**Communications Protocol between BeagleBone and Teensy:**

When the BeagleBone sends a command packet, the teensy will send a response packet. The Teensy will never initiate communications. Little Endian.

**BeagleBone -> Teensy**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Start Byte** | **Length** | **Command ID** | **Data** | **Checksum** |
| 1 byte | 1 byte | 1 byte | Variable | 1 byte |
| 0x5E | Data + Command ID + Checksum | See below | See Below | Sum of all bytes = 0xFF |

**Teensy -> BeagleBone**

|  |  |  |  |
| --- | --- | --- | --- |
| **Start Byte** | **Length** | **Response** | **Checksum** |
| 1 byte | 1 byte | Variable | 1 byte |
| 0x5E | Response + Checksum | See below | Sum of all bytes = 0xFF |

**Commands:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Command Name** | **Command ID** | **Parameter 1** | **Parameter 2** | **Response** |
| Ping | 0x01 |  |  | Empty |
| Enable | 0x02 |  |  | Empty |
| Disable | 0x03 |  |  | Empty |
| SetPWM | 0x04 | Channel (byte) | Pulse width in microseconds (int16) | Empty |
| GetAnalog | 0x05 | Channel (byte) |  | ADC value (10 bit, 0-1024) (int16) |
| GetVelocity | 0x06 | ID (byte) |  | RPM value (int16) |
| GetPosition | 0x07 | ID (byte) |  | Position (int32) |