HiFastPlay

User Guide

Issue **04**

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About This Document

Purpose

This document describes how to create the startup image and fastplay image by using the HiFastPlay.

Related Versions

The following table lists the product versions related to this document.

Product Name	Version
Hi3716C	V200
Hi3719C	V1XX
Hi3719M	V1XX
Hi3718C	V1XX
Hi3718M	V1XX
Hi3716M	V4XX
Hi3796M	V1XX
Hi3798M	V1XX
Hi3798C	V1XX
Hi3798C	V2XX
Hi3751	V8XX
Hi3751	V6XX
Hi3751	LV5XX

Intended Audience

This document is intended for:

- Technical support personnel
- Software development engineers

Change History

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made in previous issues.

Issue 04 (2015-04-30)

This issue is the fourth official release, which incorporates the following changes:

Hi3798C V200 is supported.

Issue 03 (2014-11-06)

This issue is the third official release, which incorporates the following changes:

The Hi3751 series are supported.

Issue 02 (2014-10-31)

This issue is the second official release, which incorporates the following change:

Hi3796M V100 and Hi3798M V100 are supported.

Issue 01 (2014-05-20)

This issue is the first official release.

Chapter 2 GUI and Function Description

Sections 2.13, 2.14, and 2.15 are modified.

Issue 00B01 (2013-08-09)

This issue is the first draft release.

Contents

Figures

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1 Overview

1.1 Terms and Definitions

- Startup image

  A still image displayed when the boot has started but the kernel has not.
- Fastplay

  A service for playing audio, video, or animation after the kernel has started but no application is started. Three fastplay modes are available, including digital video broadcasting (DVB), transport stream (TS) playing in local mode, and TS playing in animation mode.
- Basic parameter

  A parameter related to audio or video output

1.2 Functions

The HiFastPlay can be used to create the following images:

- Basic parameter image
- Startup image
- JPEG fastplay image in animation mode
- Fastplay image in DVB mode
- Fastplay image for TS playing in local mode

1.3 Environment Preparation

To establish the operation environment for the HiFastPlay, perform the following steps:

Step 1 Copy **HiTool-STB-X.X.X.zip** (in the **$SDK_DIR/ tools/windows/HiTool** directory) from the software development kit (SDK) to a local hard disk on the PC that runs Microsoft Windows 7 or XP.

Step 2 Ensure that JRE 1.6 (jre-6u1-windows-i586-p) or later is preinstalled on the PC. Otherwise, the HiTool cannot run properly. You can download JRE 1.6 from

http://www.oracle.com/technetwork/java/javase/downloads/java-archive-downloads-javase6-419409.html.

Step 3 Decompress **HiTool-STB-X.X.X.zip** and double-click **HiTool.exe**.

Step 4 Select a chip, for example, **Hi3716CV200**, and click **HiFastPlay**. The HiFastPlay GUI is displayed, as shown in Figure 1-1.

