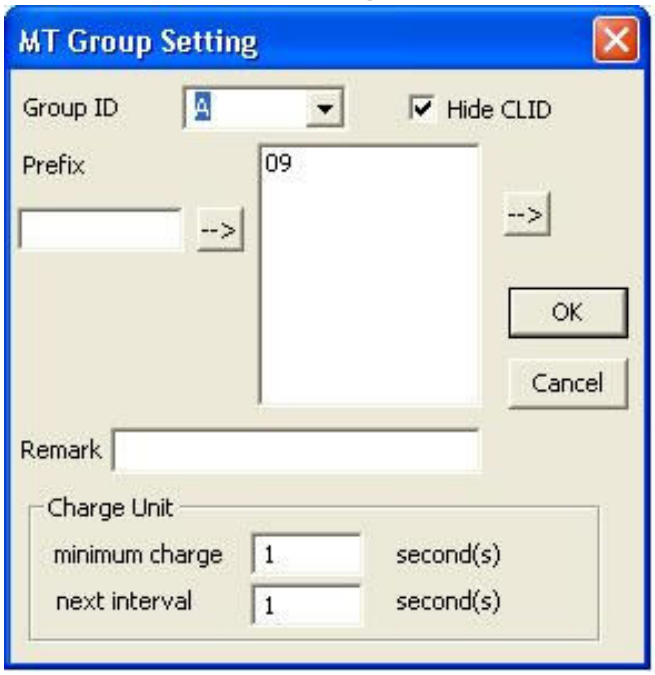
7.5.2 Check received SIM every (_) seconds

- E.g. If you input 60, it will check received SM every 60 seconds

7.5.3 Regard as send fail after 60 seconds Retry 3 times then abort sending out

- if short message is failed, you can setup the retry seconds and times

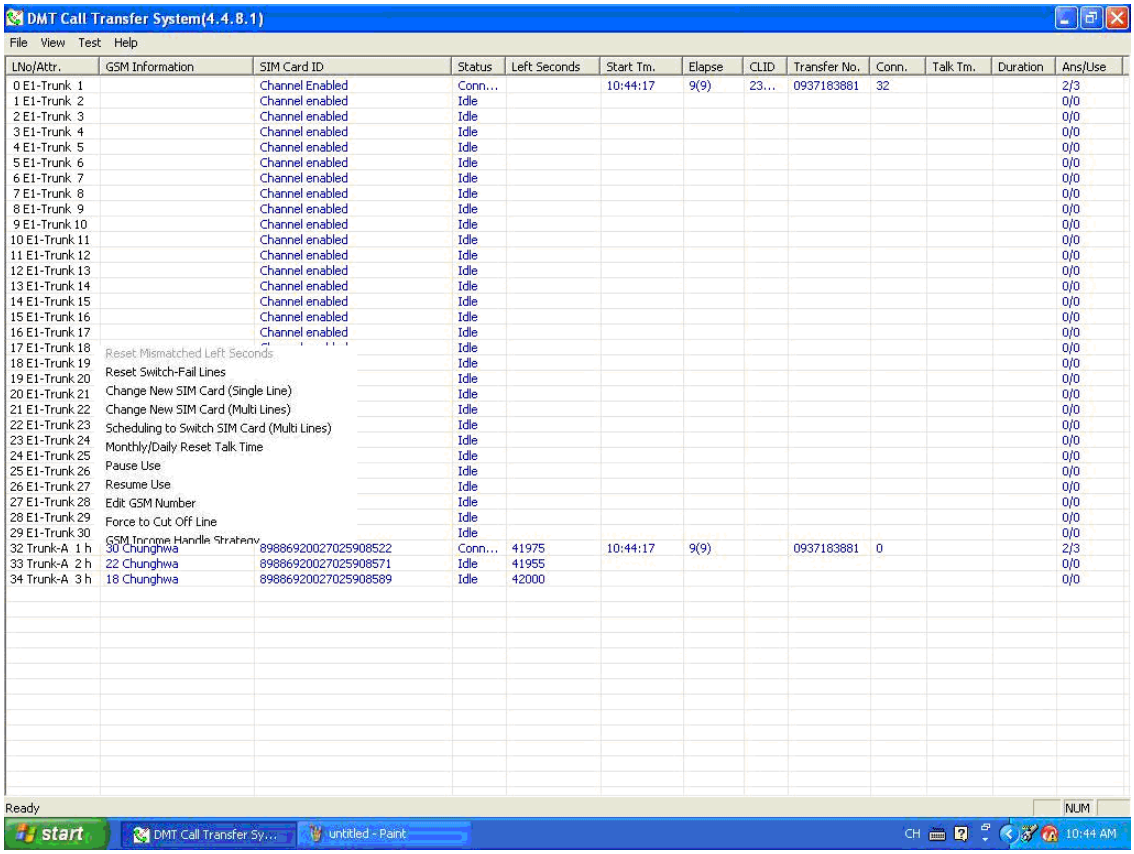
8. MT Group Setting



In the setting, you have to define the group ID for number prefix

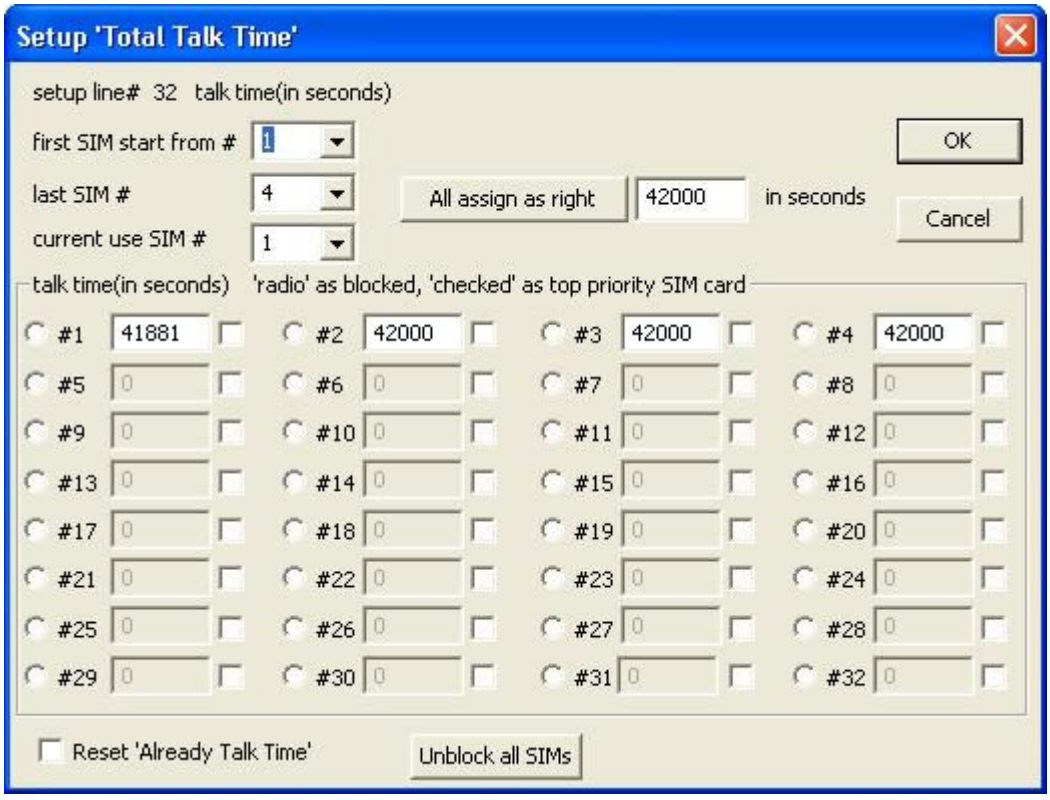
- If you select “Hide CLID”, MTIC line will send out like hidden call with #31# number
- Besides that, you need to setup the Charge Unit for minimum charge seconds and next interval seconds

8.1 Here’s the DMT screen shot while you click the right button on the mouse:



8.2 There are several extra functions as follows:

8.2.1 Change New SIM Card (Single Line) — see the picture below



Please Notice:

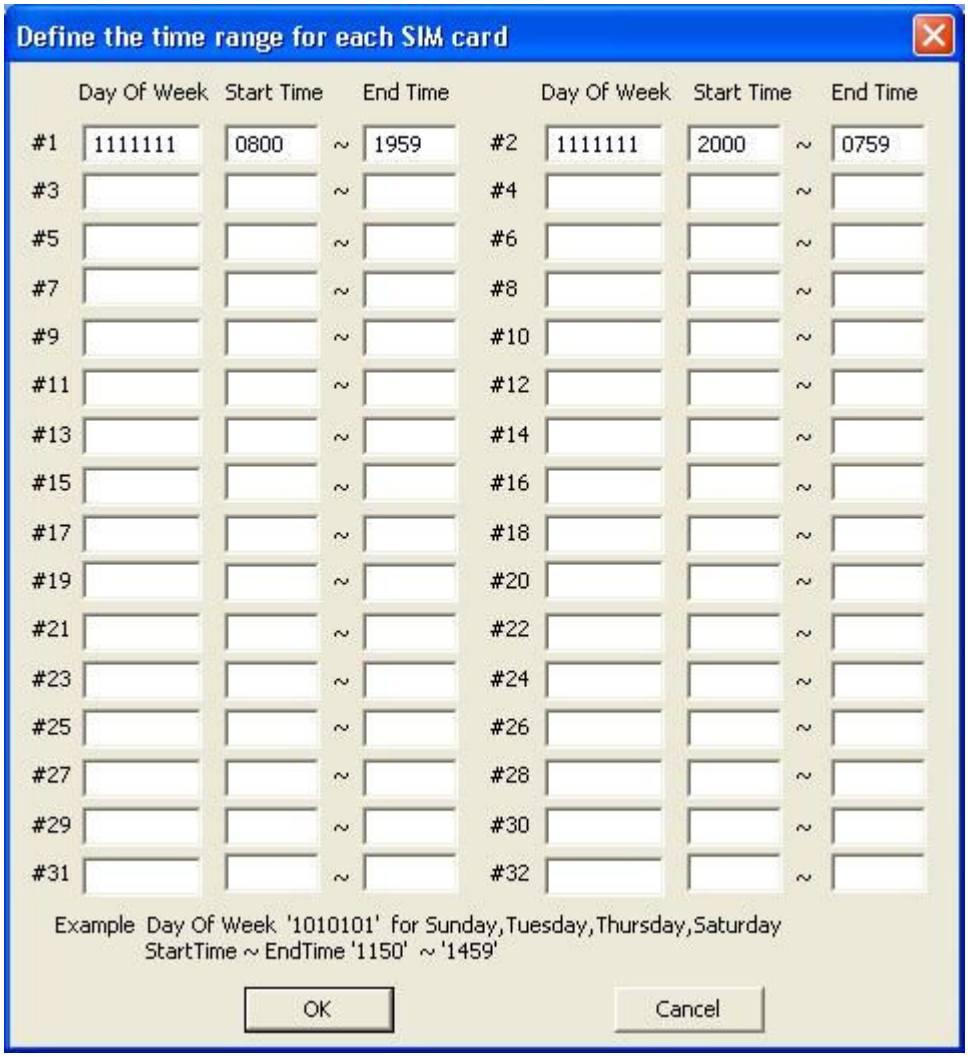
The symbol of ○ means “radio as blocked

The symbol of □ means “check as top priority SIM card

- E.g. If ○ is marked in #1, SIM card #1 won’t be blocked
- E.g. If □ is marked in #1, SIM card #1 will be the first priority

8.2.2 Change New SIM Card (Multi Lines) — see the picture below

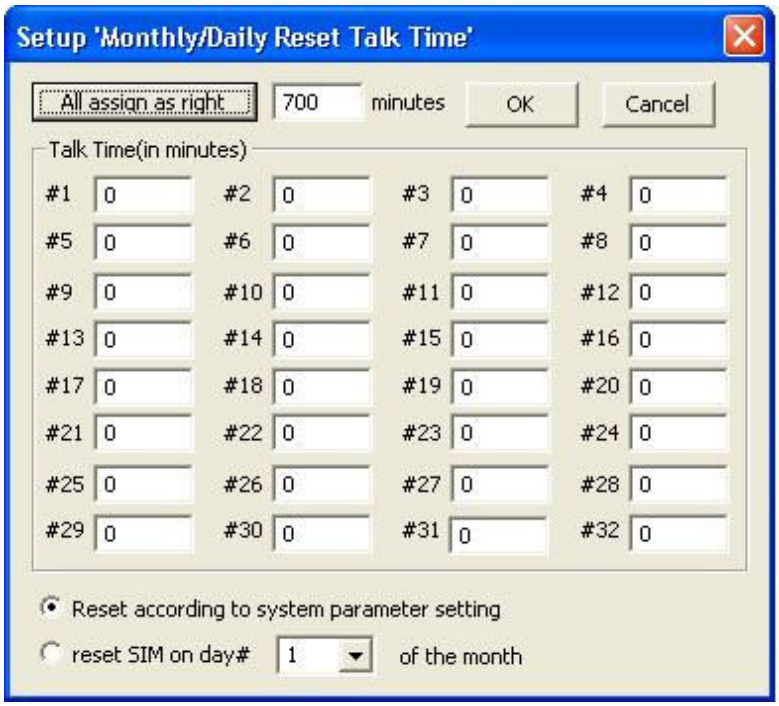
8.2.3 Scheduling to Switch SIM Card (Multi Lines) — see the picture below



