



## RTD SDK Release Notes and Version History

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**Last Version:** 2.4, Build 220

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## 1. About this Document

This document provides you with the new features included in RTD SDK 2.4 build 220. It also includes a release history of RTD SDK starting with version 2.1 and a list of Get/Set parameters updated to version 2.4 build 220.

### 1.1. Installing Software and Hardware

This section explains how to install RTD SDK 2.4 (Build 220) and your VideoPlex decoding board.

RTD SDK automatically installs necessary drivers when running an application on top of it. To properly install hardware and software, refer to the instructions below.

#### To install VideoPlex boards under Windows 98:

1. Make sure that your PC is switched off and install the VideoPlex board as explained in the associated installation guide.
2. Switch your PC on again; the Hardware wizard appears with the message **New Hardware found**.
3. Insert the RTD SDK CD and follow the on-screen instructions; you will be asked for the folder where the Windows 98 drivers reside.
4. On the RTD SDK CD, navigate to **Win98** and click **OK**; the Windows 98 drivers for the installed VideoPlex boards are installed.
5. If you did not yet install RTD SDK, move up to the RTD SDK folder and run **Setup**; RTD SDK 4.0 (Build 220) is installed.

#### To install VideoPlex boards under Windows NT:

- For instructions on how to install a VideoPlex board in your PC, refer to the associated installation guide.

#### To install VideoPlex boards under Windows 2000 Professional:

1. Make sure that your PC is switched off and install the VideoPlex board as explained in the associated installation guide.
2. Switch your PC on again; the Hardware wizard appears with the message **New Hardware Device found, PCI Multimedia Device**.
3. Click **Cancel**; your system is now ready to install Optibase's software with Windows 2000 drivers.

#### To install RTD SDK 2.4, Build 220:

1. Insert the RTD SDK CD and navigate to the RTD SDK folder.
2. Run **Setup** and follow the on-screen instructions; RTD SDK is installed and the required Windows 2000 driver has been added, if you installed RTD SDK under Windows 2000 Professional.

### 1.2. *New in 2.4, Build 220 (since Build 217)*

- Support for Windows 2000 Plug-and Play.
- Supports **CL\_RecentSTC33**, **CL\_RecentSTC**. For detailed information, refer to **Get/Set Parameters**.
- The number of OSD blocks in PAL has been increased to 5. Previously, 4 OSD have been available.

### 1.3. *Fixed in 2.4, Build 220 (since Build 217)*

For a list of known bugs, refer to **Known Bugs** under **Version 2.4 (Build 217)**.

- **Random Access**, **Current Frame Report** and **Current Play Time Report** are now frame accurate.

### 1.4. *Get/Set Parameters*

- **CL\_RecentSTC33**, **CL\_RecentSTC** remains supported.

Parameter Name	Value	Type	Description
CL_RecentSTC (repeated)	LONG VALUE	Get	Returns a pointer to a 24-bit value. The pointer provided should be pointing to a 32-bit integer.
CL_RecentSTC33	64-bit integer	Get	Returns a pointer to a 33-bit value. The pointer provided should be pointing to a 64-bit integer.

## 2. Version 2.4, Build 217

Version 2.4 is a maintenance version for the new VideoPlex boards. Version 2.4 is required for the VideoPlex boards supporting the new microcode CS4922. For all other VideoPlex boards, it is optional.

### 2.1. Introduction

- The RTD SDK supports these Optibase MPEG-2 decoders:
  - VideoPlex PCI
  - VideoPlex EISA
  - VideoPlex-PRO (Closed Caption)
  - VideoPlexYUV (VideoPlex with Component video output)
  - **Note** that the RTD SDK does not support VideoPlex XPress decoding boards. These boards require the VPXP SDK.

### 2.2. New in 2.4, Build 217

- Supports VideoPlex Pro CE board for Japanese NTSC.
- Supports VideoPlex Pro PAL CE board for Europe.
- Supports new microcode for boards with revised audio chip (CS4922)(0x2111, 0x2520, 0x2560, 0x2531).
- OSD buffer loading module
- OSD converting module
- **rtdSlide** module for image loading from buffers.
- TGA to YBR buffer converting module. This **rtdUtils** module is provided as is and provides a conversion utility from TGA files to their YBR equivalent, which is useful for slide show applications. The function is defined in **rtdUtils.h** and implemented in **rtdUtils.dll**.
- Audio delay capability
- **rtdSetParams( , AUDIO\_DELAY , val)**
- Extended CC/ESD display option
- Miscellaneous Get/Set parameters; for further information, refer to **Get/Set Parameters**.
- Improving the RT\_EOF\_VIDEO message precision when working in HIGH\_STD mode.  
**Note:** No change for **RT\_EO\_CUR\_FILE** as the buffer will fill again immediately.
- Demo Application: enable/disable controls enabling depend on availability of:
  - Component/RGB support
  - Closed Caption Support
  - GenLock operative
- Adds **rtdGetParam( , BOARD\_NAME, pBuffer)** , fill the buffer with a description of the board.
- Adds command **rtdSetParam( , CL\_INIT, NULL)**, enable user to initiate the Video decoder in case of problems.
- Transition Control

## 2.3. Features in Detail

- OSD Buffer Loading Module.
- Supports VideoPlex Pro PAL CE board for Europe.
  - Until now the only way to load OSD images was an **rtdOsdFileLoad()** that needed a file name of a pre-created (and saved ) OSD file.
  - The function still exists.
  - As of now, you can use the new function to load an OSD buffer to the VideoPlex in real-time.
  - The function is defined in **Osd.h** and implemented in **rtdSdk.dll**.

```
short rtdOsdLoadBuff( ushort nBoardNum, short sBlkNum,
                     BYTE *pOsdImageBuffer, long OsdImageBufferLen,
                     SHORT Xpos, SHORT Ypos);
```

- The behavior matches the one for **rtdOsdLoadFile()** except for the parameters.
  - All previous functionalities, including the previous OD Loading API, are still supported and do not require recompilation.
- OSD conversion module
    - Until now the only way to create OSD images was an application providing a GUI supplied with VideoPlex tools. This utility was and is used to convert Bitmap files to OSD files with a readable interface.
    - Now you can use the new function to convert a BMP buffer to an OSD buffer in real-time.
    - This function is defined in **rtdUtils.h** and implemented in **rtdUtils.dll**.