Figure 1-1 HiFastPlay GUI

----End

2 GUI and Function Description

2.1 Base Setting Tab Page

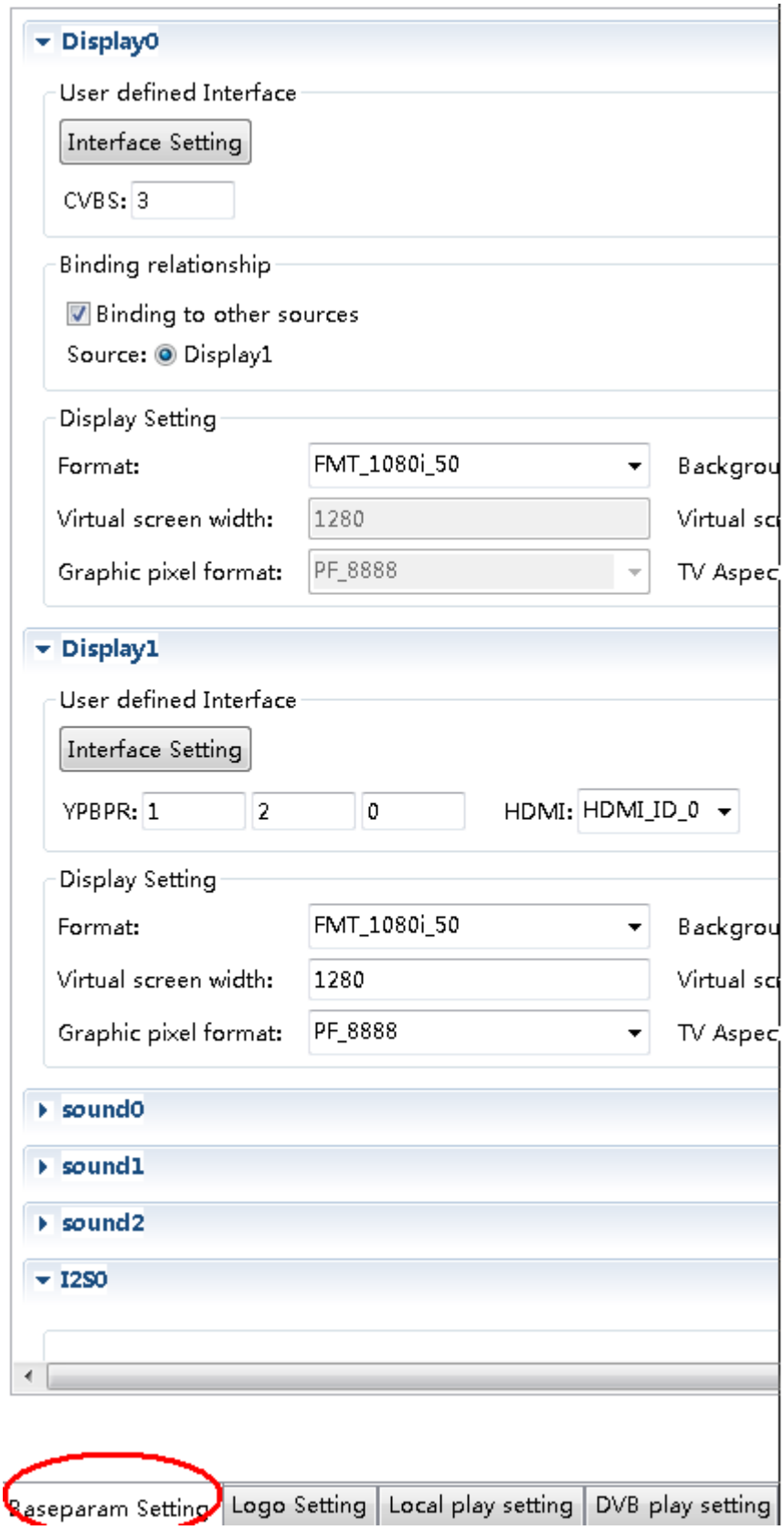
Figure 2-1 shows the **Base Setting** tab page. To create a basic parameter image on the **Base Setting** tab page, perform the following steps:

Step 1 Click **Baseparam Setting** in the lower left corner, as shown in Figure 2-1.

Step 2 Configure user-defined interfaces. For details, see section 2.1.1 "Configuring User-Defined Interfaces." Set other parameters on the **Baseparam Setting** tab page and click **Create**.

Step 3 Enter a file name in the displayed dialog box and save the image.

Figure 2-1 Baseparam Setting tab page



----End

2.1.1 Configuring User-Defined Interfaces

To configure a user-defined interface, perform the following steps:

Step 1 Click **Interface Setting**, as shown in Figure 2-2.

Step 2 Move the user-defined interfaces to be configured from the left pane to the right pane, as shown in Figure 2-3. When you click a single arrow button, one interface is moved. When you click a double arrow button, all interfaces are moved.

Step 3 Click **OK**. The selected interfaces are displayed on the HiFastPlay.