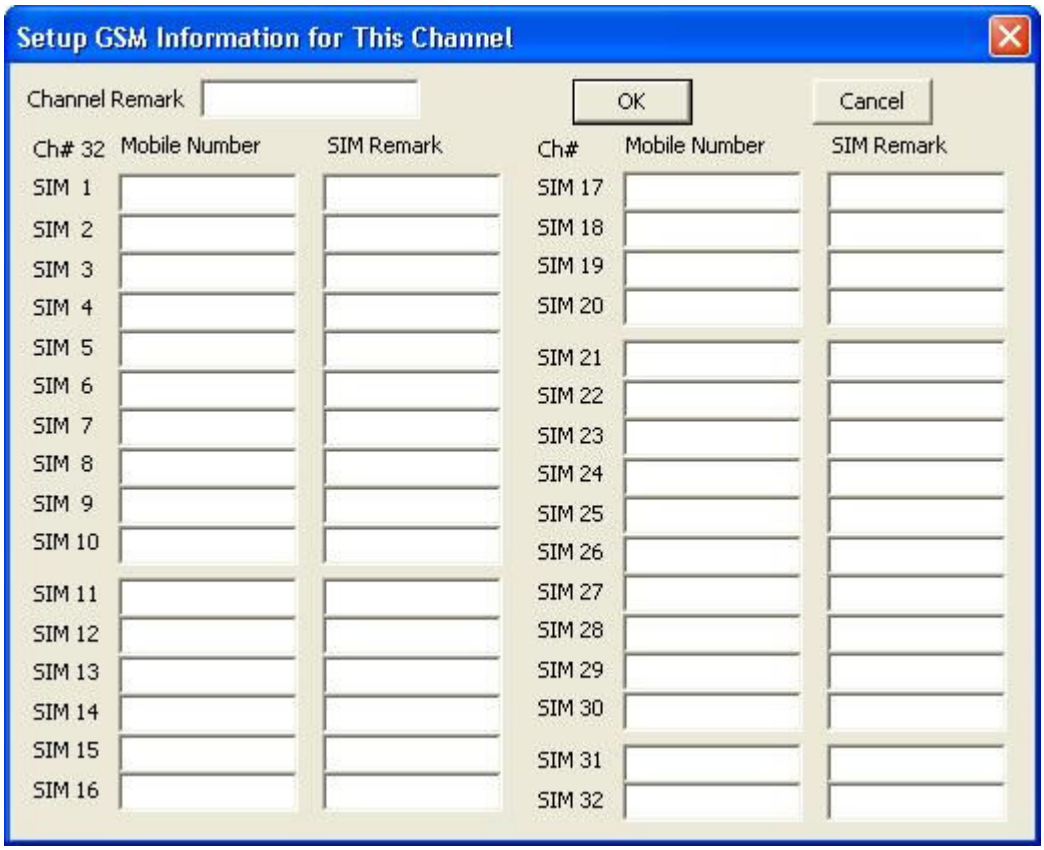
Please Notice:

- Day of Week: The number of “1111111” represents Sunday to Monday, seven “1” means seven days
- If you input “1111111” , it means you need to use the SIM card every day
- E.g. If you don’t want to use on Sunday, please input “0111111”

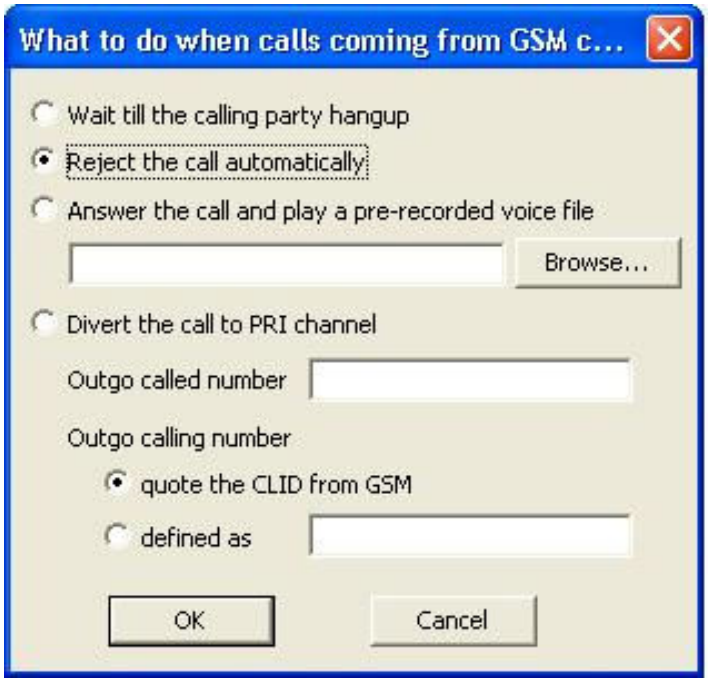
8.2.4 Monthly / Daily Reset Talk Time (Multi Lines) — see the picture below



8.3.5 Edit GSM Number — see the picture below



8.3.6 GSM Income Handle Strategy— see the picture below



There are four options when calls coming from MTIC line

1) Wait till the calling party hang up: ignore the call

2) Reject the call automatically

3) Answer the call and play a pre-recorded voice file

4) Divert the call to PRI channel: Transfer function

- If you select this one, you need to input the “Outgo called number” (called ID) and “Outgo calling number”(calling ID)
- Outgo calling ID:

  * quote the CLID from GSM: The calling number will be the same as caller number.

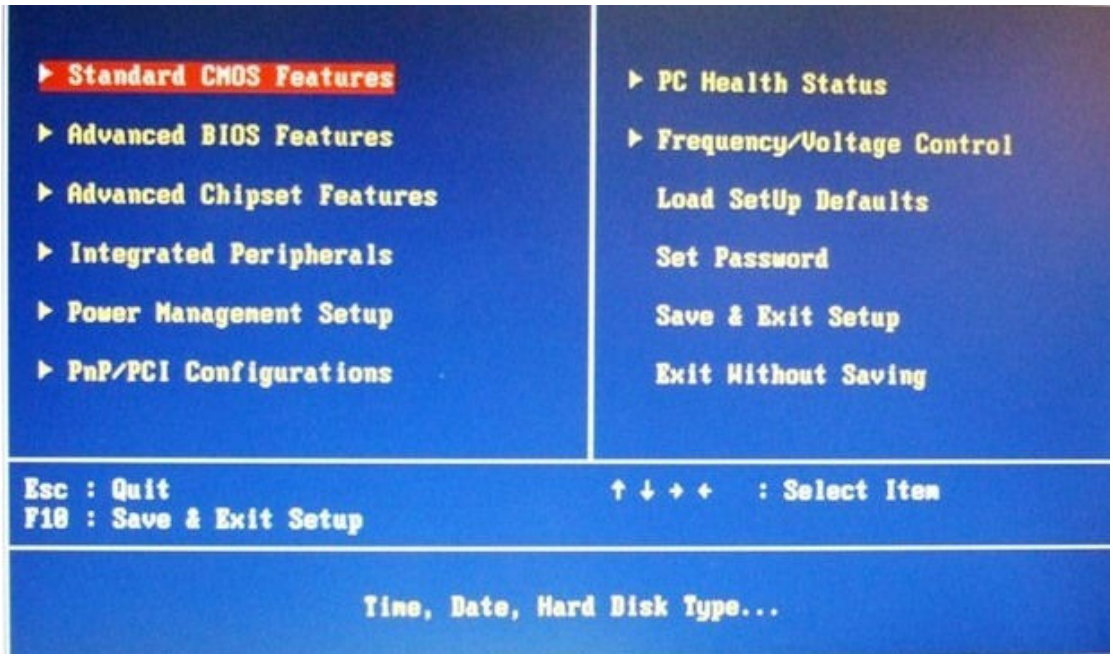
  * defined as: Input any number you’d like to be calling number

9. Q&A

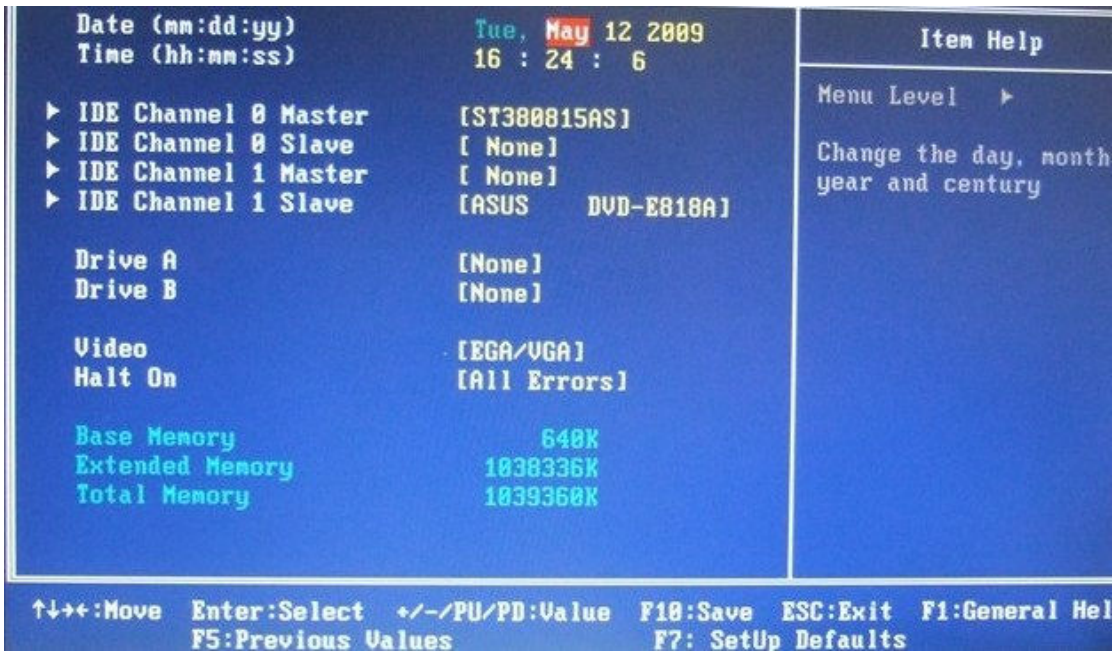
Q1: How to setup Bio system?

A1: Please follow the 12 steps as follows:

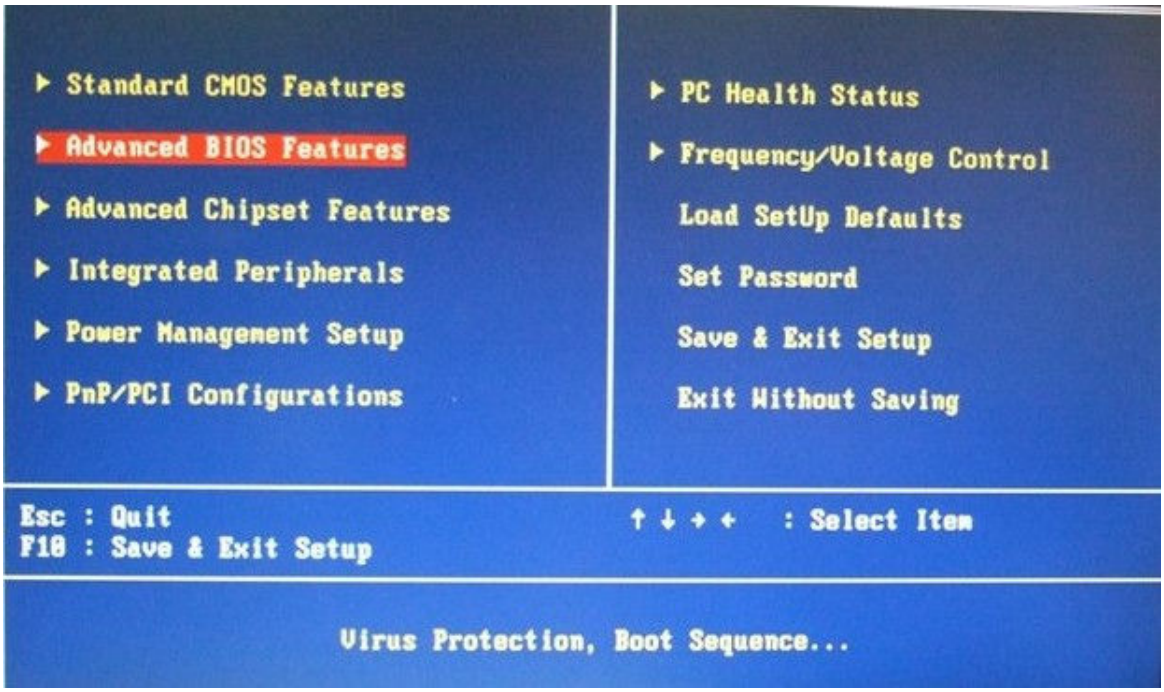
Step 1:


Standard CMOS Features
Advanced BIOS Features
Advanced Chipset Features
Integrated Peripherals
Power Management Setup
PnP/PCI Configurations
PC Health Status
Frequency/Voltage Control
Load SetUp Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Esc : Quit
F10 : Save & Exit Setup
↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type...