This utility is provided as follows:

```
short
rtdUtilsBmp2OsdBuff(LPBYTE BMPBuffer, long BMPBufferLen, // Bitmap buffer
                   LPBYTE OSDBuffer, long OSDBufferLen, // Osd buffer
                   long* OsdLen, // actual len filled [OUT]
                   OSD_TRANSPARENCY_PERCENT* pTransparencyValue);
```

- The pTransparencyValue can be Null to use the default Transparency values or an array from the type of **OSD\_TRANSPARENCY\_PERCENT**. The size of this array must match the color number. Each entry represents a transparency level need for this color.

```
#define NUMBER_OF_COLOR_ON_MY_BITMAP 16
OSD_TRANSPARENCY_PERCENT TransparencyValue[NUMBER_OF_COLOR_ON_MY_BITMAP];
TransparencyValue[0] = OSD_TRANSPARENCY_PERCENT_100;
TransparencyValue[1] = OSD_TRANSPARENCY_PERCENT_25;
TransparencyValue[2] = OSD_TRANSPARENCY_PERCENT_0;
TransparencyValue[3] = OSD_TRANSPARENCY_PERCENT_0;
.
.
.
TransparencyValue[15] = OSD_TRANSPARENCY_PERCENT_0;
rtdUtilsBmp2OsdBuff( , , , , &TransparencyValue);
```

- Now it is easy to create a simple function to directly load a Bitmap file (instead of loading the OSD file first). This functionality will look as follows:

```
short sBlkNum = 0; // first block
CFile BMPFile;
long ActualLength = 0;

BMPFile.Open("bmpfile.bmp")
bmp_buf_size = m BMPFile.GetLength();
osd_buf_size = (bmp_header.biWidth * bmp_header.biHeight) / 8;
osd_buf_size *= 3; // make room for headers and so, just to make sure

BMPBuff = new UCHAR[bmp_buf_size]; // allocate space for data buffers
OSDBuff = new UCHAR[osd_buf_size]; // allocate space for data buffers

m_BMPFile.Read(BMPBuff, bmp_buf_size);

s= rtdUtilsBmp2OsdBuff(BMPBuff, bmp_buf_size, OSDBuff, osd_buf_size, &ActualLength,
NULL);
if (s) {
    char buff[500];
    rtdUtilsPrintErr(buff, 500);
}
```

```

        MessageBox(buff,MB_OK);
        return;
    }
    s= rtdOsdLoadBuff(nBoardNum, sBlkNum, OSDBuff, ActualLength, 100, 50);
    if (s) {
        char buff[500];
        rtdPrintErr(buff,500);
        MessageBox(hDlg,szErrorBuffer,"Error report",MB_ICONSTOP);
    }
    delete BMPBuff;
    delete OSDBuff;

```

- rtdSlide module for image loading from buffers
  - The new rtdSlide module enables a fast switch between images that the application can load an image without causing the screen to go blank.
  - A new header (**rtdSlide.h**) is provided with a new set of functions supporting it.
  - This header also enables the application to trade off the loading speed against the audio bit-rate at which you can play while loading. The appropriate loading speed enables playing streams with up to 384 Kbps while loading.
  - All previous functions including the previous image loading API are still supported and do not require recompiling the application code.

Function Name	Description
rtdSlideInit	Initializes the image module
rtdSlideTerm	Terminate Slide loading
rtdSlideLoad	Loads buffer (in YBR format) to the VideoPlex frame buffer.
rtdSlideShow	Switched to a loaded frame buffer
rtdSlideIndex	Retrieve the current frame buffer Index
rtdSlideGrab	Grab a the currently visible VideoPlex frame

- Sample Applications
  - **Callback**                      Demonstrates the callback option
  - **Mpegplay**                      Auto Detect demonstration of the MPEG clips that use the rtdFileInfo in a console application.
  - **Playbuf**                        Demonstrates low-level buffer calling.
  - **PlayerDemo**                    The demo application Mpeg2Play source code.
  - **VbMpg2ply**                      Visual basic demo - Visual basic DLLs should be installed first.