Figure 2-2 Interface Setting button

Figure 2-3 User-defined interfaces

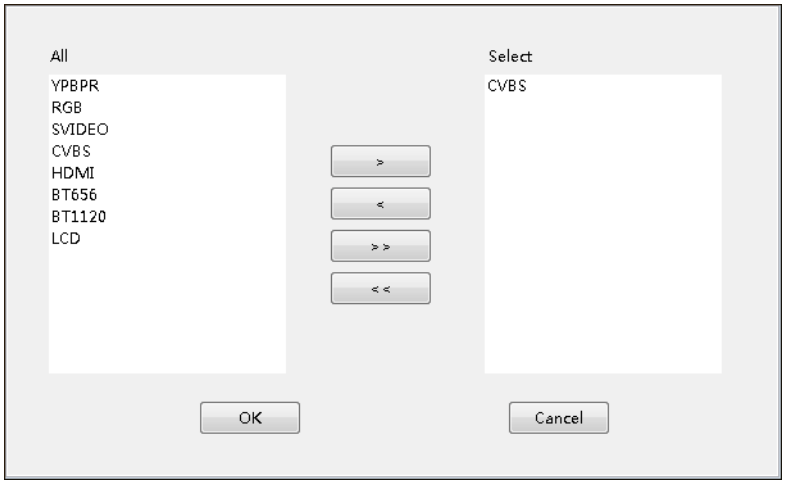


Table 2-1 describes the parameters for configuring user-defined interfaces.

Table 2-1 Parameter description

Parameter	Description	Remarks
Display	Video display channel	You can bind Display0 to Display1. To bind Display0 to Display1, select **Binding to other sources**, as shown in Figure 2-4. The interfaces for different display channels may be varied.
Format	Display format	You can select a value from the drop-down list box.

Parameter	Description	Remarks
Background color	Background color	The background color is configured in the RGB sequence, for example, **0xFF00EE**. **FF** indicates the 8-bit R component, **00** indicates the 8-bit G component, and **EE** indicates the 8-bit B component.
Hueplus	Hue	The value ranges from **0** to **100**.
Saturation	Saturation	The value ranges from **0** to **100**.
Contrast	Contrast	The value ranges from **0** to **100**.
Brightness	Brightness	The value ranges from **0** to **100**.
Y PB PR	IDs of DACs corresponding to the Y, Pb, and Pr components	Select **Y PB PR** and enter the IDs of DACs corresponding to the Y, Pb, and Pr components. For details, see Step 2 in section 2.1 "Base Setting Tab Page." Ensure that the IDs of DACs are different from those for other interfaces.
R G B	IDs of DACs corresponding to the R, G, and B components	Select **R G B** and enter the IDs of DACs corresponding to the R, G, and B components. For details, see Step 2 in section 2.1 "Base Setting Tab Page." Ensure that the IDs of DACs are different from those for other interfaces.
CVBS	ID of the DAC corresponding to the CVBS	Select **CVBS** and enter the ID of the DAC corresponding to the CVBS. For details, see Step 2 in section 2.1 "Base Setting Tab Page." Ensure that the ID of the DAC is different from that for other interfaces.
SVIDEO	IDs of DACs corresponding to the separate video (S-video)	Select **SVIDEO** and enter the IDs of DACs corresponding to SVIDEO-Y and SVIDEO-C. For details, see Step 2 in section 2.1 "Base Setting Tab Page." Ensure that the ID of the DAC is different from that for other interfaces.
Graphic Pixel Format	Pixel format of the graphics layer	You can select a value from the drop-down list box. Currently the startup image supports two pixel formats: **ARGB1555** and **ARGB8888**.
Virtual Screen width	Width of the virtual screen	You can manually enter a value. The value ranges from **480** to **3840**.
Virtual Screen Height	Height of the virtual screen	You can manually enter a value. The value ranges from **480** to **3840**.
Offset(Left)	Left offset on the screen	You can manually enter a value. The value ranges from **0** to **200** and is a multiple of 2.
Offset(Top)	Top offset on	You can manually enter a value.

