PVRTexLib

User Manual

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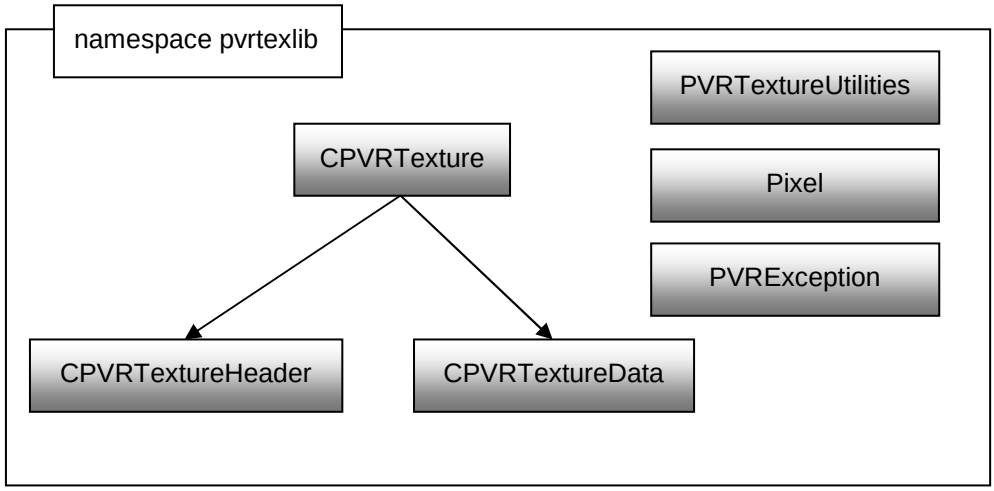
1. Overview

PVRTexLib is a library for the management of PVR textures. It occupies the pvrtexlib namespace and provides the facility to:

- Load and save *.PVR texture files with data encoded in many texture formats.
- Decompress from any of the supported pixel formats to a standard set of pixel types for easy processing.
- Execute some processing on a texture in various ways when it is of one of these standard pixel types.
- Compress to any of the supported pixel formats from this same set of standard pixel types.
- Gather information about a texture file loaded by the library.



1. PVRTexLib Overview

PVRTexLib provides container classes for PVR textures. For common functionality, it is recommended that developers avoid directly using the CPVRTextureHeader and CPVRTextureData classes and, instead, use the CPVRTexture parent class, where possible.

An extended version of PVRTexLib is the backbone for the PVRTexTool applications and plug-ins in the Imagination Technologies, POWERVR SDK.

1.1. Accessing the Library

PVRTexLib is provided as the files PVRTexLib.dll and PVRTexLib.lib on Windows and as libPVRTexLib.a on Linux. Also present should be a folder with the required header files that are described later in this document. To access the library you will have to include these files in compilation and link to the library file. On Windows, the PVRTexLib.dll will need to be present for your application to run successfully. Also on Windows you will need to define _WINDLL_IMPORT somewhere in your project in order to access the functions and classes in the dll successfully.

1.2. Standard Pixel Types

PVRTexLib doesn't directly process all the pixel formats it supports but, instead, uses a set of standard pixel types for most operations. These raw, unencoded formats split the encoded formats available into four precisions. These precisions are defined in the PVRTexLibGlobals.h file:

```
enum PVR_PRECMODE
{       // precision modes - correspond to standard pixel types
        ePREC_INT8=0,
        ePREC_INT16,
        ePREC_INT32,
        ePREC_FLOAT,
} ;

const PixelType       eInt8StandardPixelType        = DX10_R8G8B8A8_UNORM,
                eInt16StandardPixelType             = D3D_ABGR_16161616,
                eInt32StandardPixelType             = DX10_R32G32B32A32_UINT,
                eFloatStandardPixelType             = D3D_ABGR_32323232F;
```

This means that there are four standard pixel types defined for working with:

- **eInt8StandardPixelType**
  Uncompressed 32-bit per pixel ABGR data. Produced by decompressing any pixel format of PrecMode: ePREC_INT8, for example. The uint8 typedef can represent each separate channel of data for a pixel and a whole pixel may be addressed using the Pixel<uint8> struct. *Note: the red and blue channel positions for this type have changed from previous versions of PVRTexLib to match that of the other precisions (since v3.7).*
- **eInt16StandardPixelType**
  Uncompressed 64-bit per pixel ABGR data. Produced by decompressing any pixel format of PrecMode: ePREC_INT16, for example. The uint16 typedef can represent each separate channel of data for a pixel and a whole pixel may be addressed using the Pixel<uint16> struct.
- **eInt32StandardPixelType**
  Uncompressed 128-bit per pixel ABGR data. Produced by decompressing any pixel format of PrecMode: ePREC_INT32, for example. The uint32 typedef can represent each separate channel of data for a pixel and a whole pixel may be addressed using the Pixel<uint32> struct.
- **eFloatStandardPixelType**
  Uncompressed 128-bit per pixel ABGR data. Will be the result of decompressing any pixel format of PrecMode: ePREC_FLOAT. The float32 typedef can represent each separate channel of data for a pixel and a whole pixel may be addressed using the Pixel<float32> struct.

1.3. Exception Handling

Functions of PVRTexLib may throw PVRException instances on failure using the PVRTHROW macro.

```
class PVRException : public std::exception
{
public:
        PVRException(char* what)throw(): m_what(what){}
        char *  what()                                  {return m_what;}
        ~PVRException() throw(){}
private:
         char*  m_what;
};

#define PVRTHROW(A) {PVRException myException(A); throw(myException);}
#define PVRCATCH(A) catch(PVRException& A)
```

To take advantage of this functionality, place the code you want to catch exceptions from inside a normal try block and catch using the PVRCATCH macro provided or catch(PVRException& A). The what() function should give some explanation towards the failure.

1.3.1. Example of Exception Handling

```
	CPVRTexture sDecompressedTexture, sEncodedTexture;
	try
	{
		PVRTextureUtilities::getPointer()-
>DecompressPVR(sEncodedTexture,sDecompressedTexture);
	}
	PVRCATCH(myException)
	{
		fprintf(stderr,"Could not decompress texture:\n%s\n",myException.what());
	}
```

If something is failing when using PVRTexLib it may be informative to examine the exception that is thrown, as in this example.

2. PVRTexLib Reference

Further documentation than may be present here is available in the header files themselves.

2.1. PVRTexLib.h - PVRTextureUtilities

This is a singleton class that has functions to work with the other classes in PVRTexLib. The functions provided in this class allow manipulation of textures and come in two forms: a form that works with CPVRTexture instances and ones that require separate instances of `CPVRTextureHeader` and `CPVRTextureData`. There is no difference in these functions other than this interface.

2.1.1. getPointer()

This is the standard method to get access to the main functionality of PVRTexLib and returns a pointer to the PVRTextureUtilities class. There is no need to `delete()` this pointer.

2.1.2. CompressPVR()

```
void CompressPVR(CPVRTexture& sDecompressedTexture,
                 CPVRTexture& sCompressedTexture, const int nMode);
void CompressPVR(CPVRTextureHeader    &sSourceHeader,
                 CPVRTextureData      &sSourceData,
                 CPVRTextureHeader    &sCompHeader,
                 CPVRTextureData      &sCompData,
                 const int            nMode=0);
```

Use these functions to compress a texture in a standard format to one of the other formats.

`sDecompressedTexture` should be the texture you wish to compress, `sCompressedTexture` should be a texture with an identical header, but with the pixel type set to the desired compressed pixel type. To achieve this use the `setPixelType(PixelType)` methods in `CPVRTexture` or `CPVRTextureHeader`..

The nMode variable is only relevant for ETC compression. Suitable values are:

- 0 – Fast
- 1 – Medium
- 2 – Slow
- 3 – Fast Perceptual
- 4 – Medium Perceptual
- 5 – Slow Perceptual

If compression fails it is likely that the original texture was incompatible with the pixel format encoder requested. Examining the PVRException thrown may give the specific reason for failure.

