**Serial port 485interface data protocols:**

1. Baud rate 9660bit/s
2. Serial port address /dev/s3c2410\_serial3
3. No check; 8 bit data; 1 bit check
4. Need set the device address before sending data, but the device address should be short one.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| content | 0xFE0xFE | | 05 | 00 | 02 |  |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address(start bit: 0) | Operational command | The device address that need to be set | The sum from byte 3 to byte 6 |
| Note Aa |  | | From byte 3 to byte 7 |  |  |  |  |

1. (1)display data

The host machine sends data to led controller through 485 interface, with protocols: Start byte, frame length except start byte, device address, operational command, starting point coordinates, font, font height, font color, the data or characters that need to be showed, and the sum except the start byte.

Font 1-6 means Songti, Xinwei, Xingkai, Zhuoyuan, Xingjian, black and thick

Font color 0-9 means: BLUE GRAY GREEN RED YELLOW MAGENTA CYAN WHITE BLACK DKGRAY

Format as following:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11-n | n+1 |
| content | 0xFE0xFE | |  |  | 0 | 0 | 0 |  |  |  |  |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address | Operational command | Starting point  X | Starting point Y | Font type | Font height | Show color | Show data | The sum from byte 3 to byte n |
| Note |  | | From byte 3 to byte n+1 |  |  |  |  |  |  |  |  |  |

For example: start byte 0xfe0xfe, 0x12 (data length),0x00 (device address),0x00(operational command),0x00 0x00（start point coordinate）0x01（font type（songti）），32（font height），0x01color（GREEN AND RED），山东微立方（the character need to be displayed），the bytes sum without 0xfe0xfe。

The return frame format after finishing show of data on led display:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| content | 0xFE0xFE | | 0x05 |  | 0x00 |  |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address | Operational command | Operation result | The sum from byte 3 to byte 6 |
| Note |  | | From byte 3 to byte 7 |  |  | 1 success；  0 failed |  |

（2）turn off display

Command of turn off：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 |
| content | 0xFE0xFE | | 0x04 |  | 0x01 |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address | Operational command | The sum from byte 3 to byte 5 |
| Note |  | | From byte 3 to byte 6 |  |  |  |

Return frame format after finishing

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| content | 0xFE0xFE | | 0x05 |  | 0x01 |  |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address | Operational command | Operation result | The sum from byte 3 to byte 6 |
| Note |  | | From byte 3 to byte 7 |  |  | 1 success；  0 failed |  |

1. Query address

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| byte | 1 | 2 | 3 | 4 | 5 | 6 |
| content | 0xFE0xFE | | 0x04 |  | 0x03 |  |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | Device address | Operational command | The sum from byte 3 to byte 5 |
| Note |  | | From byte 3 to byte 6 |  |  |  |

Return data：

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Content | 0xFE0xFE | | 0x06 |  | 0x03 |  |  | 0x05 |
| Meaning | Frame header | | All bytes without the 2 bytes frame header | The address that input currently | Operational command | The address setup by command | The address that read back | The sum from byte 3 to byte 7 |
| Note |  | | From byte 3 to byte 8 |  |  |  |  |  |