Parameter	Description	Remarks
	the screen	The value ranges from **0** to **200** and is a multiple of 4.
Offset(Right)	Right offset on the screen	You can manually enter a value. The value ranges from **0** to **200** and is a multiple of 2.
Offset(bottom)	Bottom offset on the screen	You can manually enter a value. The value ranges from **0** to **200** and is a multiple of 4.
AspectRatio	Aspect ratio of a display device, for example, TV	You can select a value from the drop-down list box. When **USER CONFIG** is selected, you need to set an aspect ratio.
Sound	Audio output channel	Configure audio output devices. For example, configure SPDIF0, DAC0, HDMI, and I2S0 (connected to an external codec) for sound0, as shown in Figure 2-5. For details, see section Table 2-1"Parameter description." DAC0 must be selected for sound0. The audio recycle (ARC) function is reserved.
SPDIF	Sony/Philips digital interface (SPDIF) for audio output	Select the SPDIF bound to the audio channel. Ensure that one SPDIF is bound only to one audio channel.
DAC	DAC interface for audio output	Select the DAC interface bound to the audio channel. Ensure that one DAC interface is bound only to one audio channel.
HDMI	HDMI for audio output	Select the HDMI bound to the audio channel. Ensure that one HDMI is bound only to one audio channel.
ARC	ARC interface for audio output	Select the ARC interface bound to the audio channel. The ARC function is reserved.
I^2S	Parameter settings of the I^2S interface	Set parameters for the I2S interface. The I2S interface can be set to the I2S or PCM mode. The configuration mode is determined by the connected device. Each sound channel supports only one I^2S interface currently.
I2SMODEL	Mode of the I^2S interface	You can select a value.
MCLK	Master clock of the I^2S interface	You can select a value. The value is 128–1024 times of **FS**. 256FS is recommended.
BCLK	Bit clock of the I^2S interface	You can select a value. The value is the master clock divided by a value ranging from 1 to 61 (4 is recommended).

Parameter	Description	Remarks
CHNUM	Number of channels for the I^2S interface	You can select a value. Only dual channels are supported.
DITDEPTH	Data bit width for the I^2S interface	You can select a value. The 16-bit width is recommended.
PCMODELAY	PCM timeslot	You can select a value. This parameter is available only in PCM mode and is determined by the connected device.
MASTER	Master/slave mode of the I^2S interface	You can tick the corresponding option.
PCMRISEEDGE	PCM sampling on the rising edge	You can tick the corresponding option. This parameter is available only in PCM mode and is determined by the connected device.