2.1.3. DecompressPVR()

```
void DecompressPVR(CPVRTexture& sCompressedTexture,
                   CPVRTexture& sDecompressedTexture);
void DecompressPVR(    CPVRTextureHeader      & sCompressedHeader,
                   const CPVRTextureData      & sCompressedData,
                   CPVRTextureHeader          & sDecompressedHeader,
                   CPVRTextureData                    & sDecompressedData,
                   const int                  nMode=0);
```

Use these functions to decompress textures into a standard format for further processing.

`sCompressedTexture` should be the texture to be decompressed, `sDecompressedTexture` is an instance that will be the destination for the decompressed data. The `nMode` parameter is not currently supported in this release of PVRTexLib and should be ignored.

2.1.4. ProcessRawPVR()

```
bool ProcessRawPVR(    CPVRTexture&          sInputTexture,
                       CPVRTextureHeader&    sProcessHeader,
                       const bool            bDoBleeding=false,
                       const float           fBleedRed=0.0f,
                       const float           fBleedGreen=0.0f,
                       const float           fBleedBlue=0.0f,
                       PVR_RESIZE            eResizeMode = eRESIZE_BICUBIC);
bool ProcessRawPVR(CPVRTextureHeader&        sInputHeader,
                       CPVRTextureData&      sInputData,
                       CPVRTextureHeader&    sProcessHeader,
                       const bool            bDoBleeding=false,
                       const float           fBleedRed=0.0f,
                       const float           fBleedGreen=0.0f,
                       const float           fBleedBlue=0.0f,
                       PVR_RESIZE            eResizeMode = eRESIZE_BICUBIC);
```

This function allows some processing of a texture. Textures must be in a standard format in order to be processed. `sInputTexture` should be such a texture and `sProcessHeader` is a header that has been set to the desired result of the processing. Please refer to the example later in this document for an illustration of how to use this function. The processed data will be present in the `sInputTexture` structure after this function has executed.

Operations possible with `ProcessRawPVR` include:

- Resize a texture by specifying a different width and/or height in the `sProcessHeader`. The default resizing algorithm is bicubic – to choose others set `eResizeMode` to one of: `eRESIZE_NEAREST`, `eRESIZE_BILINEAR`.
- Encode a border on to the texture, similar to the border functions available in PVRTexTool. Use the `setBorder(true)` function of the `sOutputTexture` (or `sOutputHeader`) before calling `ProcessRawPVR()` to add the border.
- Generate a normal map from the red channel of the passed texture. To do this use `setNormalMap(value)` with a non-zero value, in your output texture (or header) before processing.
- Generate MIP-maps. Set the required number of MIP-map levels in the output texture/header using `setMipMapCount(number)`. Setting the number of MIP-levels to 0 will cause no MIP-maps to be generated: i.e. only the top image will be present in the processed texture. Positive numbers will cause MIP-levels in addition to this to be generated.
- 'Bleed' a chosen colour in the texture in the same way as the operation in PVRTexTool to help the appearance of the texture with blending. Pass the red, green and blue values for the colour to be bled into using the `fBleedRed`, `fBleedGreen` and `fBleedBlue` parameters and pass true for `bDoBleeding`. The colour channel values should be in the range 0.0f to 1.0f for `ePREC_FLOAT` textures, 0.0f to 255.0f for `ePREC_INT8`, 0.0f to 65535.0f for `ePREC_INT16`. Bleeding is currently unavailable for `ePREC_INT32`.
- Generate coloured MIP-map levels for debugging purposes. Process for MIP-map levels as normal (or use a texture that contains these), but also use `setFalseMips(true)` on the process texture/header.

2.2. CPVRTexture.h - CPVRTexture

A `CPVRTexture` class represents an entire texture in memory, including all descriptive information and holding all texture surface data. Further documentation is in the header file. For most operations, this class may be used as the atomic element of PVRTexLib without keeping any separate instances of `CPVRTextureHeader` or `CPVRTextureData`.