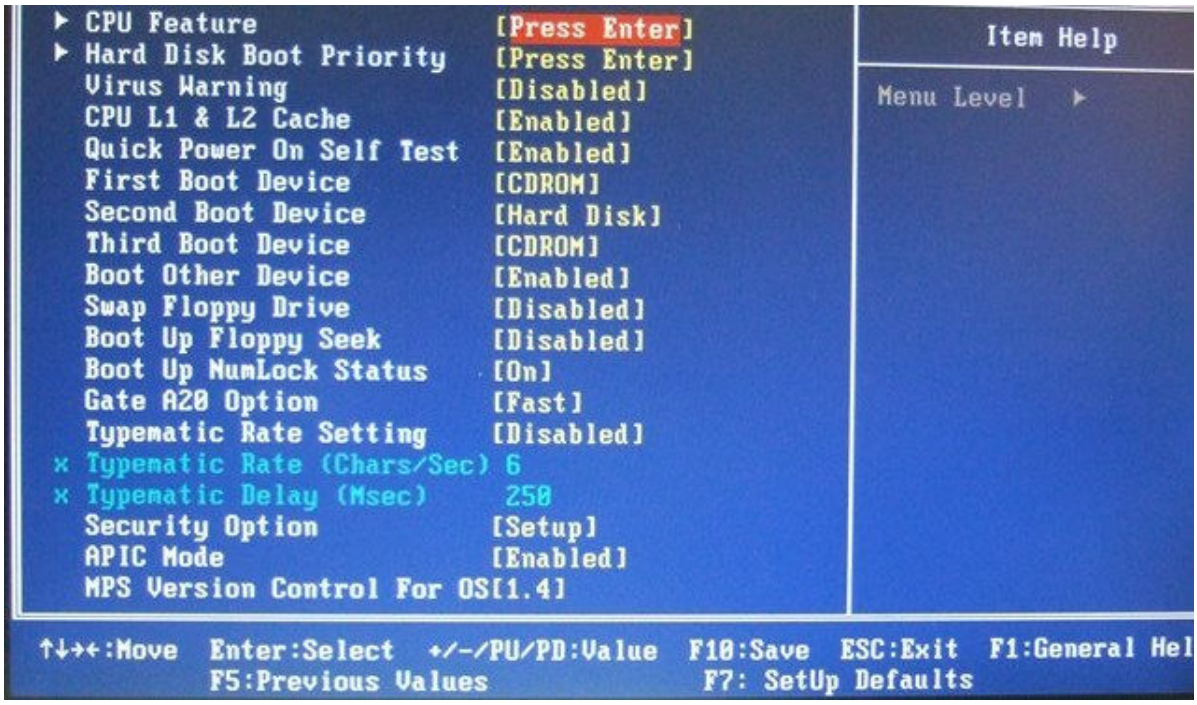
Step 2:


Date (mm:dd:yy) Tue, May 12 2009
Time (hh:mm:ss) 16 : 24 : 6
IDE Channel 0 Master [ST380815AS]
IDE Channel 0 Slave [None]
IDE Channel 1 Master [None]
IDE Channel 1 Slave [ASUS DVD-E818A]
Drive A [None]
Drive B [None]
Video [EGA/VGA]
Halt On [All Errors]
Base Memory 640K
Extended Memory 1038336K
Total Memory 1039360K
Item Help
Menu Level ▸
Change the day, month year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Hel
F5:Previous Values F7: SetUp Defaults

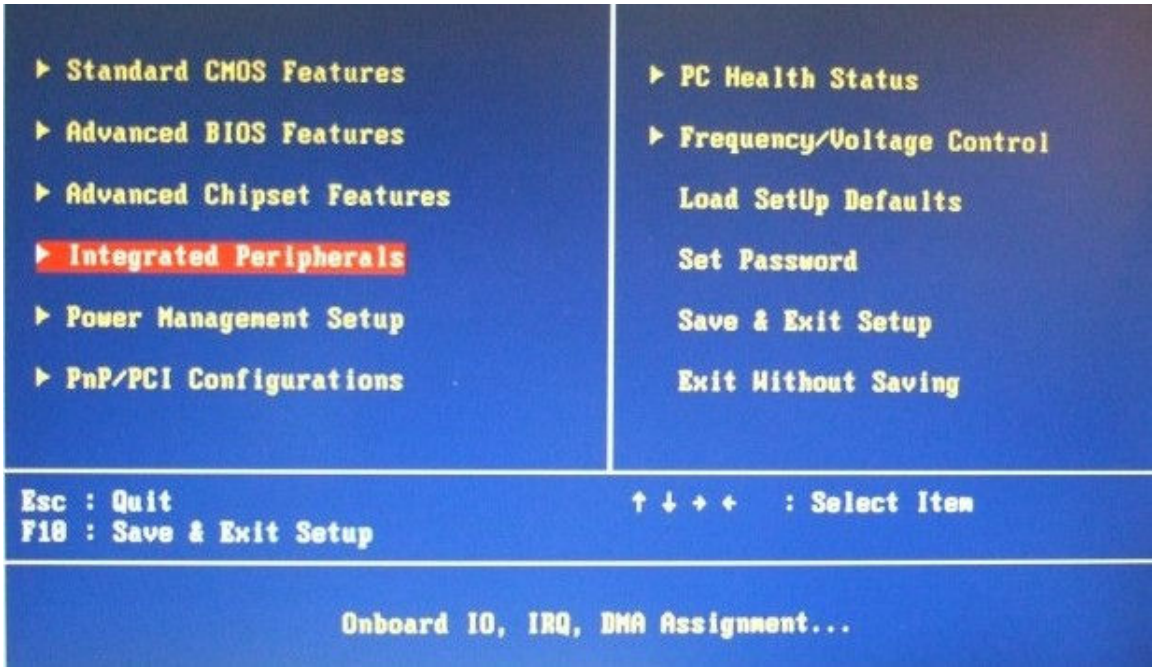
Step 3:


▸ Standard CMOS Features
▸ Advanced BIOS Features
▸ Advanced Chipset Features
▸ Integrated Peripherals
▸ Power Management Setup
▸ PnP/PCI Configurations
▸ PC Health Status
▸ Frequency/Voltage Control
Load SetUp Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Esc : Quit
F10 : Save & Exit Setup
↑ ↓ → ← : Select Item
Virus Protection, Boot Sequence...

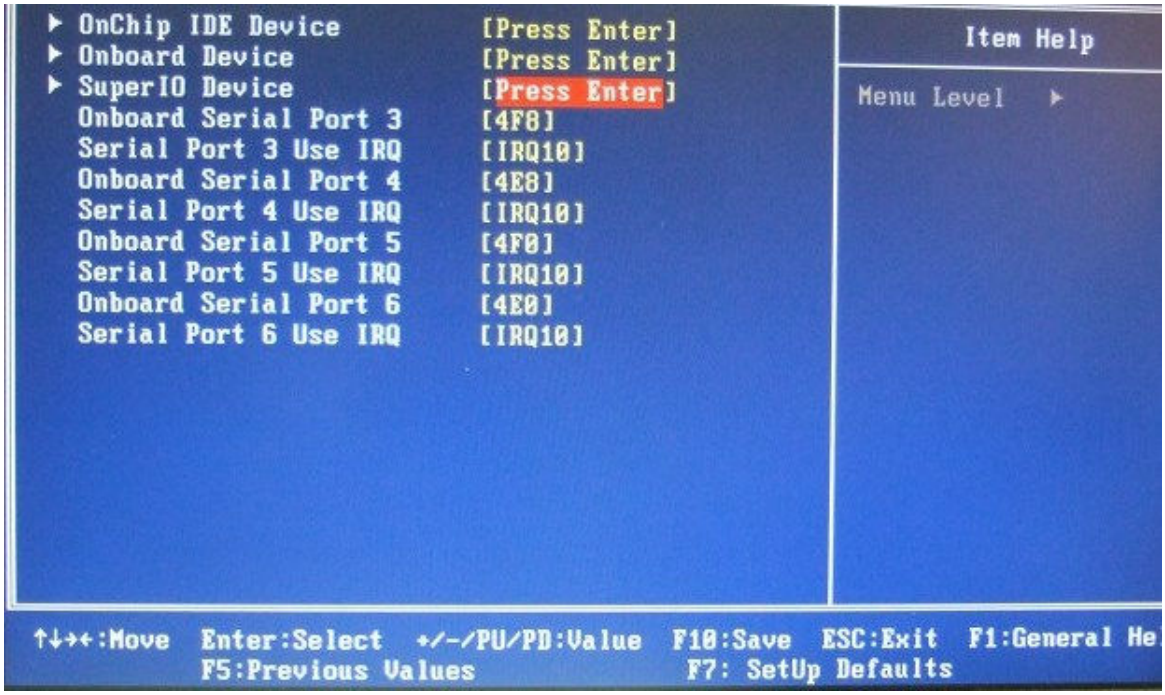
Step 4:


▸ CPU Feature [Press Enter]
▸ Hard Disk Boot Priority [Press Enter]
Virus Warning [Disabled]
CPU L1 & L2 Cache [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [CDROM]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Disabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS[1.4]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Hel
F5:Previous Values F7: SetUp Defaults

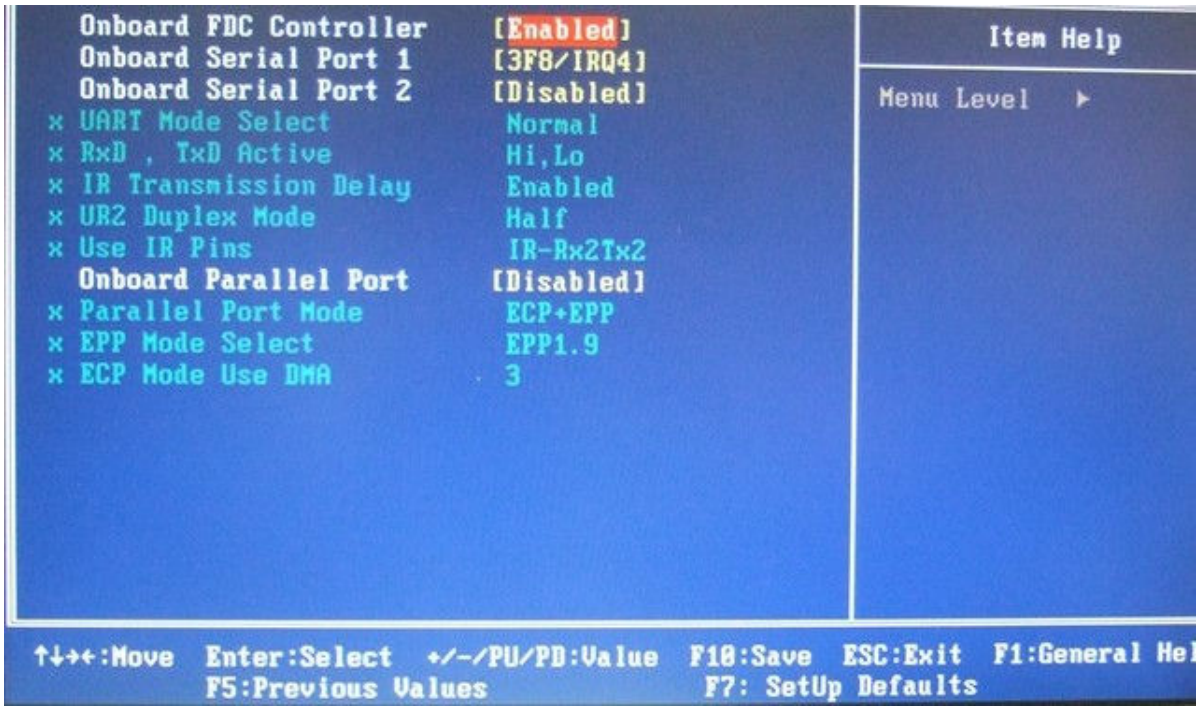
Step 5:


▶ Standard CMOS Features
▶ Advanced BIOS Features
▶ Advanced Chipset Features
▶ Integrated Peripherals
▶ Power Management Setup
▶ PnP/PCI Configurations
▶ PC Health Status
▶ Frequency/Voltage Control
Load SetUp Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Esc : Quit
F10 : Save & Exit Setup
↑ ↓ → ← : Select Item
Onboard IO, IRQ, DMA Assignment...

Step 6:


▶ OnChip IDE Device [Press Enter]
▶ Onboard Device [Press Enter]
▶ SuperIO Device [Press Enter]
Onboard Serial Port 3 [4F8]
Serial Port 3 Use IRQ [IRQ10]
Onboard Serial Port 4 [4E8]
Serial Port 4 Use IRQ [IRQ10]
Onboard Serial Port 5 [4F0]
Serial Port 5 Use IRQ [IRQ10]
Onboard Serial Port 6 [4E0]
Serial Port 6 Use IRQ [IRQ10]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General He
F5:Previous Values F7: SetUp Defaults

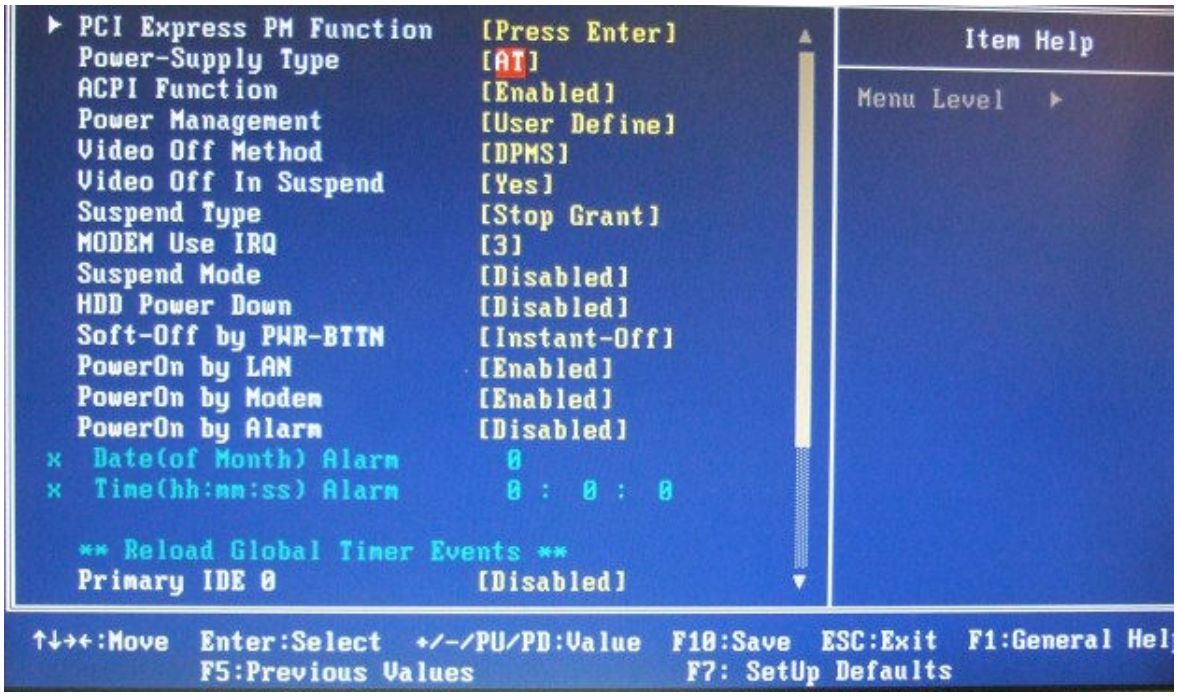
Step 7:


Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [Disabled]
x UART Mode Select Normal
x RxD , TxD Active Hi,Lo
x IR Transmission Delay Enabled
x UR2 Duplex Mode Half
x Use IR Pins IR-Rx2Tx2
Onboard Parallel Port [Disabled]
x Parallel Port Mode ECP+EPP
x EPP Mode Select EPP1.9
x ECP Mode Use DMA 3
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General He
F5:Previous Values F7: SetUp Defaults

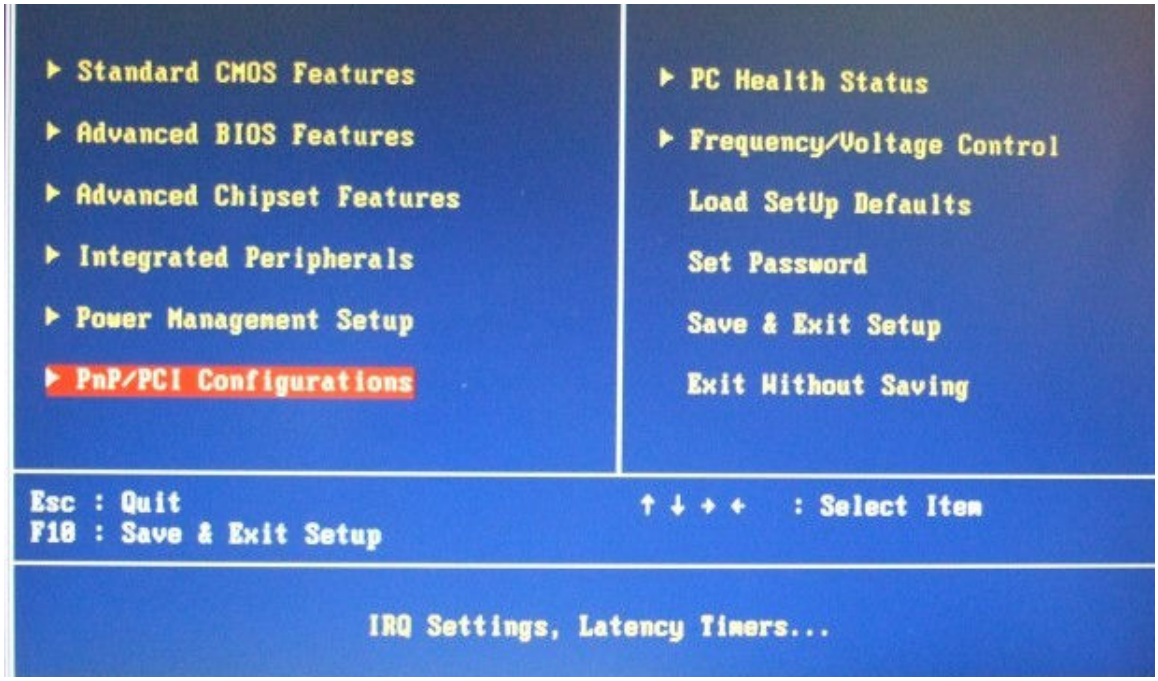
Step 8:


▸ Standard CMOS Features
▸ Advanced BIOS Features
▸ Advanced Chipset Features
▸ Integrated Peripherals
▸ Power Management Setup
▸ PnP/PCI Configurations
▸ PC Health Status
▸ Frequency/Voltage Control
Load SetUp Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Esc : Quit
F10 : Save & Exit Setup
↑ ↓ → ← : Select Item
Sleep timer, Suspend timer...

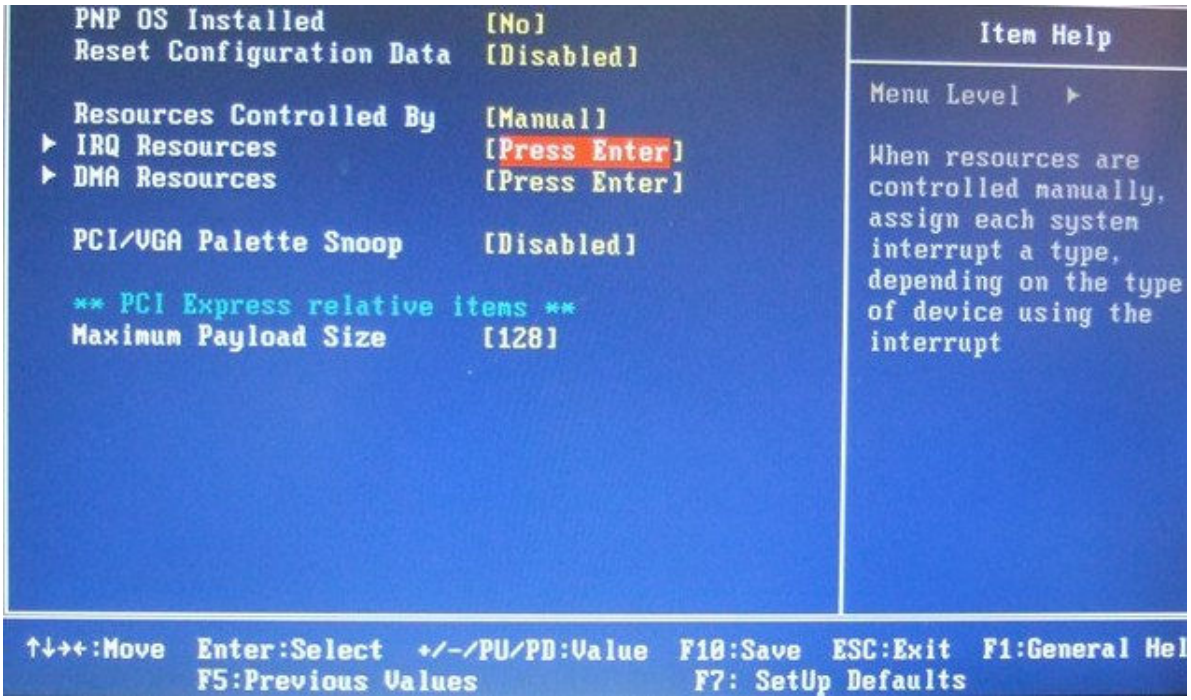
Step 9:



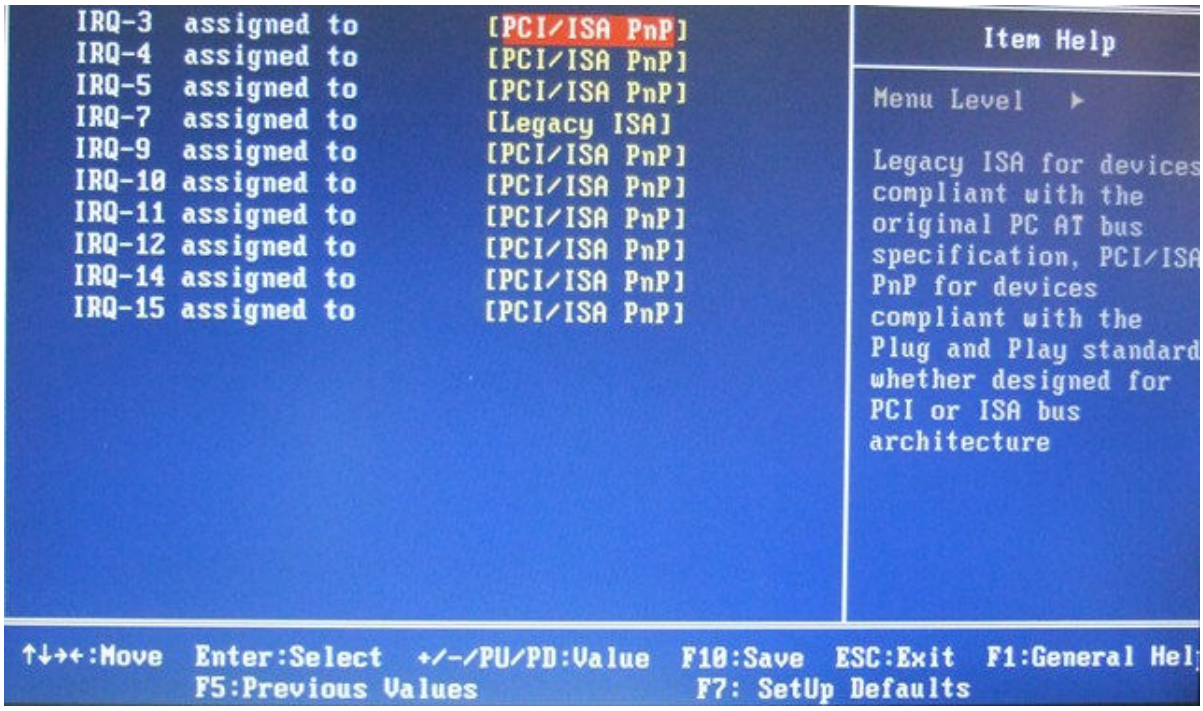
Step 10:



Step 11:



Step 12:



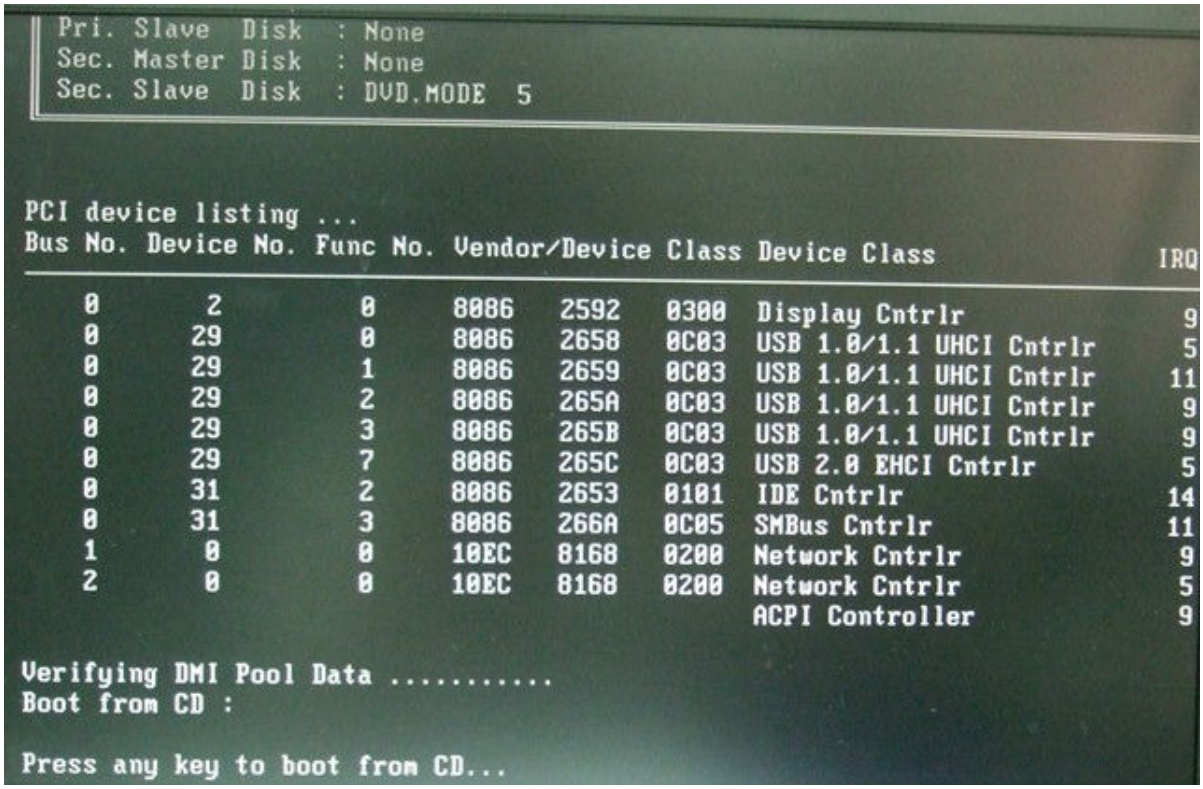
Q2: How to setup DMT's XP embedded System Recovery Recommend?