Figure 2-4 Binding to other sources

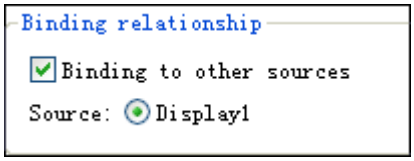


Figure 2-5 Selecting an audio output device

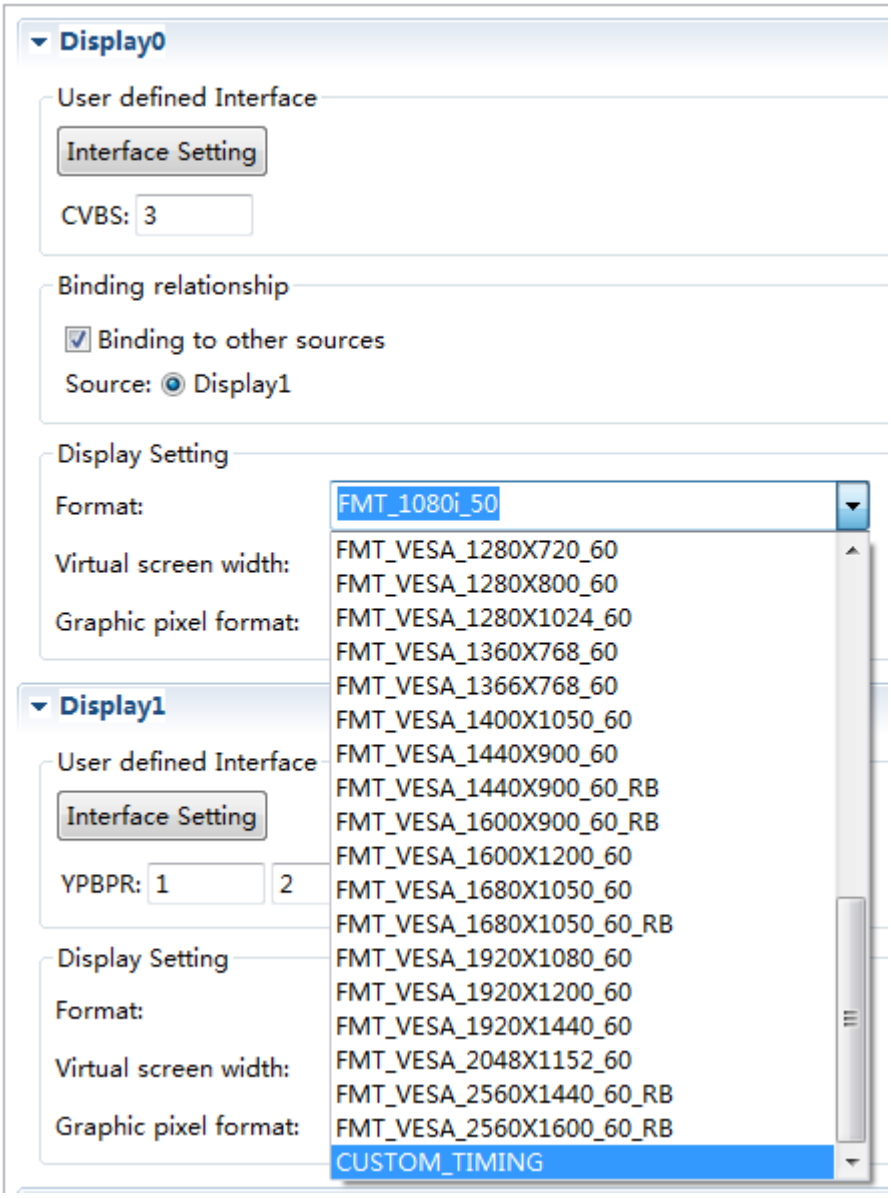
----End

2.1.2 Configuring User-Defined Formats

To configure a user-defined format, perform the following steps:

Step 1 Select **CUSTOM_TIMING** from the **Format** drop-down list, as shown in Figure 2-6.

Figure 2-6 Selecting CUSTOM_TIMING



Step 2 Set the parameters on the CUSTOM TIMING SET page, as show in Figure 2-7.

Figure 2-7 Setting parameters

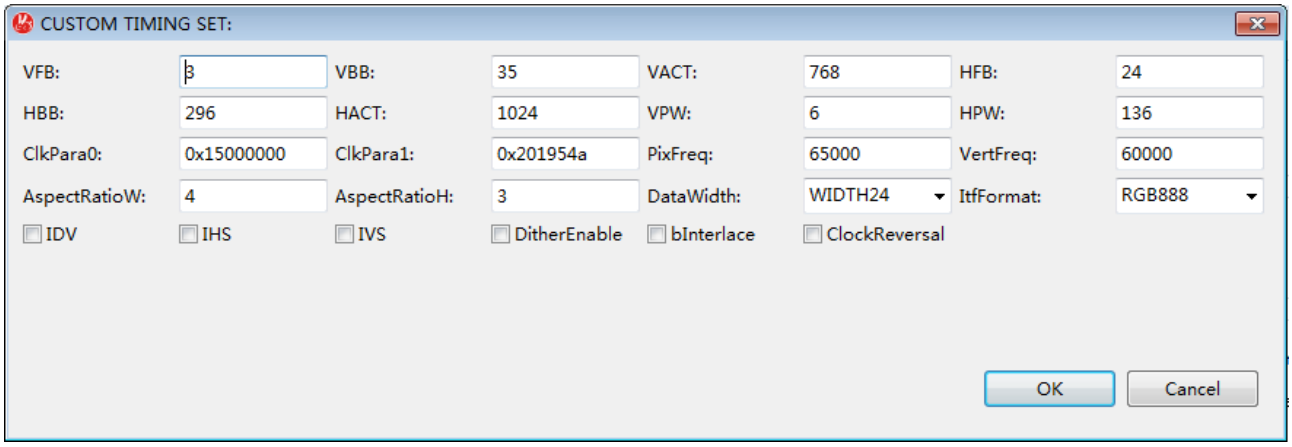


Table 2-2 describes parameters for user-defined formats.