## 2.4. *Fixed in 2.4, Build 217*

- More comprehensive reset in **rtdInitBoard**, (Includes PLX local bus reset). So far, a local bus error required a hardware reset.
- Problem of internal PLX data corruption has been resolved.
- Preventing the picture shift in the preview of the external input VP PRO, Genlock mode, external source view.
- Deadlock in **rtdFreeBoard()** if used in multi process application.
- **rtdPlayBuf()** will return an error if the size is not a multiple of four.
- **rtdInitBoard() K\_ResetHW()** will try up to three resets before quitting with an error message.
- Get Parameter **IS\_PLL\_LOCK** performs properly in VQ CC.
- Deadlock/performance problem when working with multiple boards has been solved.
- Calling **rtdInitBoard()** from the same process without calling **rtdFreeBoard** will not cause a General Protection Error any more.
- Handle Failure problem in **FastInit** (AudioPauseAndVerify failure) has been solved.
- Error message is issued if value too high (max = 500K) **rtdSetParams(DATA\_SIZE\_READ)**
- Reading **rtd.ini** from the rtdSdk/DLL folder and not from the Process folder.
- Robust Fast Reset commands (Verify completion of CCube HighPriority commands)

## 2.5. *Known Bugs*

- The three last frames for video-only streams and the last frame of System files don't play at present.
- Audio ticks and random noise may appear while starting the system or after CS4920 resets the hardware.
- Field mode decoding is not fully functional.
- Only one field shows in Pause/Single Step mode, therefore MPEG-2 clips may flicker at Pause state or at EOF (CL9100).
- All FullD1 clips flicker at EOv (CL9100).
- To play Audio PES streams, specify a system type of stream and make sure that **USE\_PTS** is off.
- Each **rtdInitSystem** must be followed by one free **rtdFreeSystem**.
- Random access, Current Frame report and Current Play Time report are not frame accurate.
- Single Step mode works incorrectly after Scan (CL9100).
- Random Access specifying 100% (end of stream) performs incorrectly.
- VideoPlex YUV video settings are incorrect when working in Genlock mode.
- VideoPlex Pro video settings are incorrect if not working in Genlock mode.
- If using VideoPlex PLUS (PCI), the Genlock Preview image may not show, if you use the S-Video output.
- On muxed files, performing **RandomAccess** or **FastForward** may result in permanently playing in Fast mode. As workaround one can set the **CS\_UCODE\_VER** param to **0x02**. **mpg2play.exe** has an INI entry **CS\_UCODE\_VER=2** in section **[VideoPlex]**.
- VideoQuest does not yet support the extended API of closed Caption (**EXTENDED\_SERVICE\_DATA2CC\_AND\_EDS\_DATA**).
- The audio modes listed on the next page may not play at the settings listed below:

**Old Microcode (CS4920):**

Mode	Bit-rate	Frequency
Dual Mono	112K	32KHz
Dual Mono	112K	48KHz
Dual Mono	128K	48KHz
Intensity Stereo	256K	32KHz
Intensity Stereo	256K	48KHz
Intensity Stereo	96K	48KHz
Stereo	192K	32KHz
Stereo	128K	48KHz
Mono	96K	48KHz

**New Microcode (CS4922):**

Mode	Bit-rate	Frequency
Intensity Stereo	64K	32KHz
Intensity Stereo	64K	44KHz
Intensity Stereo	64K	48KHz
Intensity Stereo	96K	44KHz
Intensity Stereo	96K	48KHz

**2.6. Get/Set Parameters**

- Extended CC/ESD Display Option.
  - VQ does not yet support the new API. An error returns after calling the extended CC API on VQ.
  - EXTENDED\_SERVICE\_DATA** still exists and shows ESD in field 1.

Parameter Name	Value	Type	Description
SHOW_CCoESD	CLOSE_CAPTION_DATA	Get/Set	Shows CC on field 1
SHOW_CCoESD	EXTENDED_SERVICE_DATA	Get/Set	Shows ESD on field 1
SHOW_CCoESD	EXTENDED_SERVICE_DATA2	Get/Set	Shows ESD on field 2 (instead of field 1)
SHOW_CCoESD	CC_AND_EDS_DATA	Get/Set	Shows CC on field 1, and EDS on field 2 at the same time

- Audio Delay Capability
  - rtdSetParams ( , AUDIO\_DELAY, val)

Parameter Name	Value	Type	Description
AUDIO_DELAY	Min: -500 milliseconds Max: 500 milliseconds Default: 0	Set/Get	Delays audio playback when a loss occurs in video/audio synchronization.

- Miscellaneous
  - **rtdSetParams** ( , parameter, value)

Parameter Name	Value	Type	Description
FAST_INIT	syncMode: FALSE = DISABLE_1SCR, TRUE = ENABLE_1SCR	Set	Fast reset to the board  Previously made by workaround as <b>rtdSetParam(,VIDEO_PID,xxx)</b>
CL_INIT	0 - fast reset (FastReset/FastResetAnd\ Blank High priority command)  1 - comprehensive reset (Reset High priority command)  2 - h/w reset	Set	Resets the Video decoder chip (CCUBE9100)  <b>This setting is NOT for common operation. Use as last resort.</b>
PHILIPS_INIT	fPhilipsHwReset  TRUE= Philips h/w Reset  FALSE=s/w reset	Set	Resets the Analog Video chip  Warning:  <b>This setting is NOT for common operation. Use as last resort.</b>
BOARD_NAME	pszName  Pointer to a user allocated string at minimal size of 256 byte	Get	Retrieves the board name.

## 3. Version 2.2

Version 2.2 was a maintenance version and therefore required for VideoQuest and VideoPlex CC. It is optional for the VideoPlex PCI and EISA boards.

### 3.1. *New in 2.2*

- SDK automatically installs driver, if it has not been installed previously.
- Transition Control
- PTS wrap around check. If (FirstAudioPTS > LastAudioPTS) assumes wrap around, all PTS will shift accordingly.
- New hardware revision management
- Installation copies **optibase.inf** to your operating system. **optibase.inf** identifies Optibase's PCI encoding and decoding boards.
- HTML and WinHelp file for the RTD SDK Reference Guide. Printed user documentation is available for the associated user applications and hardware.
- Optimized API for video levels control in the VideoQuest and VideoPlex CC only. For further information, refer to **Get/Set parameters**.