A2:

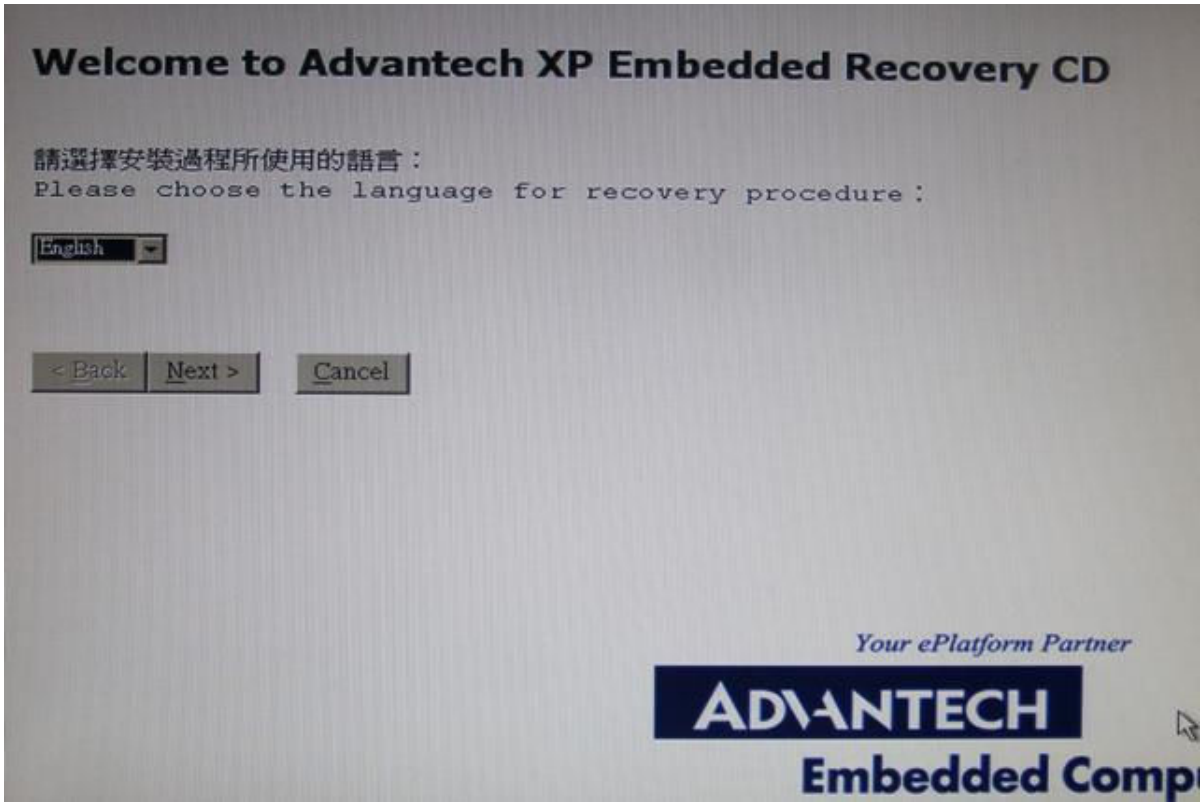
1) Put the Recover CD into DMT

2) Turn off the power

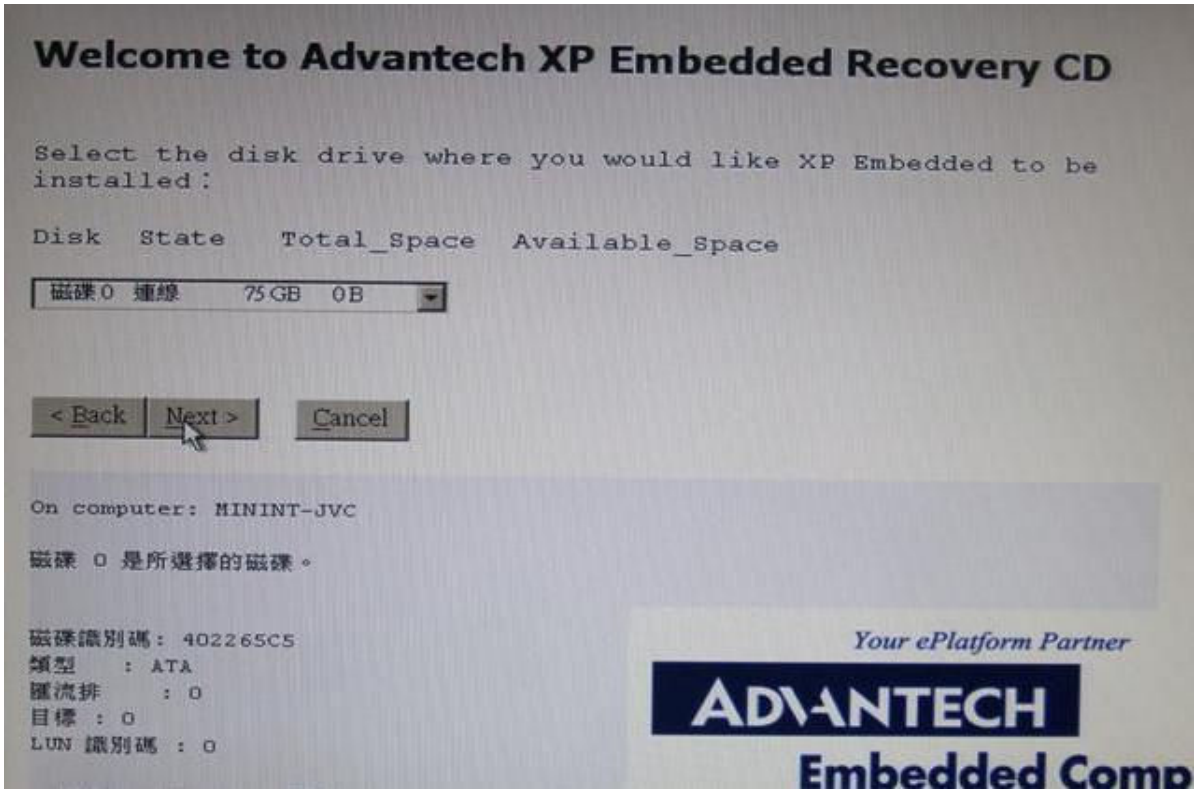
3) Power on and press any key to continue



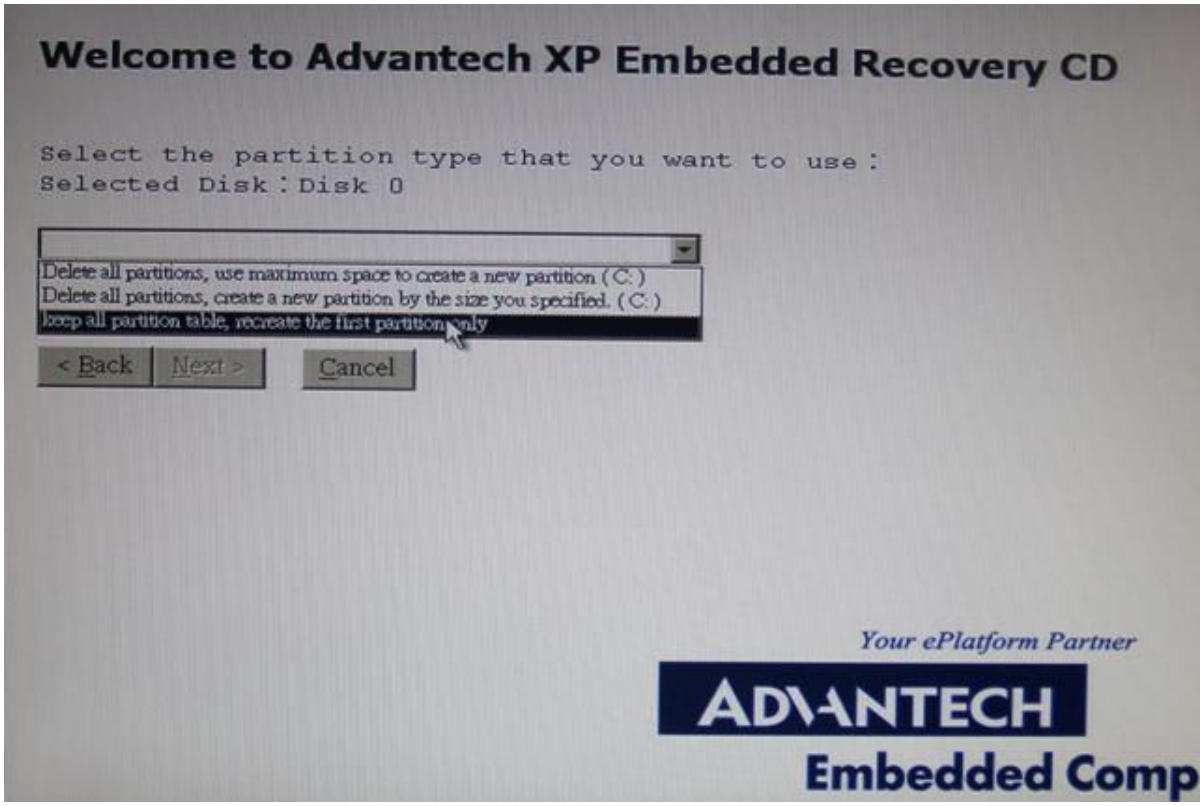
4) Welcome to Advanced XP Embedded Recovery CD: choose “English” version, and click “next”



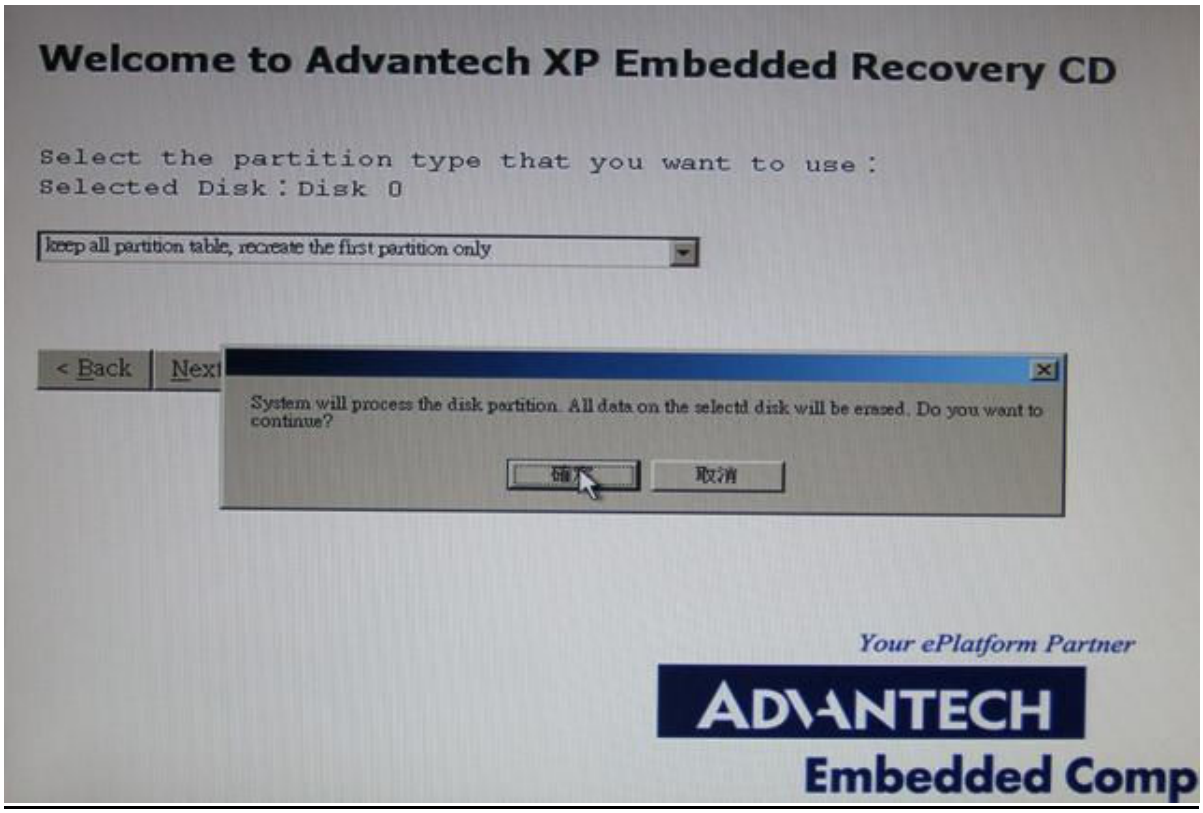
5) Disc State: Choose HardDisk 75G OB, and “next”



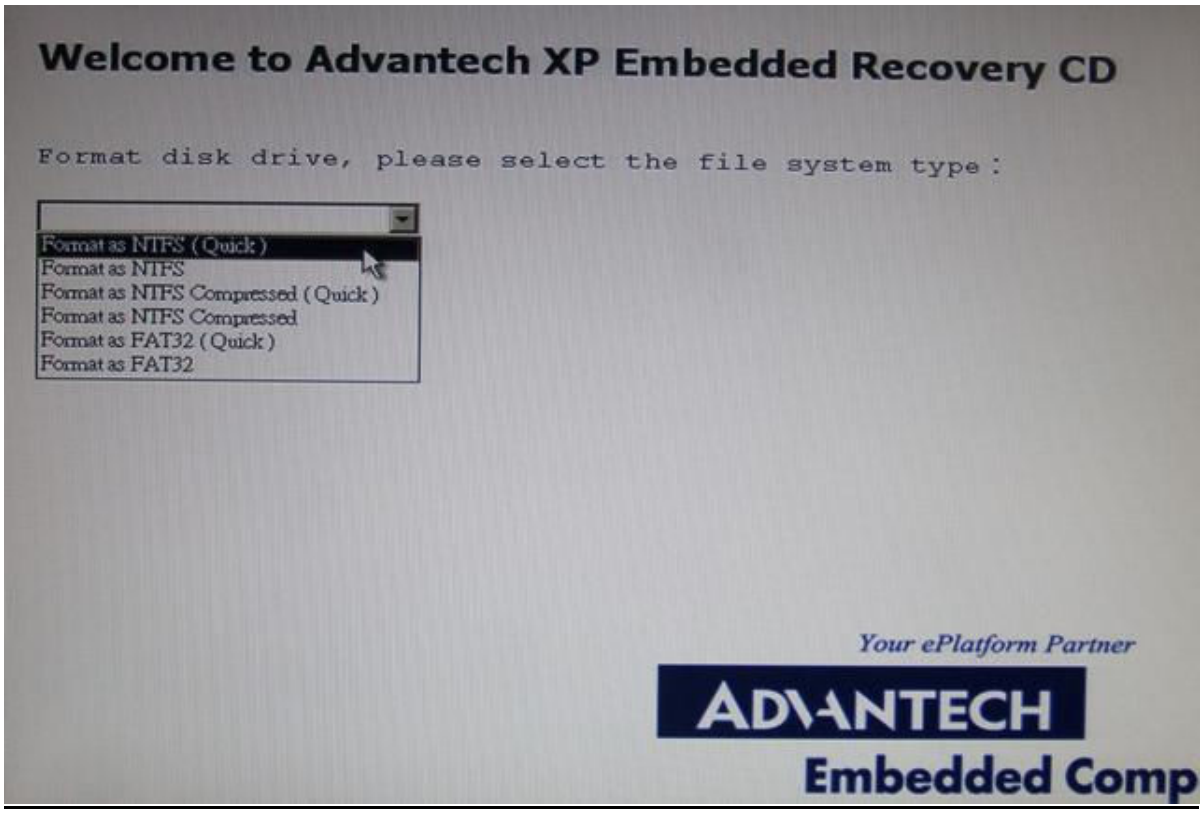
6) Select Disk: choose “Keep all partition table, recreate the first partition only”