Table 2-2 Parameters for user-defined formats

Parameter	Description	Remarks
VFB	Vertical front blanking	Manual input
VBB	Vertical back blanking	Manual input
VACT	Vertical active region	Manual input
HFB	Horizontal front blanking	Manual input
HBB	Horizontal back blanking	Manual input
HACT	Horizontal active region	Manual input
VPW	Vertical pulse width	Manual input
HPW	Horizontal pulse width	Manual input
ClkPara0	PLL SC_VPLL1FREQCTRL0 register	Manual input
ClkPara1	PLL SC_VPLL1FREQCTRL1 register	Manual input
PixFreq	Pixel clock	Manual input
VertFrep	Refresh rate	Manual input
AspectRatioW	Screen width	Manual input
AspectRatioH	Screen height	Manual input
DataWidth	Data width	Select
ItfFrormat	Data format	Select
IDV	Whether to reverse valid data signals	Select
IHS	Whether to reverse horizontal synchronization pulse signals	Select

Parameter	Description	Remarks
IVS	Whether to reverse vertical synchronization pulse signals	Select
DitherEnable	Data format	Select
bInterlace	Progressive or interlaced	Select
ClockReversal	Whether to reverse the clock	Select

----End

2.2 Logo Setting Tab Page

Figure 2-8 shows the **Logo Setting** tab page. You can create a startup image on this tab page. The created startup image is burnt to the logo partition in the bootargs information. To create a startup image on the **Logo Setting** tab page, perform the following steps:

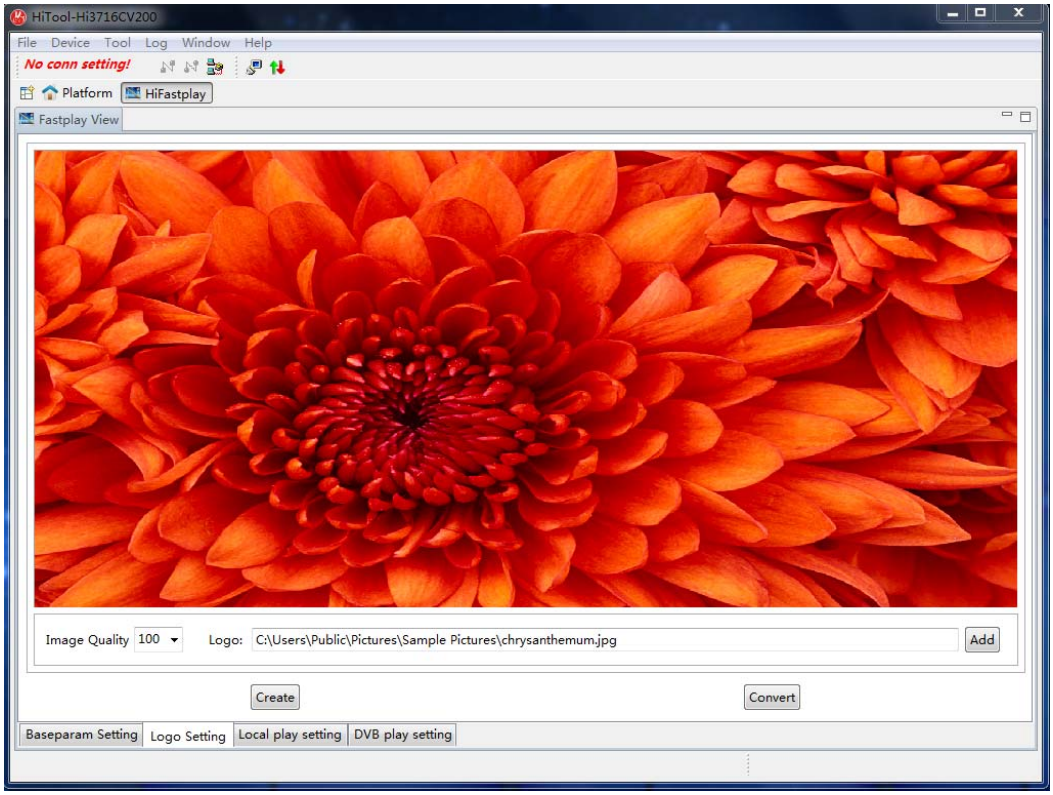
Step 1 Click **Logo Setting**.