### 3.2. *Features in Detail*

- **Transition Control:** In previous version, during Fast Reset, the screen went blank (e.g. Archiving transition between two clips in back-to-back or loop mode using the setParam VideoPID and AudioPID). In the current version, the screen still goes blank by default, but an additional system SetParam has been provided to display the last frame during transitions.
  - **BLACK\_TRANSITION.** The screen goes blank (default).
  - **LAST\_FRAME\_TRANSITION.** The last frame displays
- **New Hardware Revision Management.** The current SDK version detects future unsupported hardware revisions and **rtdInitBoard()** returns an error message indicating that a newer software version is required.
- **Video Levels.** We do not recommend using the new video levels interface unless you are equipped with a professional video testing system like the VM700.
- **Sample Applications.** The Sample folder contains five sample applications:
  - **Callback** Demonstrates the callback option
  - **Mpegplay** Auto detect demonstration of the MPEG Clips using the rtdFileInfo
  - **Playbuf** Demonstrates low level buffer calling
  - **PlayerDemo** The demo applicationMpeg2Play source code
  - **VbMpg2ply** Visual basic demo, Visual Basic DLLs should be installed first.

### 3.3. *Fixed in 2.2*

- Audio-only streams in playBuf mode play.
- The initial audio gain has been fixed.
- After EOVS, the file closes without waiting for another file to open.
- Change video level registers in the VideoQuest.
- Change video level registers in the VideoPlex CC.
- Internal INI file change from **rtdSdk\_ini.ini** to **rtd.ini** in the rtdSdk's DLL folder.
- A fix for the info routine while working with transport files has been provided.
- Error messages will not cause a memory overflow anymore.
- In the demo app (**mpg2play**), **FileInfo** performs properly.
- In the demo app, the SDK version displays properly.

### 3.4. *Known Bugs*

- The three last frames for video-only streams and the last frame of System files don't play at present.

- Audio ticks and random noise may appear while starting the system or after CS4920 resets the hardware.
- Field mode decoding is not fully functional.
- Only one field shows in Pause/Single Step mode, therefore MPEG-2 clips may flicker at Pause state or at EOF (CL9100).
- All FullD1 clips flicker at EOF (CL9100.)
- To play Audio PES streams, specify a system type of stream and make sure that USE\_PTS is off.
- Each rtdInitSystem must be followed by one free rtdFreeSystem.
- Random access, Current Frame report and Current play time report are not frame accurate.
- Single Step :mode works incorrectly after Scan (CL9100).
- Random Access specifying 100% (end of stream) performs incorrectly.

### 3.5. *Get/Set Parameters*

#### **Video Levels Controls**

Parameter Name	Value	Type	Description
VIDEO_BLACK_LEVEL	LONG VALUE Min: 0 Default: 128 Max: 255	Set	Luma black level
VIDEO_BLANK_LEVEL	LONG VALUE Min: 0 Default: 128 Max: 255	Set	Luma blank level
VIDEO_CHROMA_LEVEL	LONG VALUE Min: 0 Default: 128 Max: 255	Set	Chroma level for component output
VIDEO_GAIN_U	LONG VALUE Min: 0 Default: 128 Max: 255	Set	Chroma level for composite/s-video output
VIDEO_GAIN_V	LONG VALUE Min: 0 Default: 128 Max: 255	Set	Chroma level for composite/s-video output

#### **Transition control**

Parameter Name	Value	Type	Description
FAST_RESET_TRANSITION	BLACK_TRANSITION LAST_FRAME_TRANSITION Default: BLACK_TRANSITION	Set/Get	Allows transition control on Fast Reset

## 4. Version 2.1

### 4.1. Introduction

- The RTD SDK supports these Optibase MPEG-2 decoders:
  - VideoPlex PCI
  - VideoPlex EISA
  - VideoPlex-CC (Closed Caption)
  - VideoQuest (VideoPlex with Component and RGB+Sync video output)
- The name of the DLLs are changed as follows:
  - Vplexdll.dll → Rtdsdk.dll
  - Vplexbin.dll → Rtdbin.dll
- The H files are changed as follows:
  - **videopl.h** → **rtdSdk.h**
  - **struct.h** → **mpeginfo.h**
- **rtdSdk.h** includes all necessary H files. You may still use the old H files.

### 4.2. New in 2.1

- Supports the modified VideoPlex-CC board (with SAA7185B chip).
- Supports the new VideoQuest board.
- A new function **rtdScan()** has been added. It allows locating the next I frame.
- An enhanced mechanism for multitasking synchronization has been added. This feature applies mainly to Windows NT.
- Supports large files (> 2GB).
- Enhanced playback information is available.
- Improves unattained capabilities
- Displays closed captions
- Loads still images
- Allows blanking of the video output
- Selects between Component or RGB (VideoQuest Only)
- Enables SDK and Driver versions query
- Random access
- Adds new return code **OPERATION\_NOT\_COMPLETED**.
- Adds parameters. The added parameters can be found under **Get/Set Parameters**.

### 4.3. New Features in Detail

- **rtdContinue()** returns a wider range of status values:
  - **0** No error
  - **EO\_CUR\_FILE** The transfer of the Active file has finished - switching to the Inactive file.
  - **EOF\_Video** EO\_CUR\_FILE of the last file.
  - **RT\_EO\_CUR\_FILE** The current file has stopped playing - switching to the next file.
  - **RT\_EOF\_VIDEO** RT\_EO\_CUR\_FILE of the last file
  - **FIFO\_TOO\_FULL** FIFO is full. No data transfer occurred.
  - **-1** An error code
- Improve unattained capabilities
  - **IS\_PLL\_LOCK** Check if external sync is lost
  - **CL\_IS\_RUNNING** Check if the C-Cube is in decoding state.