There are various accessor functions for gaining information from a texture and setting values for processing a texture.

2.3. CPVRTextureHeader.h - CPVRTextureHeader

A class holding the description of a PVR texture – roughly analogous to the header associated with a .PVR file.

2.4. CPVRTextureData - CPVRTextureData

A container class for the actual pixel data in a PVR texture.

2.5. PVRTexLibGlobals.h

Holds the macros, enums and constants used by PVRTexLib. Of particular interest should be the standard types, precision modes, PixelType enum and exception macros.

2.6. Pixel.h

Defines some structs useful for manipulating pixels held in various pixel types.

2.7. PVRException.h

Defines an exception class and macros for use with exception handling.

3. Code Examples

3.1. Read and Decompress .PVR file

In this example, an existing .PVR file is read and decompressed, possibly for later processing, access to the image data or re-encoding.

```
#include "PVRTexLib.h"
using namespace pvrtexlib;

...
	PVRTRY
	{

		char strFilePath[] = "test.pvr";

		// get the utilities instance
		PVRTextureUtilities *PVRU = PVRTextureUtilities::getPointer();

		// open and reads a pvr texture from the file location specified by strFilePath
		CPVRTexture sOriginalTexture(strFilePath);

		// declare an empty texture to decompress into
		CPVRTexture sDecompressedTexture;

		// decompress the compressed texture into this texture
		PVRU->DecompressPVR(sOriginalTexture,sDecompressedTexture);

	}
	PVRCATCH(myException)
	{
		// handle any exceptions here
		printf("Exception in example 1: %s \n",myException.what());
	}
```

All being correct, the `CPVRTexture` instance `sDecompressedTexture` now contains a standard type, decompressed version of the texture originally accessed from the .PVR file.

This code may also be used to load .dds and .ngt files.

3.2. Given Raw Pixel Data, Pre-process, Encode and Save

In this example, A section of raw pixel data in 32 bit per pixel, uncompressed format of an image 256 pixels by 256 pixels is converted into a normal map of the same dimensions with full MIP-map chain, encoded into PVRTC 4 bits per pixel and then saved to a file.

The variable strFilePath is a PVRT::string containing a resolved file path. pPixelData points to the raw data.

```
#include "PVRTexLib.h"
using namespace pvrtexlib;

...

	PVRTRY
	{

		// get the utilities instance
		PVRTextureUtilities *PVRU = PVRTextureUtilities::getPointer();

		// make a CPVRTexture instance with data passed
		CPVRTexture sOriginalTexture( 256,    // u32Width,
			256,                              // u32Height,
			0,                                // u32MipMapCount,
			1,                                // u32NumSurfaces,
			false,                            // bBorder,
			false,                            // bTwiddled,
			false,                            // bCubeMap,
			false,                            // bVolume,
			false,                            // bFalseMips,
			true,                             // bHasAlpha
			false,                            // bVerticallyFlipped
			eInt8StandardPixelType,                  // ePixelType,
			0.0f,                             // fNormalMap,
			pPixelData                        // pPixelData
			);

		// make an empty header for the destination of the preprocessing
		// copying the existing texture header settings
		CPVRTextureHeader sProcessHeader(sOriginalTexture.getHeader());

		// specify desired mip map levels
		sProcessHeader.setMipMapCount(8);

		// specify desired normal map height factor
		sProcessHeader.setNormalMap(5.0f);

		// specify falsely coloured MIP-levels
		sProcessHeader.setFalseMips(true);

		// preprocess the texture; creates MIP-levels and calculates normal map
		PVRU->ProcessRawPVR(sOriginalTexture,sProcessHeader);

		// create texture to encode to
		CPVRTexture sCompressedTexture(sOriginalTexture.getHeader());

		// set required encoded pixel type
		sCompressedTexture.setPixelType(OGL_PVRTC4);

		// encode texture
		PVRU->CompressPVR(sOriginalTexture,sCompressedTexture);

		// write to file specified
		sCompressedTexture.writeToFile("Example2.pvr");

	}
	PVRCATCH(myException)
	{
		// handle any exceptions here
		printf("Exception in example 2: %s",myException.what());
	}
```

After this code a .PVR file containing a normal map and 8 falsely coloured MIP-levels should be at the location specified by strFilePath.