Step 2 Click **Add** and select an image in the displayed dialog box. You can view the selected image.

Step 3 Select a value from the **Image Quality** drop-down list.

Step 4 Click **Create**, and enter a file name in the displayed dialog box to save the image.

Figure 2-8 Logo Setting tab page



----End

You can also convert a non-JPG image into a JPG image on the **Logo Setting** tab page. Perform the following steps:

Step 1 Click **Add** and select an image in the displayed dialog box. The image is displayed in the Fastplay view.

Step 2 Select a value from the **Image Quality** drop-down list.

Step 3 Click **Convert**, and enter a file name in the displayed dialog box to save the converted image.

----End

2.3 DVB play setting Tab Page

Figure 2-9 shows the **DVB play setting** tab page. You can create a DVB fastplay image on this tab page. The created DVB fastplay image is burnt to the fastplay partition in the bootargs information. To create a DVB fastplay image on the **DVB play setting** tab page, perform the following steps:

Step 1 Click **DVB play setting**.

Step 2 Set **Lock frequency parameter** and **Play parameter** and click **Create**.

Step 3 Enter a file name in the displayed dialog box and save the image.

Figure 2-9 DVB play setting tab page

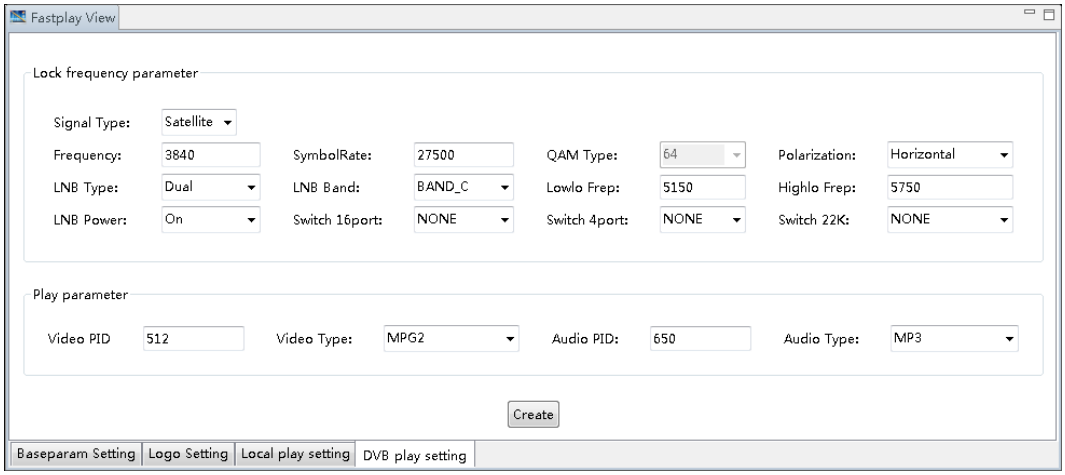


Table 2-3 describes the parameters on the **DVB play setting** tab page.

Table 2-3 Parameters on the **DVB play setting** tab page

Parameter	Description	Remarks
Signal Type	Signal type	The DVB fastplay signal can be the satellite or cable signal. Check the signal input supported by the board.