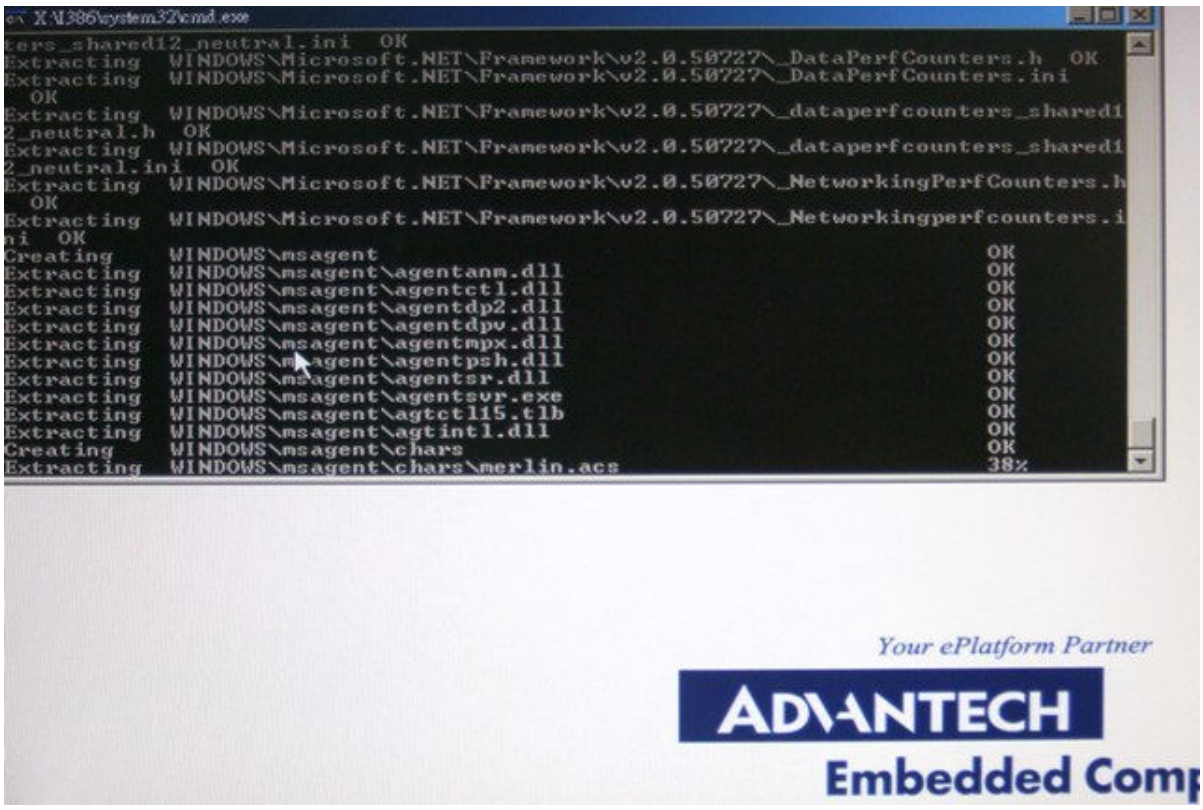
7) Click “yes” to continue



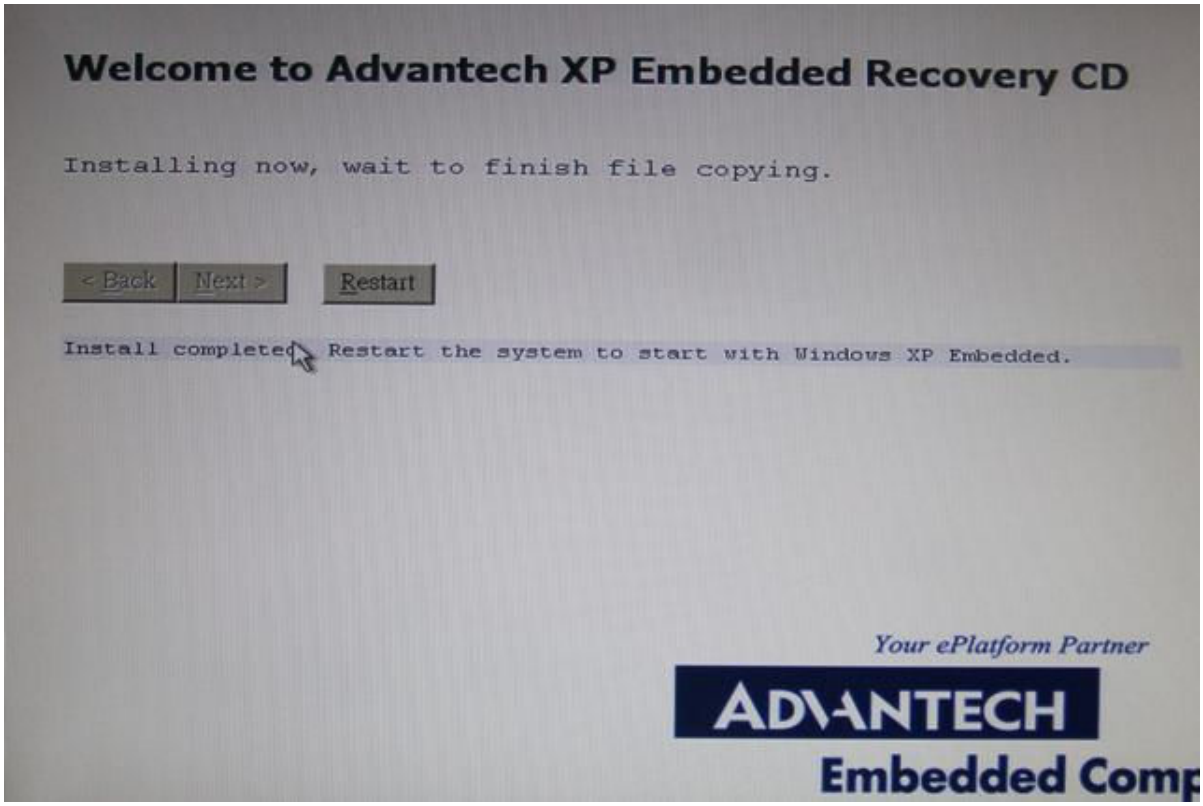
8) Format Disk Drive: choose “Format as NTFS (quick)”



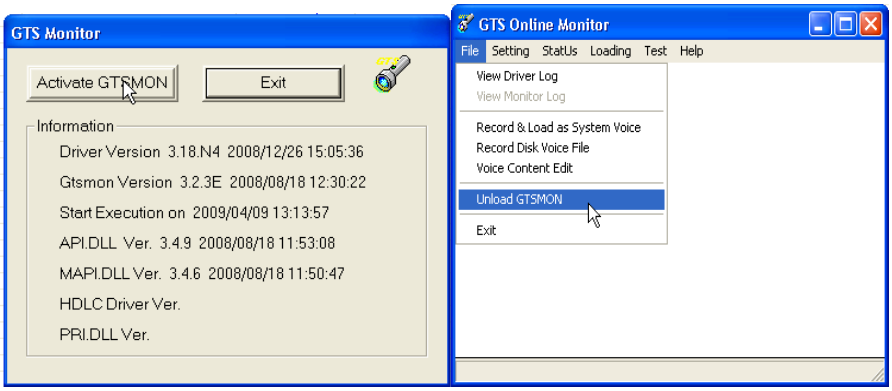
9) Wait for about 10 minutes to run the system



10) When download is complete, click “Restart” for continuing.

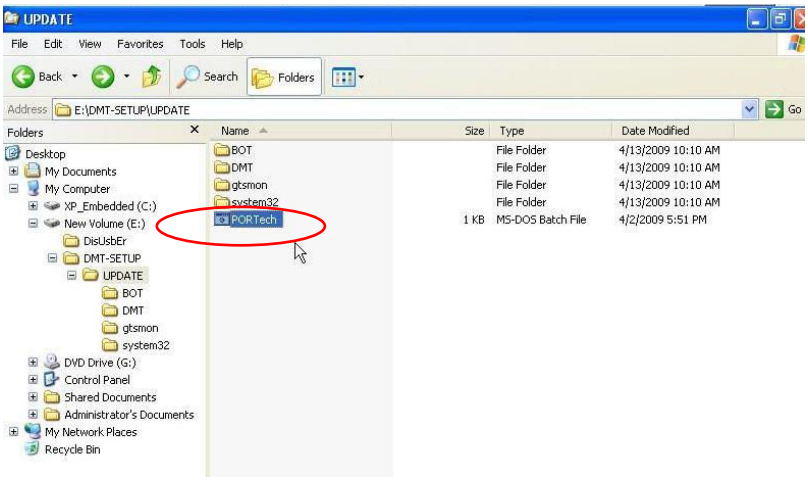


11) Upload: After the recovery is done, you need to upload both DMT exe. and GTS MON



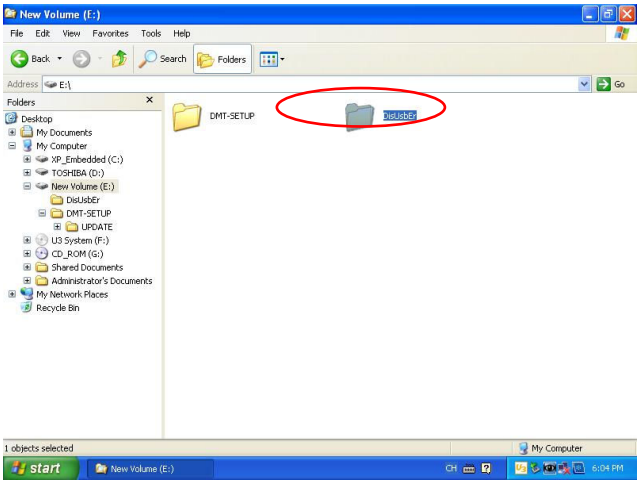
12) DMT-setup

- E:\DMT-SETUP\UPDATE
- Run PORTech

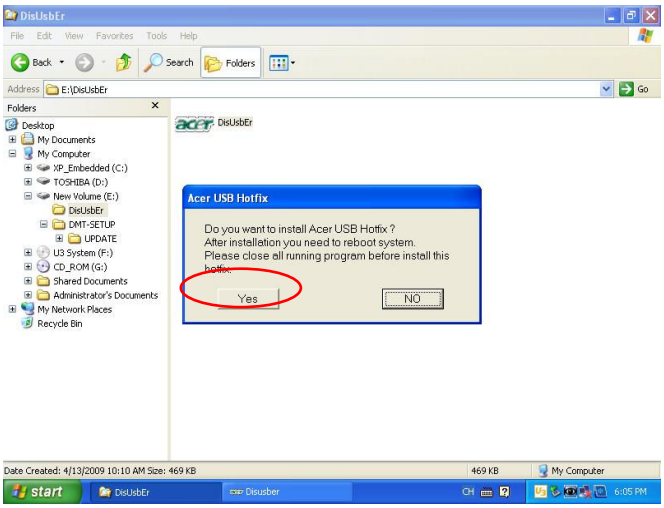


13) DisUSBer

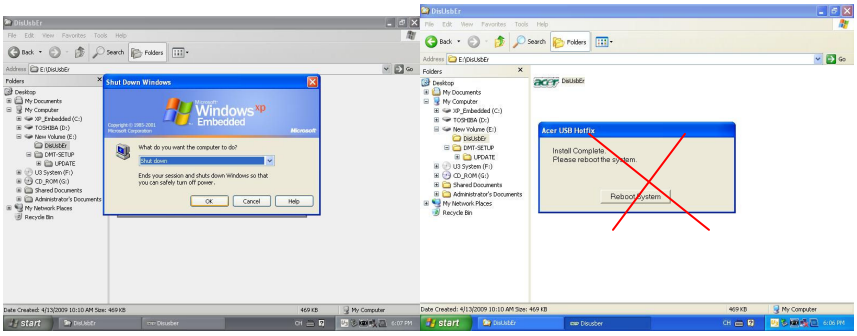
- E:\DisUsbEr (Fix USB bug for 6008 motherboard)



- Run DisUsbEr, and click “yes"



◆ Go to “Shut down” instead of “Reboot System”



