Uart Command Specification

Serial port connection protocol

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1. Serial data packet syntax:

Packet header	**5 Byte**
Data Packet	**n Byte (n>=0)**
Checksum (XOR sum)	**1 Byte**

2. Data packet header format:

	Fields	Length (bytes)	Remark
Message Header	Sync Byte(**sync_byte**)	1	0x47
	Packet Identify	2	
	Packet Length	2	**The total number of bytes in the packet** (Data Pack Total of header + packet body + checksum Number of bytes)

3. Packet Identify:

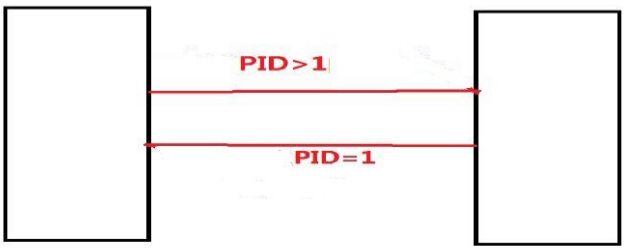
	PID(**Packet Identify**)	Description
Setting the backlight	0x0002	
Setting the contrast	0x0003	
Setting the volume	0x0004	
Standby	0x0008	
Power on	0x0009	
Setting the picture mode	0x000a	
Set color temperature	0x000c	
Setting up channels	0x000d	
Set Mute	0x000e	
Set image brightness	0x000f	
Set Saturation	0x0010	
Set the image tint	0x0011	
Device status query	0x0014	

4. Data Packet Example:

1. Response data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x14
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	none	0	01
checkand	Xor	1	0x55 (including message header)

[Note] After the motherboard sends the command and the receiver receives the data packet, it will send a response data packet as above.



2. Set the backlight data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x02
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Backlight value	1	The backlight value to be set
checkand	Xor	1	0xXX (including message header)

3. Set the contrast data package:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify	1	0x00
		1	0x03
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Contrast value	1	The contrast value to be set
checkand	Xor	1	0xXX (including message header)

4. Set the volume data package:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x04
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	volume	1	The volume value to be set
checkand	Xor	1	0xXX (including message header)

5. Standby data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x08
	Total length of data packet (Packet Length)	1	0x00
		1	0x06
Data Packet	none	0	No additional data required
checkand	Xor	1	0x49 (including message header)

6. Boot data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x09
	Total length of data packet (Packet Length)	1	0x00
		1	0x06
Data Packet	none	0	No additional data required
checkand	Xor	1	0x48 (including message header)

7. Set the image mode data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x0a
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Image Mode Value	1	The possible image mode values are: 0x01/0x02/0x03/0x04
checkand	Xor	1	0xXX (including message header)

【Note】4K03 image mode values are 01 (dynamic), 02 (standard), 03 (soft), and 04 (personal).

8. Set the color temperature mode data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x0c
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Color temperature mode	1	Color temperature mode value 0x00/0x01/0x02/
checkand	Xor	1	0xXX (including message header)

【Note】4K03 image mode value is 0 (representing cold color), 01 (representing normal color), 02 (representing warm color)

9. Set the channel data packet:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x0d
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Channel Value	1	Channel Value 0x03/0x04
checkand	Xor	1	0xXX (including message header)

【Note】4K03 channel value is 03 (representing HDMI1), 04 (representing HDMI2),

10. Set mute:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x0e
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Mute/Enable the sound	1	0x00 (MUTE) 0x01 (turn on the sound UNMUTE)
checkand	Xor	1	0xXX (including message header)

11. Set image brightness:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x0f
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Image brightness	1	The image brightness that needs to be set value
checkand	Xor	1	0xXX (including message header)

12. Set image saturation:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x10
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Image Saturation	1	Image saturation needs to be set Degree value
checkand	Xor	1	0xXX (including message header)

13. Set the image tone:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x11
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Image hue	1	The image hue to be set value
checkand	Xor	1	0xXX (including message header)

14. Equipment status query:

	Fields	length (Byte)	Remark
Data Packhead	Sync Byte (**sync_byte**)	1	0x47
	Packet Identification (Packet Identify)	1	0x00
		1	0x11
	Total length of data packet (Packet Length)	1	0x00
		1	0x07
Data Packet	Query Status	1	Query status: 0x01-0x09
checkand	Xor	1	0xXX (including message header)