4. Pixel Format Reference

Although some of the formats below are for use in specific colour spaces PVRTexLib is not colour space aware and it is up to the user to ensure that data from the correct colour space is used with PVRTexLib.

Please note that greyed out formats, while present in the PixelType enum, are not supported by PVRTexLib at this time.

Format	Description	Command Line Identifier eg –f4444	Identifer Enum	PVRTexLib Precision Mode	Enum Value
ARGB 4444	Good 16-bit format when smooth translucency is needed.	4444	`MGLPT_ARGB_4444`	ePREC_INT8	0x0
ARGB 1555	Punch-through 16-bit translucent format.	1555	`MGLPT_ARGB_1555`	ePREC_INT8	0x1
RGB 565	Best quality 16-bit opaque format.	565	`MGLPT_RGB_565`	ePREC_INT8	0x2
RGB 555	As 1555 format but alpha is ignored. Good channel balance.	555	`MGLPT_RGB_555`	ePREC_INT8	0x3
RGB 888	24-bit opaque format with 8 bits for each colour channel.	888	`MGLPT_RGB_888`	ePREC_INT8	0x4
ARGB 8888	Best quality 32-bit format, but size and performance are worse than 16-bit formats.	8888	`MGLPT_ARGB_8888`	ePREC_INT8	0x5
ARGB 8332	High quality translucency 16-bit format.	8332	`MGLPT_ARGB_8332`	ePREC_INT8	0x6
I 8	8-bit intensity only format.	8	`MGLPT_I_8`	ePREC_INT8	0x7
AI 88	16-bit alpha and intensity format.	88	`MGLPT_AI_88`	ePREC_INT8	0x8

1BPP	One bit per pixel.	1_BPP	MGLPT_1_BPP	ePREC_INT8	0x9
(V,Y1,U,Y0)	YUV 16-bit format. Used for streaming movies. Good for photographic quality textures.	VY1UY0	MGLPT_VY1UY0	ePREC_INT8	0xA
(Y1,V,Y0,U)	YUV format.	Y1VY0U	MGLPT_Y1VY0U	ePREC_INT8	0xB
PVRTC2	PVRTC compression format. 2-bit per pixel.	PVRTC2	MGLPT_PVRTC2	ePREC_INT8	0xC
PVRTC4	PVRTC compression format. 4-bit per pixel.	PVRTC4	MGLPT_PVRTC4	ePREC_INT8	0xD
OpenGL ARGB 4444	Good 16-bit format when smooth translucency is needed.	OGL4444	OGL_RGBA_4444	ePREC_INT8	0x10
OpenGL ARGB 1555	Punch-through 16-bit translucent format.	OGL1555	OGL_RGBA_5551	ePREC_INT8	0x11
OpenGL ARGB 8888	Best quality 32-bit format, but size and performance are worse than 16-bit formats.	OGL8888	OGL_RGBA_8888	ePREC_INT8	0x12
OpenGL RGB 565	Best quality 16-bit opaque format.	OGL565	OGL_RGB_565	ePREC_INT8	0x13
OpenGL RGB 555	As 1555 format but alpha is ignored. Good channel balance.	OGL555	OGL_RGB_555	ePREC_INT8	0x14
OpenGL RGB 888	24-bit opaque format with 8 bits for each colour channel.	OGL888	OGL_RGB_888	ePREC_INT8	0x15
OpenGL I 8	8-bit intensity only format.	OGL8	MGLPT_I_8	ePREC_INT8	0x16

