PUART protocol

Notice

Choose one of A2DP sink and IAP2.

Firmware version	Description
1281.2.13	1.Update model num to PLDBEITO-02 2. add specification: Check status of P26 at startup time. P26 is high, As usual. P26 is low, Always transparent transmission of SPP/IAP2.
1283.1.7	Update model num to PLDBEITO-01
1281.2.12 1283.1.5	Delete command 1. Set ADV TX Power Add command 1. transport to SPP (without response)
1281.2.11 1283.1.4	Add command 1. query name of BLE 2. query BD address 3. query name of BR EDR

Protocol parameter

transport order	parameter name	byte	description
0	header	1	fixed value. 0xa5
1	index	1	index of each product's command. when the command doesn't care this param, you can use any.
2	conn_id	2	id of BLE's connection, or SPP's handle.
3	Product type	1	
4	command	2	
5	length	2	length of payload
6	payload	0~1024	data to transport
7	check	1	param order 0~6, XOR calculate

Transport method

Big-Endian

Command

MIDI

1. transport data of MIDI to device

MIDI Data I/O Characteristic (UUID:772E5DB-3868-4112-A1A9-F2669D106BF3) notification

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x01	0x0000		data of MIDI		true

2. response of transport data of MIDI to device

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x01	0x8000		0x00: success; 0x01: failed; 0x02: failed, notification is disable; 0x03: queue of command is out of range or command format is error, 0x04: check value is error		false

3. transport data of MIDI to module

MIDI Data I/O Characteristic (UUID:7772E5DB-3868-4112-A1A9-F2669D106BF3) write

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x01	0x0001		Send Data to PUART TX		false

BLE

1. transport data of BLE to device

transport data by UUID_BLE_AT_NOTIFY_DATA(UUID:5a87b4ef-3bfa-76a8-e642-92933c31434f) notification

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x02	0x0000		data		true

2. response of transport data of BLE to device

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x02	0x8000		0x00: success; 0x01: failed; 0x02: failed, notification is disable;		false

						0x03: queue of command is out of range or command format is error, 0x04: check value is error		

3. transport data to PUART TX from UUID_BLE_AT_WRITE_DATA(UUID: 2d86686a-53dc-25b3-0c4a-f0e10c8dee20)

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x02	0x0001		data		false

4. modify name of BLE

max 20 bytes

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x0002		name		true

5. response of modify name of BLE

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x8002		0x00: success; 0x01: failed;		false

						0x03: queue of command is out of range or command format is error, 0x04: check value is error 0x00: success;		

6. notification of the status of BLE's connection

get id of BLE's connection.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	id of BLE's connection	0x02	0x0003		0x00: connection up; 0x01: connection down;		false

7. Set ADV Interval

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x0004		Length=2, range [32, 16384] ie. Interval = [32, 16384]*0.625ms		true

8. Response of Set ADV Interval

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x8004		0x00: success		false
						0x03: length of payload < 2		

9. Set ADV User Data

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x0005		Max length 26 bytes		true

10.Response of Set ADV User Data

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x8005		0x00: success		false
						0x01: fail to write to the flash		
						0x03: length of payload is out of range		

11. query name of BLE

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x0006	0x0000			true

12. response name of BLE

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x02	0x8006		name of BLE		false

SPP/IAP2

1. transport to SPP

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	SPP's handle	0x03	0x0000		data		true

2. response of transport to SPP

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	SPP's handle	0x03	0x8000		0x00: success; 0x01: failed; 0x03: queue of command is out of range or command format is error, 0x04: check value is error		false

3. transport to PUART TX

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	SPP's handle	0x03	0x0001		data		false

4. status of SPP's connection

get SPP’s handle.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	SPP’s handle	0x03	0x0002		0x00: connection up; 0x01: connection down;		false

5. transport to SPP (without response)

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	SPP’s handle	0x03	0x0003		data		False

