## 与ARM端的通信协议：

### 一包的通信格式：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # | 字长 | 字0 | 字1 | … | 字n | 校验位 | \n |

字长： 是指字1到字n的数目，即n。

校验位：暂时使用简单的累加和校验，即字0到字n全部累加后的值。以后可以考虑使用CRC校验。

### 命令字( 字0 )

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |
| R/W | ADDR 地址 | | | | | | |

最高是读写位，0表示读，1表示写。

|  |  |  |  |
| --- | --- | --- | --- |
| 地址 | 名称 | 格式 | 描述 |
| 0x00 | CMD\_MSG | 任意字长 | 发送字符信息 |
| 0x01 | CMD\_RESET |  |  |
| 0x02 | CMD\_ESTOP |  |  |
| 0x03 | CMD\_ACTIVATE |  |  |
| 0x04 | CMD\_START |  |  |
| 0x05 | CMD\_SET\_DDA |  |  |
| 0x06 | CMD\_GO\_HOME |  |  |
| 0x07 | CMD\_PT\_MODE | 字1表示哪个轴 |  |
| 0x08 | CMD\_RD\_DDA |  |  |
| 0xA0 | CMD\_RD\_MSTA |  |  |
| 0x0A | CMD\_RD\_MFIFO |  |  |
| 0x0B | CMD\_RD\_SRAM |  |  |
|  |  |  |  |
|  |  |  |  |

### 操作码，轴信号（字0）

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 轴8 | 轴7 | 轴6 | 轴5 | 轴4 | 轴3 | 轴2 | 轴1 |

1：表示该轴被选中，后面的数据从最小轴开始，没有选中的轴没有数据内容。以1、5轴的PT模式设置为例：

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # | Len | Cmd | Mark | | Position  Axis1 | | Time  Axis1 | | Position  Axis5 | | Time  Axis5 | | 校验位 |
| # | 18 | 0x06 | | 0x11 | xx | xx | xx | xx | xx | xx | xx | xx |  |

包长以及校验位都是针对这种褐绿色的字体，切记。

word == 16bit, 每一个单元格代表一个word。

Setdda

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # | Len | Cmd  16bit | Mark  16bit | Axis1’s  Position  32bit | | Axis1’s  Velocity  32bit | | Axis1’s  Acceleration  32bit | | Axis1’s  Jerk  32bit | | 校验位 |
| # | 18 | 0x06 | 0x03 | xx | xx | xx | xx | xx | xx | xx | xx |  |

Mark: 表示轴，这里就测试轴1.

setdda –1 pxx vxx axx jxx

-2 -3: 一三轴

-all：所以轴

reset

Reset： 复位电机

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Len | Cmd | Mark | Data | 校验位 |
| # | 3 | 0x01 | 0x01 | 0x01 |  |

reset -1

Activate: 激活电机

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Len | Cmd | Mark | Data | 校验位 |
| # | 3 | 0x04 | 0x01 | 0x01 |  |

activate -1

Start: 开始动作

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Len | Cmd | Mark | Data | 校验位 |
| # | 3 | 0x05 | 0x01 | 0x01 |  |

start -1

readdda 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | Len | Cmd | Mark | Data | 校验位 |
| # | 3 | 0x08 | 0x01 | 0x01 | xx |