- **BYPASS\_1ST\_SCR** Can help to recover from network errors. Use this at the beginning of the playback and when an error occurs reset Audio and Video PIDs.
- Displays closed captions
  - **Recorded Mode.** In this mode, data is read into a reordering buffer where it is held until the frame is encoded. The user data is then inserted into the Picture User Data field in the Picture header. This causes the user data to always be associated with the frame being captured when the user data was sent to the encoder.
  - **Pass-through Mode.** In this mode, the user data is not reordered and directly 'passed through' to the output bit-stream. RTD SDK 2.1 only supports the Pass-through mode at present.
- Loads still images
  - Faster TGA (YBR) loading
  - Load Image works in automatic mode. This mode sets the SDK pointer to buffer 0 and loads the image to this buffer. The automatic mode is more time consuming than the manual one.
  - The video output is blanked while loading an image.
- **Random Access.** Random access and position report is now available in bytes (64 bit format):
  - Getting the current offset is done DWORD at a time:  
**rtdGetParams(CURRENT\_OFFSET).**  
**rtdGetParams(CURRENT\_OFFSET\_High).**  
**Note:** The second call is optional, but the order in which the commands are issued, is important!
  - Setting the current offset is done DWORD at a time:  
**rtdSetParams(CURRENT\_OFFSET\_High).**  
**rtdSetParams(CURRENT\_OFFSET).**  
**Note:** The first call is optional, but the order in which the commands are issued, is important!
- Adds new return code **OPERATION\_NOT\_COMPLETED**
  - All RTD functions return this new code if the board has not been initialized.
  - Some of the **rtdSetParams()** and **rtdGetParams()** may return this code and it is recommended to check this value when applicable.
  - **Note:** This value is a positive value to indicate a warning.

#### 4.4. *Fixed in 2.1*

- Large MPA file support (above 16MB).
- Problem referring to fast PCs (e.g. triton III) has been fixed.
- Performance remains consistent at very high bit-rates.
- SCR and PTS 33 bit support.
- OSD should not be reloaded after Rewind or Terminate.
- GPF after loading an empty OSD file.

#### 4.5. *Known Bugs*

- The three last frames for video-only streams and the last frame of System files don't play at present.
- Audio ticks and random noise may appear while starting the system or after the microcode CS4920 resets the hardware.
- Field mode decoding is not fully functional.
- Only one field shows in Pause/Single Step mode, therefore MPEG-2 clips may flicker at Pause state or at EOF (CL9100).
- All FullD1 clips flicker at EOF (CL9100).
- To play Audio PES streams, specify a system type of stream and make sure that **USE\_PTS** is off.
- Each **rtdInitSystem** must be followed by one free **rtdFreeSystem**.

#### 4.6. *Get/Set Parameters*

##### **Boards and System Status Parameters**

Parameter Name	Value	Type	Description
Is32Bit	16 bit (0), 32 bit (1) Default Value: 1	Set/Get	I/O mode
IsPci	EISA (0), PCI (1)	Get	Bus type
Slot	LONG VALUE	Get	Physical location. Slot number for EISA bus; Device number for PCI bus.
IsBoardUsed	LONG VALUE	Get	Returns the state of the board. 1 - The board is being used. 0 - The board is not being used.
IsClosedCaption	TRUE, FALSE	Get	True: Supports Closed Caption display.
PciDeviceID	LONG VALUE	Get	Device ID for PCI bus. 0 specifies EISA bus.
PciVendorID	LONG VALUE	Get	Vendor ID for PCI bus. 0 specifies EISA bus.
NUM_TOTAL_BOARDS	LONG VALUE	Get	Returns the number of boards found in <b>rtdInitSystem</b> .
NUM_ACTIVE_BOARDS	LONG VALUE	Get	Returns the number of active boards. This is a variable that is incremented each time <b>rtdInitBoard()</b> is called and decremented each time <b>rtdFreeBoard()</b> is called.
SDK_VERSION	4 BYTE (packed as LONG)	Get	Returns the version of the current SDK DLL.
DRIVER_VERSION	4 BYTE (packed as LONG)	Get	Returns the version of the current WinOpti driver.
IsAnalogComponent	LONG VALUE	Get	Returns TRUE if current board supports Component or RGB output, otherwise FALSE.

### Playback Control Parameters

Parameter Name	Value	Type	Description
USE_PTS	ON (1), OFF (0) Default value: ON	Set/Get	Instructs the library to use PTS for audio and video synchronization.
FIFO_LEVEL	LONG VALUE	Get	The FIFO fullness level. Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.
PTS_THRSLD	0-16 Default value: 0	Set	Controls the PTS jitter range.
FIFO_FULL_THRSLD	LONG VALUE Default value: 0xe000	Set/Get	The FIFO threshold used for writing to FIFO. If setting to a value greater than 1 MB, an error is returned.
USER_BUFFER_MODE	UB_CALL_BACK_MODE (1) NON_UBUF_MODE (0) Default value: NON_UBUF_MODE	Set/Get	This parameter is used when operating in user buffer mode (valid for Win 32 and DOS).
UB_CALLBACK_FUNCTION_PTR	LONG VALUE	Set	Pointer to the User Buffer callback function.
VIDEO_PID	LONG VALUE Default value: 0xE0	Set/Get	Video stream ID or video packet ID (for transport layer streams). Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.
AUDIO_PID	LONG VALUE Default value: 0xC0	Set/Get	Audio stream ID or audio packet ID (for transport layer streams). Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.