BR EDR

1. modify name of BR EDR

max 20 bytes

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x04	0x0000		name		true

2. response of modify name of BR EDR

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x04	0x8000		0x00: success; 0x01: failed; 0x03: queue of command is out of range or command format is error, 0x04: check value is error		false

3. query name of BR EDR

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x04	0x0001	0x0000	name		True

4. response name of BR EDR

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x04	0x8001		name of BR EDR		False

A2DP sink

1. status of A2DP sink

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x05	0x0000		0x00: connection success; 0x01: connection failed; 0x02: disconnected; 0x03: streaming started; 0x04: streaming suspended		false

System

1. Change the baud rate of PUART

e.g. current baud rate is 115200, send command to change baud rate to 9600, then you will receive the response in 115200 baud rate. The module

will delay about 150ms to change the baud rate after it receives this command.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0000		3 bytes (range 9600 to 3000000, include 9600, 3000000)		true

2. Response of Change the baud rate of PUART

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x8000		0x00: success; 0x01: failed; 0x03: queue of command is out of range or command format is error, 0x04: check value is error		false

3. Auto reconnect to the bond device (A2DP) when the module starts.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0001		0x01: enable; 0x00: disable.		true

4. Response of Auto reconnect to the bond device (A2DP) when the module starts.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x8001		0x00: success; 0x01: failed; 0x03: queue of command is out of range or command format is error, 0x04: check value is error		False

5. The initialization response of the module.

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0002		0x00: success; 0x01: failed;		False

6. Change the model to the transparent transmission of SPP/IAP2

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0003		Timeout (unit 1s)		true

7. Response of Change the model to the transparent transmission of SPP/IAP2

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x8003		0x00: success; 0x01: failed;		False

8. Shut Down Sleep（HID OFF)

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0004		No payload		False

Wake's pin is P30. Wake up on rising edge and then the module will restart.

9. Query BD address

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x0006	0x0000			true

10. Response of BD address

header	index	conn_id	product type	command	length	payload	check	With response
0xa5	User set	Not care	0x06	0x8006	0x0006	BD address		false

Use of param index

order	product type	command	index
0	0x04	0x00 00	0x01
1	0x04	0x80 00	0x01

when you send command order 0, you will get the response order 1.
When you get the response, it can find the corresponding request.

Example of Check calculate

header	index	conn_id	product type	command	length	payload
0xa5	0x01	0x00 00	0x04	0x00 00	0x00 02	0x59 59

0xa5 ^ 0x01 ^ 0x00 ^ 0x00 ^ 0x04 ^ 0x00 ^ 0x00 ^ 0x00 ^ 0x02 ^ 0x59 ^ 0x59 = 0xa2

check is 0xa2

Examples

1. MIDI

header	index	conn_id	product type	command	length	payload	check
0xa5	0x01	0x00 01	0x01	0x00 00	0x00 05	0x80 0x80 0x90 0x3c 0x3f	0x32
0xa5	0x01	0x00 01	0x01	0x80 00	0x00 01	0x00	0x25

send command 0 , receive response command 1.

2. BLE notification

header	index	conn_id	product type	command	length	payload	check
0xa5	0x01	0x00 01	0x02	0x00 00	0x00 05	0x80 0x80 0x90 0x3c 0x3f	0x31

0xa5	0x01	0x00 01	0x02	0x80 00	0x00 01	0x00	0x26

send command 0 , receive response command 1.

3. change name of BR EDR

header	index	conn_id	product type	command	length	payload	check
0xa5	0x01	0x00 00	0x04	0x00 00	0x00 02	0x59 59	0xa2
0xa5	0x01	0x00 00	0x04	0x80 00	0x00 01	0x00	0x21

send command 0 , receive response command 1.

4. Change baud rate

header	index	conn_id	product type	command	length	payload	check
0xa5	0x01	0x00 00	0x06	0x00 00	0x00 03	0x00 25 80	0x04
0xa5	0x01	0x00 00	0x06	0x80 00	0x00 01	0x00	0x23

Change to 9600