[Note] Status 0x01-0x09 corresponds to working status, volume, image mode, color temperature mode, image brightness, image saturation, and image hue respectively; for specific data packets, please refer to the end of the document

5. Specific Function Data Pack

Set up standby and power-on data packets (**The following data packets are all in hexadecimal**):

Shutdown command: 47 00 08 00 06 49

Power on command: 47 00 09 00 06 48

Backlight brightness

Backlight Brightness0 :47 00 02 00 07 00 42

Backlight Brightness10 :47 00 02 00 07 0a 48

Backlight Brightness20 :47 00 02 00 07 14 56

Backlight Brightness30 :47 00 02 00 07 1e 5c

Backlight Brightness40 :47 00 02 00 07 28 6a

Backlight Brightness50 :47 00 02 00 07 32 70

Backlight Brightness60 :47 00 02 00 07 3c 7e

Backlight Brightness70 :47 00 02 00 07 46 04

Backlight Brightness80 :47 00 02 00 07 50 12

Backlight brightness 90 :47 00 02 00 07 5a 18

Backlight brightness 100 :47 00 02 00 07 64 26

Volume Settings

Volume 10: 47 00 04 00 07 0A 4E
Volume 20: 47 00 04 00 07 14 50
Volume 30: 47 00 04 00 07 1E 5A
Volume 40: 47 00 04 00 07 28 6C
Volume 50: 47 00 04 00 07 32 76
Volume 60: 47 00 04 00 07 3C 78
Volume 70: 47 00 04 00 07 46 02
Volume 80: 47 00 04 00 07 50 14
Volume 90: 47 00 04 00 07 5A 1E
Volume 100: 47 00 04 00 07 64 20

Image Mode

dynamic : 47 00 0a 00 07 01 4B (Image mode status query status is 0)

standard : 47 00 0a 00 07 02 48 (Image mode status query status is 1)

soft : 47 00 0a 00 07 03 49 (Image mode status query status is 2)

personal : 47 00 0a 00 07 04 4E (Image mode status query status is 3)

Mute settings

Mute : 47 00 0e 00 07 00 4E

UnMute: 47 00 0E 00 07 01 4F

Color temperature mode

Cool: 47 00 0c 00 07 01 4D (The color temperature mode status query status is 0)
Normal: 47 00 0c 00 07 02 4E (Color temperature mode status query status is 1)
Warm: 47 00 0c 00 07 03 4F (Color temperature mode status query status is 2)

Set up the channel data packet:

Set the channel to HDMI1: 47 00 0d 00 07 03 4E Set the channel to HDMI2: 47 00 0d 00 07 04 49

Image brightness:

1: 47 00 0f 00 07 01 4E 40: 47 00 0f 00 07 28 67 50: 47 00 0f 00 07 32 7D 60: 47 00 03 00 07 3c 7F 100: 47 00 0f 00 07 64 2B

Image Saturation:

1: 47 00 10 00 07 01 51 40: 47 00 10 00 07 28 78 50: 47 00 10 00 07 32 62 60: 47 00 10 00 07 3c 6c 100: 47 00 10 00 07 64 3 4

Image tint:

1: 47 00 11 00 07 01 50 40: 47 00 11 00 07 28 79 50: 47 00 11 00 07 32 63 60: 47 00 11 00 07 3c 6d 100:47 00 11 00 07 64 3 5

Contrast ratio:

1: 47 00 03 00 07 01 42
40: 47 00 03 00 07 28 6B
50: 47 00 03 00 07 32 71 60: 47 00 03 00 07 3c 7F 100: 47 00 03 00 07 64 27

Status query:

Working status :47 00 14 00 07 01 55 :47
volume 00 14 00 07 02 56 :47 00
Backlight 14 00 07 03 57 :47 00 14
Image Mode 00 07 04 50 :47 00 14 00
Color temperature mode 07 05 51
Image contrast: 47 00 14 00 07 06 52

Image Brightness: 47 00 14 00 07 07 53
Image Saturation: 47 00 14 00 07 08 5c
Image Hue: 47 00 14 00 07 09 5d

6. Serial port configuration of host and display motherboard

1. Baud rate and other parameter settings:

Baud rate: 38400
Data bits: 8 bits
Stop bit: 1 bit
Parity: None.