Parameter Name	Value	Type	Description
PLAY_SPEED	FAST_FWD NORMAL_SPEED SLOW_SPEED_2÷8 Default value: NORMAL_SPEED	Set/Get	Set: Sets playback speed (fast, slow, normal) Get: Returns board status. Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.
NEXT_VIDEO_PID	LONG VALUE Default value: 0xE0	Set/Get	Next video stream ID or video packet ID (for multistream files).
NEXT_AUDIO_PID	LONG VALUE Default value: 0xCO	Set/Get	Next audio stream ID or audio packet ID (for multistream files).
STREAM_TYPE	VIDEO_FILE (0) SYSTEM_FILE (1) TRANSPORT_FILE (2) AUDIO_FILE (4)	Get	Returns stream type.
SEAMLESS_BACK2BACK	0,1 Default value: 1	Set/Get	1 - Seamless back2back. This is the default value. The SDK reads the first SCR of the first file to be played back and ignores the first SCRs of subsequent files. 0 - The SDK reads the first SCR values in all files. This results in non-seamless back2back playback. For example, if the first SCR/PCR is 0 and the first audio and video PTS are 33816 (in units of 90 KHz), the decoding board waits ~0.375 sec before starting the decoding process. Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.
BACKGROUND_PRIORITY	LONG VALUE	Get/Set	Allows changing the background thread priority. Valid only in background mode. (This replaces the direct call from the SDK to the videoplX.ini file).

Parameter Name	Value	Type	Description
HIGH_STD_BACK2BACK	ON (1), OFF (0)	Get/Set	Allows playing stream with large STD. <b>NOTE:</b> In order for the back2back mode to work properly, the length of the video and audio stream must match.  Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.
DATA_SIZE_READ	LONG VALUE Default value: 65536 (64K)	Set/Get	Defines the size of the block to be read from the file and transfers it to the board's FIFO (minimum level $\cong$ 1500 bytes).  Returns: <b>OPERATION_NOT_COMPLETE</b> if the board is in a running state (set) or <b>ERROR</b> if the value is below the minimum level of ~4KB (Set).
BYPASS_1ST_SCR	ON (1), OFF (0)	Set	Enables the system to bypass the First SCR value. For details, refer to <b>SEAMLESS_BACK2BACK</b> on the first SCR issue.

### File Control Parameters

Parameter Name	Value	Type	Description
WHEN_TO_SWITCH	SWITCH_NOW  SWITCH_AT_EOF Default value: SWITCH_AT_EOF	Set	Terminate current file and switch to the inactive file if previously opened  Switch to the next file when current file ends S Returns OPERATION_NOT_COMPLETE if the board is not initialized.
IsEOF	0, 1	Get	Indicates whether the last file has reached EOF
IsFile0Null	0 1	Get	File handle 0 is NULL File handle 0 is open
IsFile1Null	0 1	Get	File handle 1 is NULL File handle 1 is open
ActiveFile	0 1	Get	File handle 0 is active File handle 1 is active

### Status Report Parameters

Parameter Name	Value	Type	Description
CURRENT_POSITION	0-100 (percent)	Set/Get	<p>Returns the current position of the file being played. (Get)</p> <p>Enables basic random access operations. It is recommended to call <b>RANDOM_ACCESS_AVAILABLE</b> before calling this parameter to determine if random access is possible in a particular file. (Set)</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>
CURRENT_OFFSET/ CURRENT_OFFSET_HIGH	LONG VALUE	Set/Get	<p>Returns the offset of the file being played (Get).</p> <p>Enables basic random access operations. It is recommended to call <b>RANDOM_ACCESS_AVAILABLE</b> before calling this parameter to determine if random access is possible in a particular file. (Set)</p> <p>Minimum value is 0. Maximum value is the length of the file.</p> <p>The current offset value is delivered one DWORD at a time:</p> <ul style="list-style-type: none"> <li>• <code>rtdGetParams (CURRENT_OFFSET).</code></li> <li>• <code>rtdGetParams (CURRENT_OFFSET_HIGH).</code></li> </ul> <p>Note that the second call is optional, but the order in which the commands are issued is important.</p> <p>Setting the current offset is done DWORD at a time:</p> <ol style="list-style-type: none"> <li>1. <code>rtdSetParams (CURRENT_OFFSET_HIGH).</code></li> <li>2. <code>rtdSetParams (CURRENT_OFFSET).</code></li> </ol> <p>Note that the second call is optional, but the order in which the commands are issued is important.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>

Parameter Name	Value	Type	Description
RANDOM_ACCESS_AVAILABLE	TRUE (1) FALSE (0)	Get	Call this parameter before calling <b>CURRENT_POSITION</b> (Set) or <b>CURRENT_OFFSET</b> (Set) to determine if it is possible to perform random access in a particular file.
CURRENT_PLAY_TIME	LONG VALUE	Get	<p>Returns the approximate play time of the current file.</p> <p>The value is a DWORD variable in the following format: <b>HHMMSSPP</b> (in hex) (where H stand for Hour, M for Minute, S for Second and P for Picture).</p> <p>For Audio only files the last byte stands for 1/100 of a second.</p> <p>To calculate the value you have to convert each BYTE to a decimal number. For example if the variable is <b>0x00000e0d</b>, the current play time is <b>00:00:14:13</b>.</p> <p>Returns: <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>
CURRENT_PLAY_TIME_MSEC	LONG VALUE	Get	<p>Returns the approximate play time for the current file in ms.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>
CURRENT_FRAME	LONG VALUE	Get	<p>Returns the approximate number of frames that have been displayed.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>
VideoBytesReceived	LONG VALUE	Get	<p>Returns the number of bytes that have been transferred to the video decoder. This value is valid only for video only files.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board has not yet been used.</p>