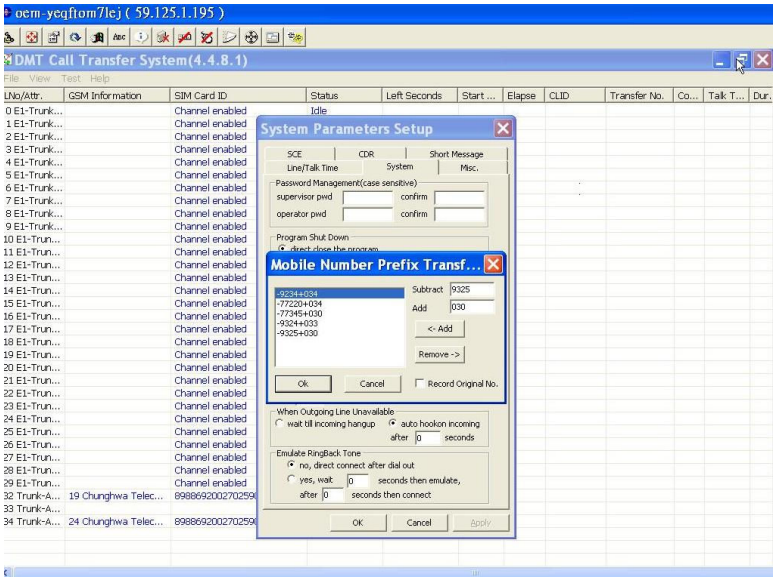
13) Turn on the DMT-V and take out the Disc

14) All done

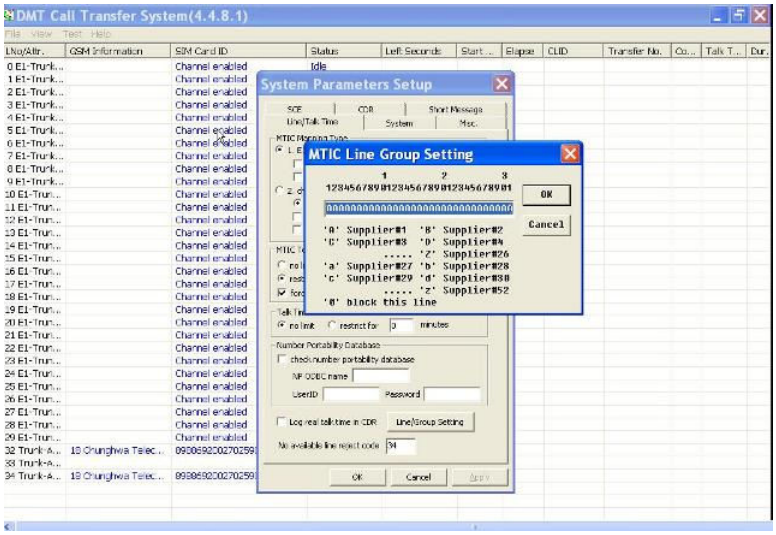
Q3: How to setup Prefix number:

A3: E.g. To setup 2 sets of area code and 3 sets of groups, please see the steps as follows:

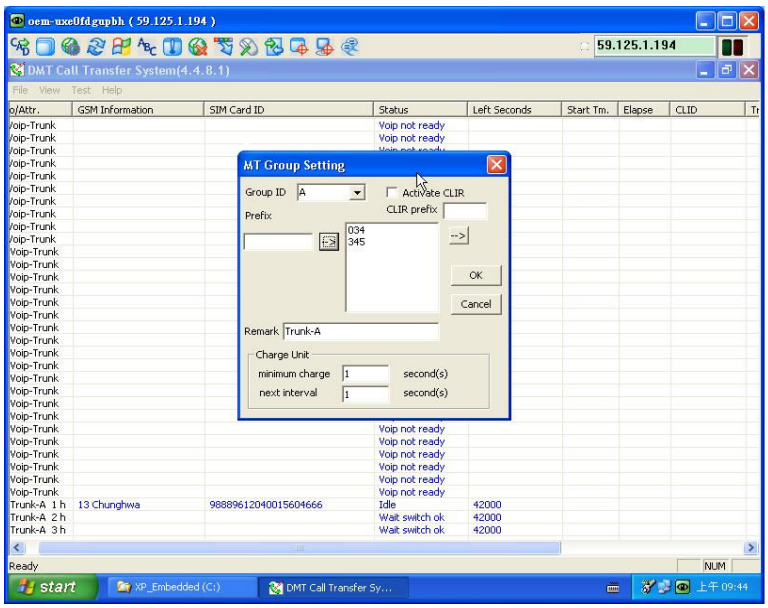
1) Transform Area Code



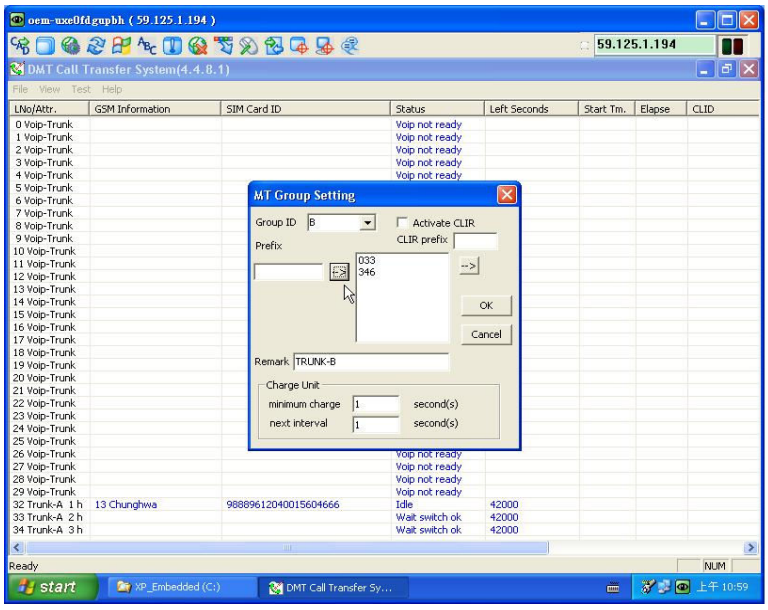
2) To setup Group A, B, C



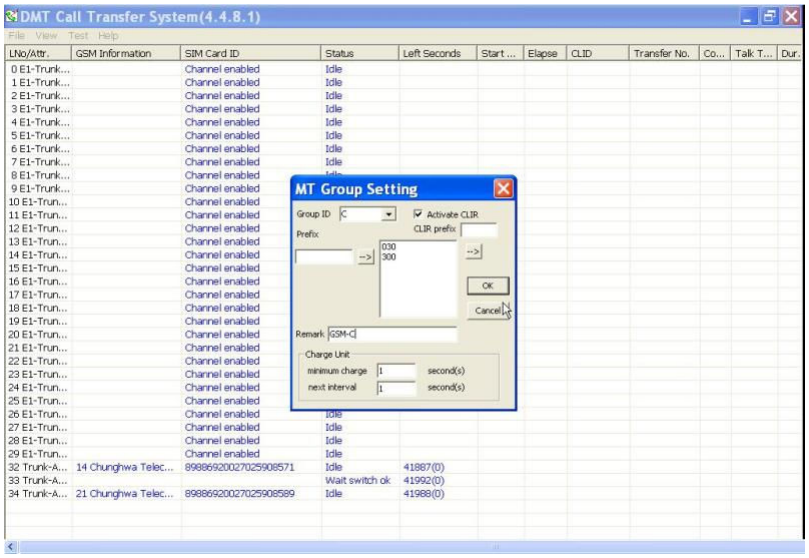
3) To setup area code of Group A



4) To setup area code of Group B

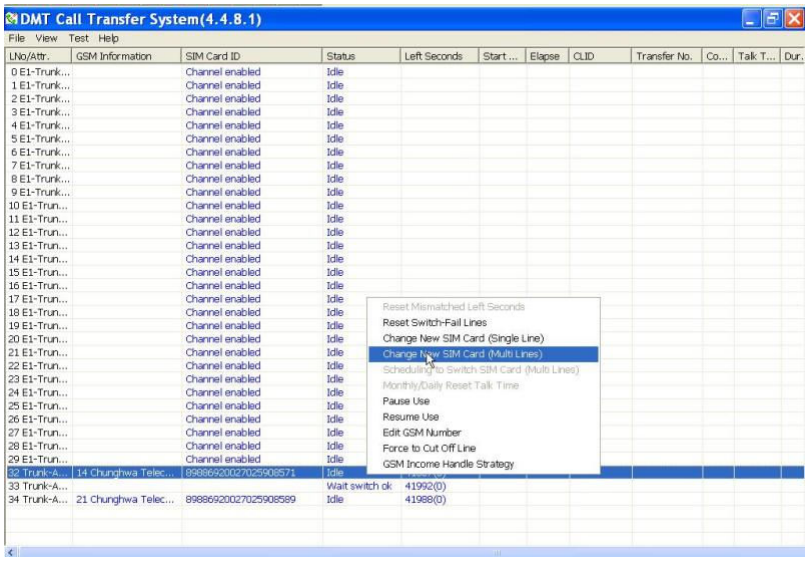


5) To setup area code of Group C



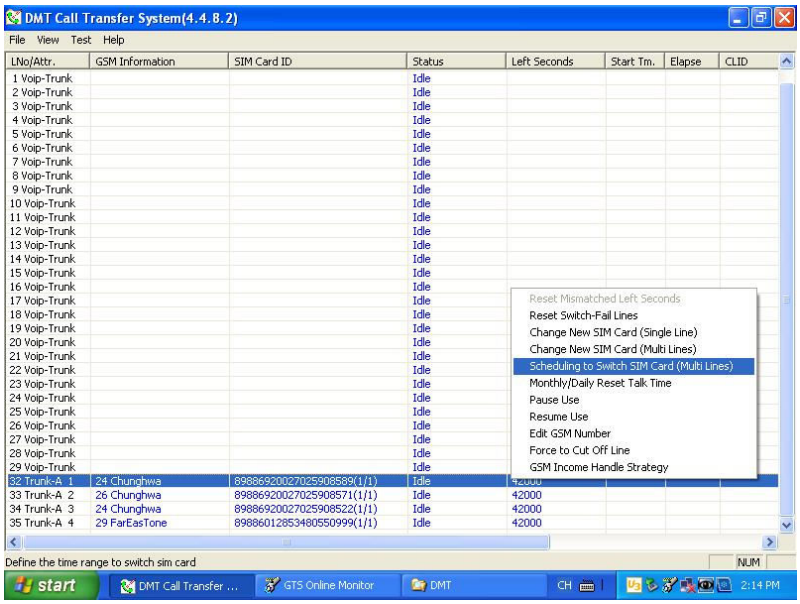
Q4: How to change SIM Card?

A4: Please click the right button on the mouse, and choose “change New SIM Card (Multi Lines)”.

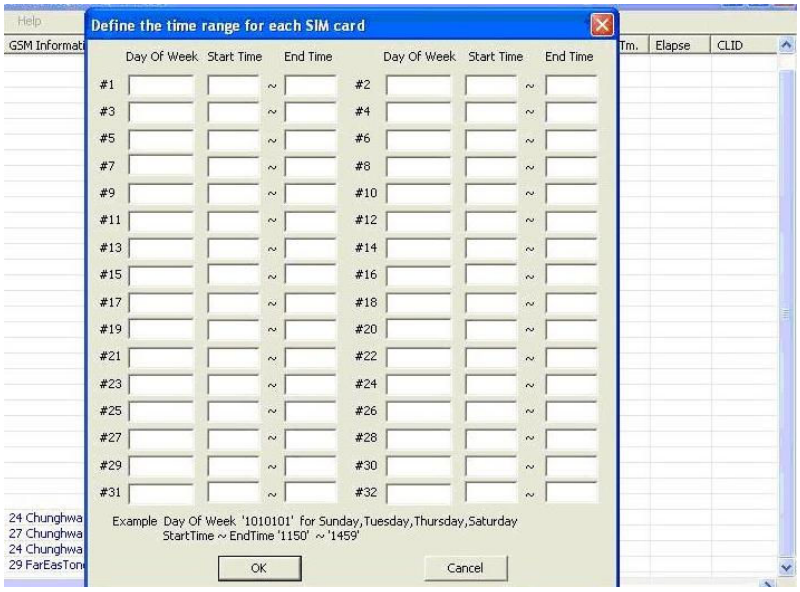


Note: If you use SCBOX or SCE900, you can schedule SIM Card’s working days and times as follows:

1) Scheduling to Switch SIM Card (Multi Lines)



2) Define the time range for each SIM Card



Q5: Why can't make the call?

A5: When you setup #31# or *31# as private call, please check with your operator to see if it's available or not.

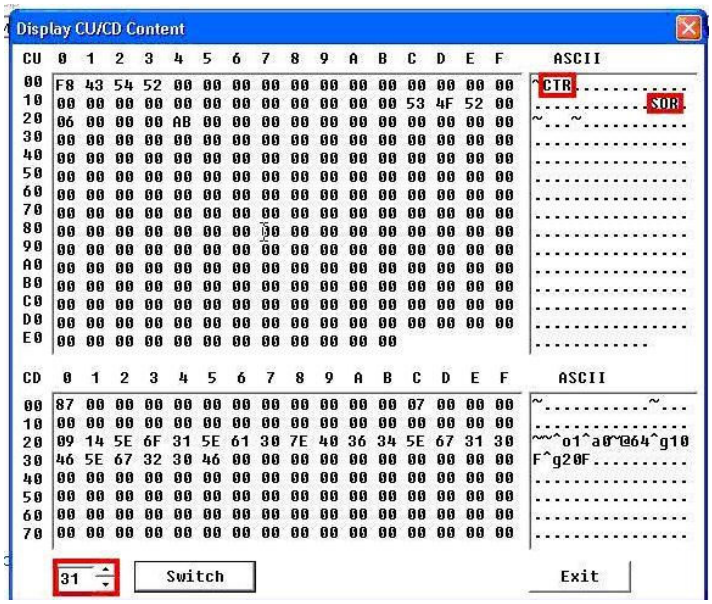
Q6: How to check up system status?

