CR 208　125K Serial Reader Protocol

(T5567 ,T5577 ,EM4200)

1，Command Frame Format

1．HOST To Reader

Head + Length + Device Number ＋ Command Code + Data + XOR　Check

HEAD　：　2BYTE，0xAABB

LENGTH:　2BYTE (word)（LSB First）

Device Number　：　2BYTE　　BroadCast Command =　“00 00”

Command Code　：　2BYTE　(word)（LSB first）

Data :　Data should sent to Reader（None is possible）

XOR　CHECK　：1BYTE ,XOR each byte From Device Number　to Last Byte of Data

Note :Except HEAD AA BB , if there have a AA , Need follow a Byte 00 after AA , To distinguish not Command HEAD , LENGTH not need increase 1;

2．SLAVE（Reader）　Respond

Head + Length + Device Number ＋ Command Code + Data + XOR　Check

Head　　：　2BYTE，0xAABB

Length　：　2BYTE (word)（LSB First）

Device Number　：　2BYTE　　BroadCast Command =　“00 00”

Command Code　：　2BYTE　(word)（LSB first）

Result :　　00 = Command Accept by Reader or Card;

Other please refer to Coding of Status and Error Codes　Table

Data :　Data Respond From Card or Reader（None is possible）

XOR CHECK：1BYTE ,XOR each byte From Device Number　to Last Byte of Data

NOTE: After HOST send Comand if not got respond From Slave(Reader) during 100mS, we can consider this command is fail。

ATA5577 COMMAND

void Standard_Write(unsigned char opcode ,unsigned char lock ,unsigned char * Data ,unsigned char block)

Function ： Standard Write

Parameter：

OPCODE ： OpCode ， 0x10 Bin (DEC 2 match to page0) Or 0x11 Bin(page 1) ；

LOCK ： LOCK option , 0 Data block not lock , 1 Data should be locked after write command, data cant modify after locked .

* Data ： Data should be write , Four byte.

BLOCK ： Block Number should be write ；

Format ：

AA BB Len1 len2 00 00 01 20 opcode , lock , xx xx xx xx , block , xor ,

Sample : write data 11 11 11 11 to block 1 :

AA BB, 0C 00, 00 00 ,01 20 ,02 , 00 , 11 11 11 11 , 01 , 22

AA BB 0C 00 00 00 01 20 02 00 11 11 11 11 01 22

Respond : aa bb len1 len2 , 00 00 , 01 20 , Status ,xor (refer to respond format)

void Protected_Write(unsigned char opcode ,unsigned char * PassWord , unsigned char lock ,unsigned char * Data ,unsigned char block)

Function： protected write , Command Word = 0x2002

Parameter：

OPCODE ： OpCode ， 0x10 Bin (DEC 2 match to page0) Or 0x11 Bin(page 1) ；

*PassWrod ： PassWord , Data of BLOCK 7 had write , Four Bytes；

LOCK ： LOCK option , 0 Data block not lock , 1 Data should be locked after write command, data cant modify after locked .

* Data ： Data should be write , Four byte.

BLOCK ： Block Number should be write ；

Format ：

AA BB Len1 len2 00 00, 02 20 opcode , PW1 PW2 PW3 PW4,lock , xx xx xx xx , block , xor ,

Opcode = 0x10 Bin or 0x11 Bin

PW1—PW4: T5577 card password

Lock : Lock option

XX XX XX XX : Data should write to card

Block : Block Number should be write

Sample : Write 11 11 11 11 to block 1 with password 77 77 77 77

AA BB, 10 00, 00 00 ,02 20 ,02 ,77 77 77 77 , 00 , 11 11 11 11 , 01 , 21

Respond : aa bb len1 len2 , 00 00 , 01 20 , Status ,xor

void Wake_Up(unsigned char * PassWord)

Function ： Wake Up

Parameter ：

*PassWORD ： Four byte card Password (Block 7 data)；

Format :

AA BB , len1 len2 , 00 00 , 03 20 , Pw1 Pw2 Pw3 Pw4 ,xor

Pw1 Pw2 Pw3 Pw4 = 4byte PassWord

Sample ： aa bb , 09 00 ,00 00 ,03 20 , 77 77 77 77 , 23

77 77 77 77 = 4bytes password

Respond : aa bb len1 len2 , 00 00 , 01 20 , Status ,xor

void Direct_Access_PWD(unsigned char opcode ,unsigned char * PassWord , unsigned char block)

Function ： Direct Access Password

Parameter ：

OPCODE ： OpCode ， 0x10 Bin (DEC 2 match to page0) Or 0x11 Bin(page 1) ；

* PassWord ： PassWord , Data of BLOCK 7 had write , Four Bytes；

BLOCK ： Block Number should be Access

Command Code ： (0x2004)