### Video Output Control Parameters

Parameter Name	Value	Type	Description
VIDEO_SOURCE	ANALOG_VIDEO (1) MPEG_VIDEO (0) Default value: MPEG_VIDEO	Set/Get	<ul style="list-style-type: none"> <li>Display the analog source (from the genlock input)</li> <li>Displays the MPEG clip</li> </ul> Returns <b>OPERATION_NOT_COMPLETE</b> if the board is initialized in the STAND_ALONE mode.
REINIT_PHILIPS_GENLOCK	GENLOCK (1) STAND_ALONE (0)	Set	<p>Lets you relock the Genlock On/Off.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.</p>
SHOW_CLOSE_CAPTION	0,1 Default value: 1	Set/Get	Enables or disables displaying closed captions.
SHOW_CcorESD	CLOSE_CAPTION_DATA(1) EXTENDED_SERVICE_DATA (0) Default Value: 1	Set/Get	Determines if closed caption data or extended service data is displayed.
VIDEO_OUTPUT	COMPONENT_VIDEO_OUTPUT or RGB_VIDEO_OUTPUT Default Value: COMPONENT_VIDEO_OUTPUT	Get/Set	<p>Selects between Component and RGB when using the VideoQuest.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized or if a VideoQuest is not in use.</p>
BLANK_VIDEO_OUTPUT	ON (1), OFF (0)	Set	<p>Allows the video output to be blanked (blank screen).</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.</p>

### Audio Output Control Parameters

Parameter Name	Value	Type	Description
LEFT_VOLUME	VOLUME_UP*  VOLUME_DOWN*  VOLUME_NC*  0x0000 - 0x7fff  Default value: 0x4000	Get/Set	Increases the volume by <b>VOLUME_DELTA</b>  Decreases volume by <b>VOLUME_DELTA</b>  No change in the volume  Volume value to set (min.-max.)  If the board is not initialized or if the file is video-only, <b>OPERATION_NOT_COMPLETE</b> is returned.
RIGHT_VOLUME	VOLUME_UP*  VOLUME_DOWN*  VOLUME_NC*  0x0000 - 0x7fff  Default value: 0x4000	Get/Set	Increases the volume by <b>VOLUME_DELTA</b>  Decreases volume by <b>VOLUME_DELTA</b>  No change in the volume  Volume value to set (min.-max.)  If the board is not initialized, or if the file is video-only, <b>OPERATION_NOT_COMPLETE</b> is returned.
MUTE	ON (1), OFF (0) Default value: OFF	Set/Get	<ul style="list-style-type: none"> <li>Disables or activates mute or volume.</li> </ul> If the board has not been initialized or the file is video-only, <b>OPERATION_NOT_COMPLETE</b> is returned.
BYPASS_AUDIO_INIT	OFF(0) ON(1) Default value: OFF	Set/Get	Enables bypassing the CS4920 initialization when playing a video- only stream.

\* These values are used only when setting a value.

## Video Subsystem Control Parameters

Parameter Name	Value	Type	Description
<b>SAA7111_PARAMS</b> This parameter is valid for version PCI L21 of the decoding board.	LONG VALUE	Set/Get	Enables reading (Get param) and writing (Set param) each register. <b>Get:</b> <code>rtdGetParams(BoardNum, SAA7111_PARAMS   0x0a,VALUE)</code> Read into VALUE the value of register 0x0a from the saa7111 chip. <b>Set:</b> <code>rtdSetParams(BoardNum, SAA7111_PARAMS   0x0a,VALUE)</code> Writes VALUE into register 0x0a from the saa7111 chip. <b>Note:</b> <code>rtdSetParams(BoardNum, SAA7111_PARAMS   0xFF,VALUE)</code> Rewrites all default values. <b>It is strongly recommended not to change these values.</b>
<b>SAA7185_PARAMS</b> (This parameters is valid for version PCI L21 of the decoding board.)	LONG VALUE	Set/Get	Enables reading (Get param) and writing (Set param) each register. <b>Get::</b> <code>rtdGetParams(BoardNum, SAA7185_PARAMS   0x6E,VALUE)</code> Read into VALUE the value of register 0x6E from the saa7185B chip. <b>Note:</b> <code>rtdGetParams(BoardNum, SAA7185_PARAMS   0xFF,VALUE)</code> Read into VALUE the value of the saa7185B chip status register. <b>Set:</b> <code>rtdSetParams(BoardNum, SAA7185_PARAMS   0x6E,VALUE)</code> Writes VALUE into register 0x6E from the saa7185B chip. <b>Note:</b> <code>rtdSetParams(BoardNum, SAA7185_PARAMS   0xFF,VALUE)</code> Rewrites all default values. <b>It is strongly recommended not to change these values.</b>