A6: It can divided into two parts: CONTROL; MTIC

1) CONTROL

31(Control-PLCC-VOIP)-status

63(Control)-status



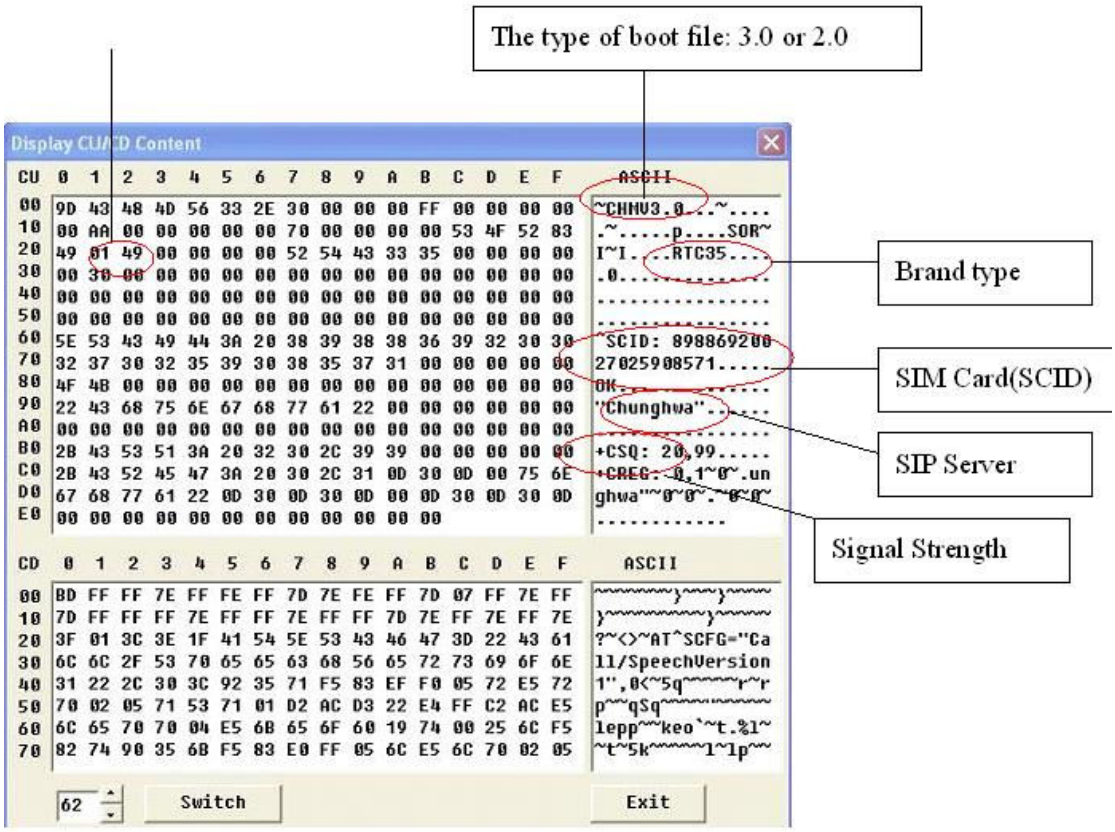
NOTE: If CTR doesn't show up in the monitor like above diagram, it means the control card or GTS card is broken or damaged.

b) MTIC

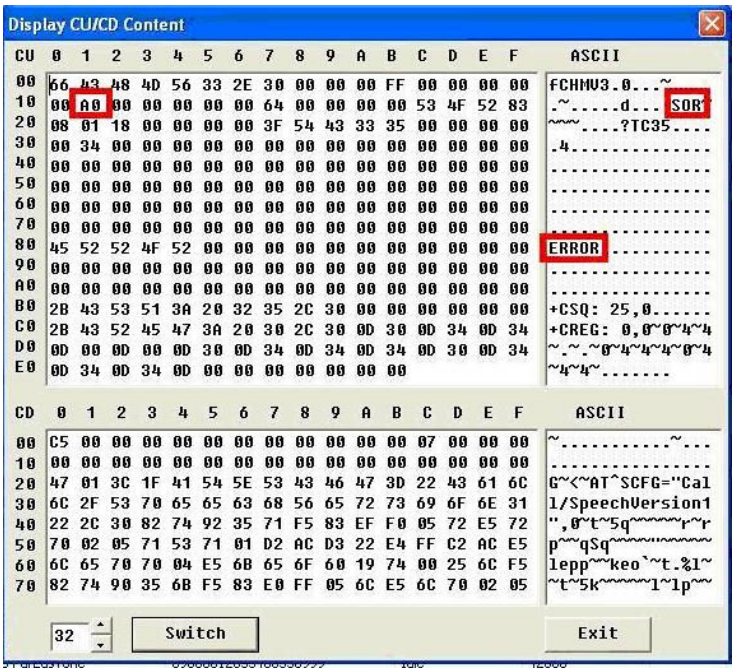
1)32-62(MTIC)-32~62

NOTE:

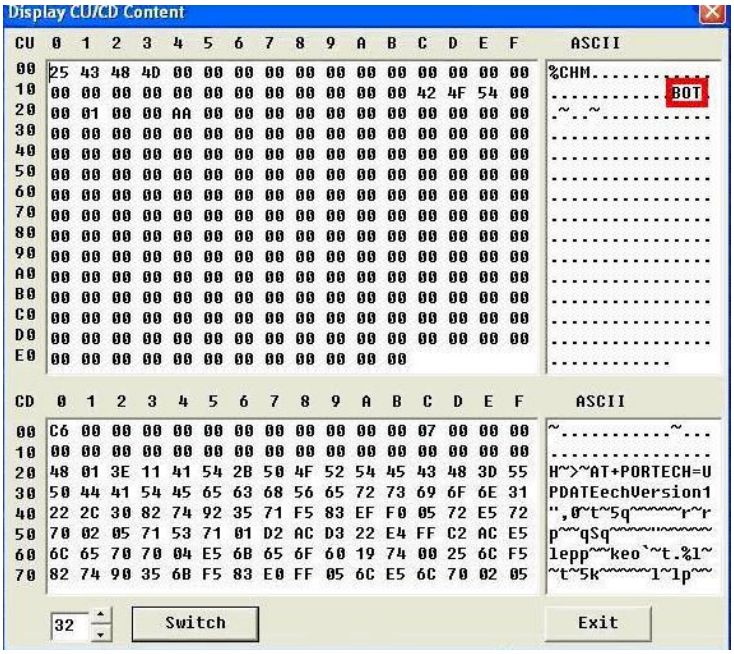
AA" shows normal status; if not AA, it means something wrong with the setup



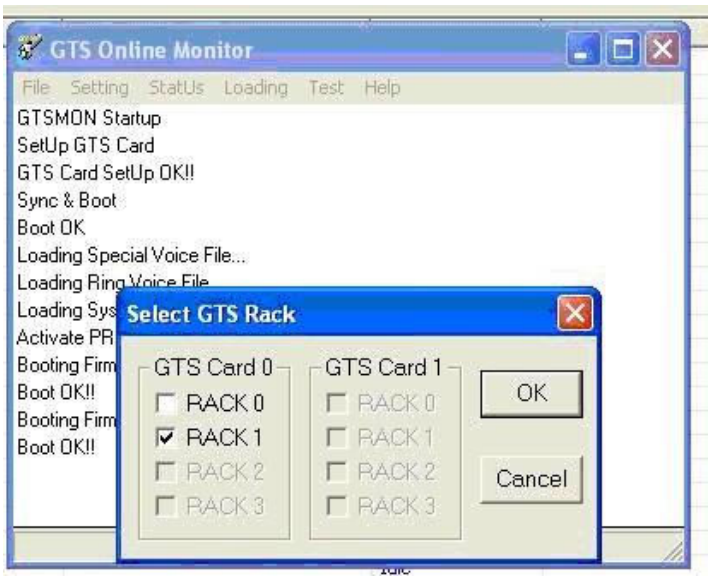
2) If your status shows “ERROR” as follows diagram, it means SIM Card is not functional. Please check if SIM Card has contact fault or not.



3) If your status shows “BOT” as follows diagram, it means the hardware is broken. Please try to reboot DMT.

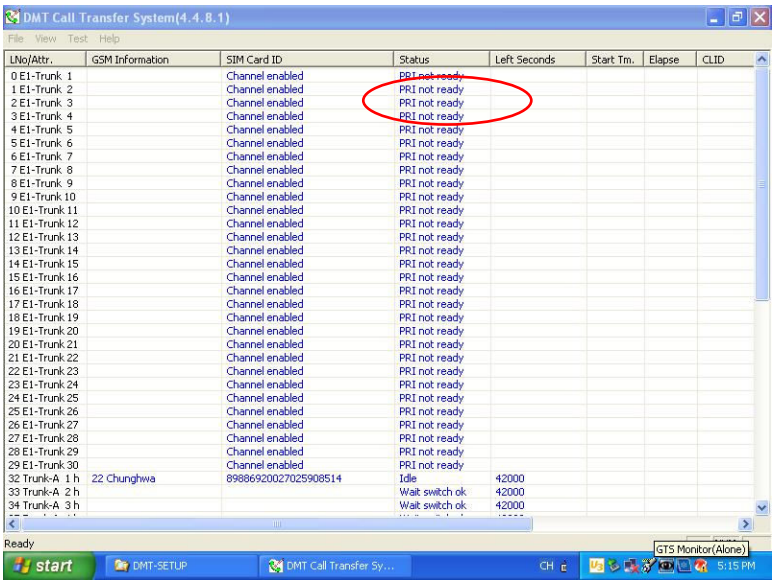


NOTE: Choose only RACK 1 for priority.



Q8: Why E1 can't start up?

A8: When status shows "PRI not ready", please double check these 3 ways as follows.

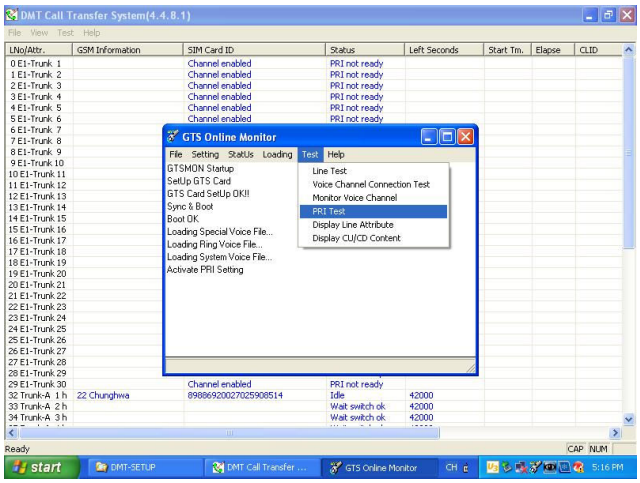


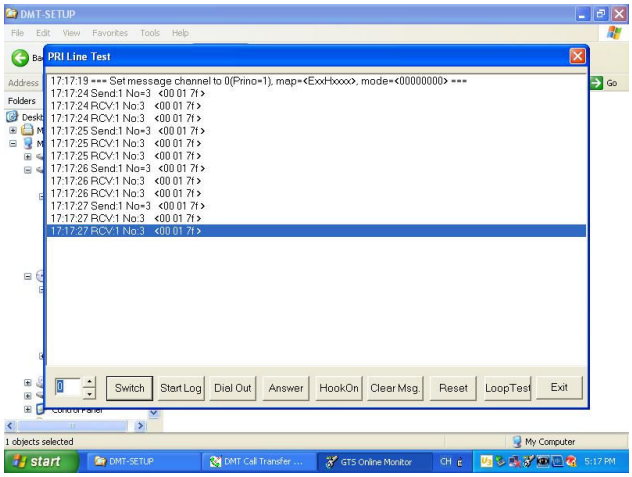
NOTE:

If the condition of DMT is the same as below description, the hardware is functional working.

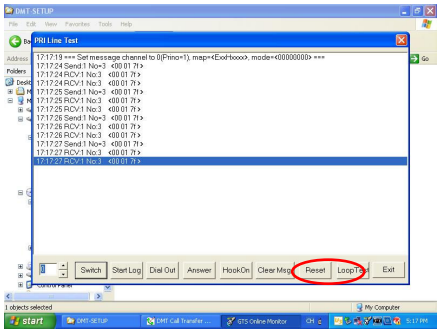
If not, it means that hardware had problem.

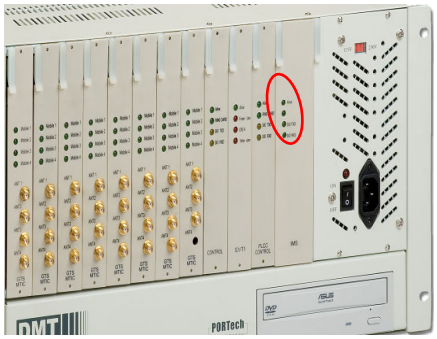
1. When you install Loop, it will show 3 Bytes send for 1 time and received for 2 times as follows



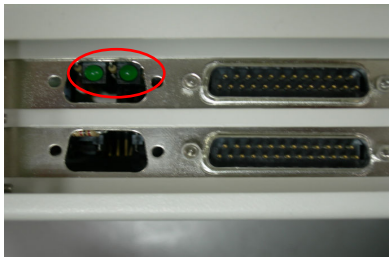


2. When you press “Reset” (left diagram), the light signal SIO RXD on IMS Card (right diagram) will keep blinking.





3. Please check the light on HDLC card (left diagram), the left light will be light on and the right light will be blinking (right diagram).



Note:

If not working, please check the Bus part like follows diagram. It may be connecting fault.