Format :

AA BB , len1 len2 , 00 00 , 04 20 , opcode , Pw1 Pw2 Pw3 Pw4 ,block , xor

Sample ： aa bb , 0b 00 ,00 00 ,04 20 , 02, 77 77 77 77 , 04 , xor

Respond : aa bb len1 len2 , 00 00 , 01 20 , Status ,xor

void Direct_Access(unsigned char opcode ,unsigned char block)

Function ： Direct Access

Parameter:

OPCODE ： OpCode ， 0x10 Bin (DEC 2 match to page0) Or 0x11 Bin(page 1) ； BLOCK ： Block Number should be Access

Command Code ： (0x2005)

Format :

AA BB , len1 len2 , 00 00 , 05 20 , opcode , block , xor

Sample ： aa bb , 07 00 ,00 00 ,05 20 , 02, 04 , xor

Respond : aa bb len1 len2 , 00 00 , 01 20 , Status ,xor

void Page_Regular_Read(unsigned char opcode)

Function ： Page_Regular_Read Switch Page ,Switch page 0 or page 1,
opcode == 10 = 2 = page 0

Parameter： opcode == 0x10B = 2 DEC = page 0
opcode == 0x11B = 3 DEC = page 1

Command Code ： (0x2006)

Format :

AA BB , len1 len2 , 00 00 , 05 20 , opcode , xor
Sample ： aa bb , 06 00 ,00 00 ,06 20 , 02 , xor
Respond : aa bb len1 len2 , 00 00 , 06 20 , Status ,xor

void Reset_Command()

Function ： Reset R55x7 card ,Card should to be Power On mode

Command code ： (0x2007)

Format :

AA BB , len1 len2 , 00 00 , 07 20 , xor
Sample ： aa bb , 05 00 ,00 00 ,07 20 , xor
Respond : aa bb len1 len2 , 00 00 , 07 20 , Status ,xor

Unsigned char T55x7_Read(unsigned char length , unsigned char * Data)

Function : Read T5577 Card ; respond = 00 means read success ;

parameter: length , respond value ,Data length had been read , 4 or 4 multiples ,Max is 28 ;
***Data , Data of T5577 card ;**

Format :

AA BB , len1 len2 , 00 00 , 08 20 , xor
Sample ： aa bb , 05 00 ,00 00 ,08 20 , xor
Respond : aa bb len1 len2 , 00 00 , 08 20 , Status , …. xor
For example : below is a frame read cards 7blocks data:
aa bb 22 00 7b 00 08 20 00 66 66 66 66 55 55 58 88 33 33 37 77 44 44 88 88 55 99 45 67 12 34 56 78 77 77 77 77 25 (28bytes)

Except T55x7_Read Command, All other command respond just means command had sent to reader (or reader had pass to card), not means card had accept the command ;
For example: write command respond ok, just means write command sent to card ,
A continue read command to check whether the Write succeed.
Please refer to T5577 datasheet.

EM4200 compatible cards Read command

int WINAPI Read_Em4001(unsigned char * Data)

Function : Read an EM4200 (EM4100 Em4001 Tk4100 CR4100) Card , Respond 00 Read ok .

Parameter: None

Sample: aa bb 05 00 00 00 10 20 30

05 00 command length is 0x0005

00 00 Device number

10 20 Command code 0x2010

Respond : Fail aa bb 06 00 f2 78 10 20 14 ae

0x14 = 20 Error code

Succeed respond : aa bb 0b 00 f2 78 10 20 00 0a 00 94 56 51 23

0a 00 94 56 51 = 5byte card serial number ;

SYSTEM COMMAND

int WINAPI rf_beep(unsigned short icdev, unsigned char msec)

Set buzzer beep: 0x0106

Function ： beep

format ： aa bb 06 00 00 00 06 01 Delay XOR

Delay*10ms beep time ， XOR is xor check。

Sample ： Host to Reader : aa bb 06 00 00 00 06 01 64 63

Respond : aa bb 06 00 52 51 06 01 00 04

Set Led color : 0x0107

Host To Reader;

aa bb 06 00 00 00 07 01 03 05 // set Red&green LED on 。

Respond: aa bb 06 00 bf bf 07 01 00 06

Tenth data is LED parameter ,function as below :

0 = LED_RED Off , LED_GREEN Off

1 = LED_RED On , LED_GREEN = Off

2 = LED_GREEN Off , LED_RED On

3 = LED_GREEN On , LED_RED ON

All succeed command respond is 0x00 , other means fail .