Parameter Name	Value	Type	Description
SAA7182_PARAMS (This parameters is valid for VideoQuest boards only.)	LONG VALUE	Set/Get	<p>Enables reading (Get param) and writing (Set param) each register.</p> <p><b>Get::</b> <code>rtdGetParams(BoardNum, SAA7182_PARAMS   0x6E,VALUE)</code></p> <p>Read into VALUE the value of register 0x6E from the saa7182A chip.</p> <p><b>Set:</b> <code>rtdSetParams(BoardNum, SAA7182_PARAMS   0x6E,VALUE)</code></p> <p>Writes VALUE into register 0x6E from the saa7182A chip.</p> <p><b>Note:</b> <code>rtdSetParams(BoardNum, SAA7182_PARAMS   0xFF,VALUE)</code></p> <p>Rewrites all default values.</p> <p><b>It is strongly recommended not to change these values.</b></p>
SAA7199_PARAMS (This parameter is valid for EISA and regular PCI versions of the decoding board.)	LONG VALUE	Set/Get	<p>Enables reading (Get Param) and writing (Set Param) each register.</p> <p><b>Get:</b> <code>rtdGetParams(BoardNum, SAA7199_PARAMS   0x06,VALUE)</code></p> <p>Read into VALUE the value of register 0x06 from the saa7199 chip.</p> <p><b>Set:</b> <code>rtdSetParams(BoardNum, SAA7199_PARAMS   0x06,VALUE)</code></p> <p>Writes VALUE into register 0x06 from the saa7199 chip.</p> <p><b>Note:</b> <code>rtdSetParams(BoardNum, SAA7199_PARAMS   0xFF,VALUE)</code></p> <p>Rewrites all default values.</p> <p><b>It is strongly recommended not to change these values.</b></p>
LOCK_SCH_PHASE	Delay in ms	Set	<p>Allows SCH phase lock after xxx ms.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if board is initialized in the STAND_ALONE mode, or if the hardware is not supported.</p>
IS_PLL_LOCK	LONG VALUE	Get	<p>Indicates that the PLL is locked.</p> <p>Returns <b>OPERATION_NOT_COMPLETE</b> if the board is not initialized.</p>

### CL9100 Status

Parameter Name	Value	Type	Description
CL_ProcState	LONG VALUE	Get	0x00 = idle, 0x0e = pause, 0x0b = single step 0x0a = scan, 0x09 = slow motion, 0x16 = fast forward, 0x1a = block write, 0x0d=play
CL_CmdID	LONG VALUE	Get	The command ID of the current of most recent command.
CL_CmdStat	LONG VALUE	Get	0 = command in status 1 = Done
CL_IntStat	LONGVALUE	Get	0 = no interrupt.
CL_BuffFullness	LONG VALUE	Get	The number of bytes contained in the rate buffer.
CL_BytesDecoded	LONG VALUE	Get	The number of bytes decoded.
CL_Skipped	LONG VALUE	Get	The number of frames skipped.
CL_Repeated	LONG VALUE	Get	The number of frames repeated.
CL_RecentPTS	LONG VALUE	Get	The last PTS.
CL_RecentSTC	LONG VALUE	Get	Returns a pointer to a 24-bit value. The pointer provided should be pointing to a 32-bit integer.
CL_RecentPictAdd	LONG VALUE	Get	The last picture address.
CL_IS_RUNNING	LONG VALUE	Get	Returns 1 if the CL9100 is in <b>RUN state</b> and 0 if the CL9100 is in a <b>HALT state</b> . If the function returns 0, (due, for example to, an unstable external sync when using the GENLOCK mode), it is possible to use <b>rtdSetParams(REINIT_PHILIP_GENLOCK)</b> to restore normal operation.

### CS4920 Status

Parameter Name	Value	Type	Description
CS_BuffFullness	LONG VALUE	Get	Returns the CS4920 internal buffer level.  If the board is not initialized, <b>OPERATION_NOT_COMPLETE</b> is returned.

## File Info Control

Parameter Name	Value	Type	Description
USE_FILE_INFO	0,1 Default value is 1	Set/Get	Enables or disables <b>rtdFileinfo()</b> .  When using a value of 0, the following parameters are not valid: <b>CURRENT_POSITION</b> , <b>CURRENT_PLAY_TIME</b> , <b>CURRENT_OFFSET</b> , <b>CURRENT_FRAME</b> and <b>VideoBytesReceived</b> .
START_SCAN_LIMIT	LONG VALUE Default value is 0.5 MB	Set/Get	Defines the number of bytes (in units of 0.1 MB) to be parsed at the beginning of the file. This determines how many video and audio streams are in the file.  Minimum value is 1 (0.1 MB). Maximum value is File length.
STOP_SCAN_LIMIT	LONG VALUE Default value is 0.8 MB	Set/Get	Defines the number of bytes (in units of 0.1 MB) to be parsed at the end of the file. This is done to extract the last Audio/Video PTS and Video Time Code.  Minimum value is 1 (0.1 MB). Maximum value is File length.  Setting a value of 0 allows the SDK to control the Scan Limit internally.
NUM_V_PACKETS_LIMIT	LONG VALUE Default value is 10.	Set/Get	The maximum number of video packets (per number of streams) that are parsed when the necessary video information is not found.  Minimum value is 1. If for example there are two Video Streams in the file: 0xE0 and 0xE1, the maximum number will be 20.
NUM_A_PACKETS_LIMIT	LONG VALUE Default value is 10.	Set/Get	The maximum number of audio packets (per number of streams) that are parsed when the necessary audio information is not found.  Minimum value is 1.  If for example there are two Audio Streams in the file: 0xC0 and 0xC1, the maximum number will be 20.

## *5. Technical Support*

### **International Support**

For support contact the reseller or distributor who sold you your Optibase product.

### **Support in North America**

If you purchased your Optibase product directly from Optibase Inc, contact Optibase's technical support directly as follows:

Tel: (800) 451 5101, 650-903-4900

Fax: 650-696-6388

### **Developer Support Programs**

Subscribers to Optibase's developer clubs can access support at **<http://helpdesk.optibase.com>** and **<http://progression.optibase.com>**.

The Optibase Knowledge Base offers technical tips and information about Optibase products. The Knowledge Base is available at **<http://helpdesk.optibase.com>**

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