Parameter	Description	Remarks
Frequency	Frequency	The unit is MHz.
SymbolRate	Symbol rate	The unit is kbit/s.
QAM Type	QAM mode	This parameter is valid only when **Signal Type** is **Cable**.
Polarization	Polarization mode	This parameter is valid only when **Signal Type** is **Satellite**.
LNB Type	Low-noise block downconverter (LNB) type	This parameter is valid only when **Signal Type** is **Satellite**.
LNB Band	LNB wave band	This parameter is valid only when **Signal Type** is **Satellite**.
Lowlo Frep	LNB low local oscillator frequency	The unit is MHz. This parameter is valid only when **Signal Type** is **Satellite**.
Highlo Frep	LNB high local oscillator frequency	The unit is MHz. This parameter is valid only when **Signal Type** is **Satellite**.
LNB Power	LNB power control	This parameter is valid only when **Signal Type** is **Satellite**.
Switch 16port	Switch16	This parameter is valid only when **Signal Type** is **Satellite**.
Switch 4port	Switch4	This parameter is valid only when **Signal Type** is **Satellite**.
Switch 22K	Switch22K	This parameter is valid only when **Signal Type** is **Satellite**.
Video PID	Video PID	The value ranges from 0 to 8192 (not including 0 or 8192).
Video Type	Video protocol type	Only the MPEG2, MPEG4, and H.264 protocols are supported.
Audio PID	Audio PID	The value ranges from 0 to 8192 (not including 0 or 8192).
Audio Type	Audio protocol type	Only the MP2 and MP3 protocols are supported.

----End

2.4 Local play setting Tab Page

Figure 2-10 shows the **Local play setting** tab page. You can create an animation image (**Jpeg**) or a TS type local play image (**TS**) on this tab page. The maximum size of the image is 50 MB. The created image is burnt to the fastplay partition in the bootargs information. To create an image on the **Local play setting** tab page, perform the following steps:

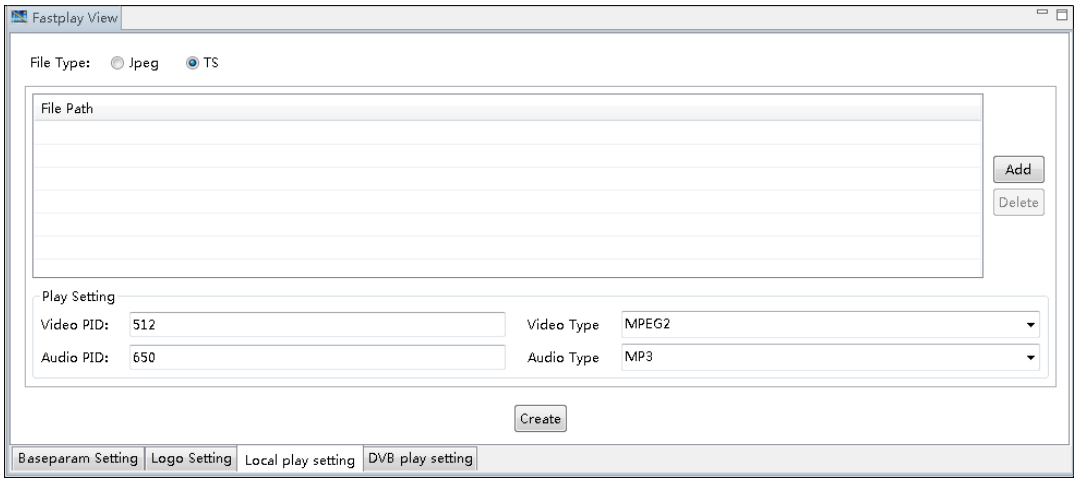
Step 1 Click **Local play setting**.

Step 2 Select **Jpeg** or **TS**. When **TS** is selected, set the play attributes. When **Jpeg** is selected, set the play duration for each JPEG picture.

Step 3 Click **Create**.

Step 4 Enter a file name in the displayed dialog box and save the image.

Figure 2-10 Local play setting tab page



----End

Table 2-4 describes the parameters on the **Local play setting** tab page.

Table 2-4 Parameters on the Local play setting tab page

Parameter	Description	Remarks
Delay	Display duration for each JEPG picture	The unit is ms.
Video PID	Video PID	The value ranges from 0 to 8192 (not including 0 or 8192).
Video type	Video protocol type	Only the MPEG2, MPEG4, and H.264 protocols are supported.
Audio PID	Audio PID	The value ranges from 0 to 8192 (not including 0 or 8192).
Audio type	Audio protocol type	Only the MP2 and MP3 protocols are supported.