OpenGL AI 88	16-bit alpha and intensity format.	OGL88	MGLPT_AI_88	ePREC_INT8	0x17
OpenGL PVRTC2	PVRTC compression format. 2-bit per pixel.	OGLPVRTC2	MGLPT_PVRTC2	ePREC_INT8	0x18
OpenGL PVRTC4	PVRTC compression format. 4-bit per pixel.	OGLPVRTC4	MGLPT_PVRTC4	ePREC_INT8	0x19
OpenGL BGRA 8888	An OpenGL|ES extension-only format offering the same quality as ARGB 8888 in what may be a more desirable channel order.	OGLBGRA8888	OGL_BGRA_8888	ePREC_INT8	0x1A
DXT1	Microsoft S3TC format, 4 bits per pixel with no alpha information.	DXT1	D3D_DXT1	ePREC_INT8	0x20
DXT2	Microsoft S3TC format, 8 bits per pixel. Good for sharp alpha transitions. Alpha is considered premultiplied.	DXT2	D3D_DXT2	ePREC_INT8	0x21
DXT3	Microsoft S3TC format, 8 bits per pixel. Good for sharp alpha transitions.	DXT3	D3D_DXT3	ePREC_INT8	0x22
DXT4	Microsoft S3TC format, 8 bits per pixel. Good for gradient alpha transitions. Alpha is considered	DXT4	D3D_DXT4	ePREC_INT8	0x23

	premultiplied.				
DXT5	Microsoft S3TC format, 8 bits per pixel. Good for gradient alpha transitions.	DXT5	`D3D_DXT5`	ePREC_INT8	0x24
RGB 332	8-bit opaque format.	332	`D3D_RGB_332`	ePREC_INT8	0x25
AI 44	8-bit alpha and intensity format.	44	`D3D_AI_44`	ePREC_INT8	0x26
LVU 655	YUV format.	LVU655	`D3D_LVU_655`	ePREC_INT8	0x27
XLVU 8888	YUV format.	XLVU8888	`D3D_XLVU_8888`	ePREC_INT8	0x28
QWVU 8888	Signed 8bit format designed for bump mapping.	QWVU8888	`D3D_QWVU_8888`	ePREC_INT8	0x29
ABGR 2101010	10-bit precision format with 2 bits for alpha.	ABGR2101010	`D3D_ABGR_2101010`	ePREC_INT16	0x2A
ARGB 2101010	Another 10-bit precision format with 2 bits for alpha.	ARGB2101010	`D3D_ARGB_2101010`	ePREC_INT16	0x2B
AWVU 2101010	10-bit precision signed format with 2 bits for alpha.	AWVU2101010	`D3D_AWVU_2101010`	ePREC_INT16	0x2C
GR 1616	2-channel 16-bit per channel format.	GR1616	`D3D_GR_1616`	ePREC_INT16	0x2D
VU 1616	2-channel 16-bit per channel format.	VU1616	`D3D_VU_1616`	ePREC_INT16	0x2E
ABGR 16161616	64-bit format with transparency.	ABGR16161616	`D3D_ABGR_16161616`	ePREC_INT16	0x2F
R 16F	Single channel 16-bit floating point format.	R16F	`D3D_R16F`	ePREC_FLOAT	0x30
GR 1616F	2-channel 16-bit floating point format.	GR1616F	`D3D_GR_1616F`	ePREC_FLOAT	0x31

ABGR 16161616F	64-bit floating point format with transparency.	ABGR16161616F	D3D_ABGR_16161616F	ePREC_FLOAT	0x32
R 32F	Single channel 32-bit floating point format.	R32F	D3D_R32F	ePREC_FLOAT	0x33
GR 3232F	2-channel 32-bit floating point format.	GR3232F	D3D_GR_3232F	ePREC_FLOAT	0x34
ABGR 32323232F	128-bit floating point format with transparency.	ABGR32323232F	D3D_ABGR_32323232F	ePREC_FLOAT	0x35
ETC	Ericsson Texture Compression, 4 bits per pixel with no alpha information.	ETC	ETC_RGB_4BPP	ePREC_INT8	0x36
	Ericsson Texture Compression, 4 bits per pixel with explicit alpha like DXT3.		ETC_RGBA_EXPLICIT		0x37
	Ericsson Texture Compression, 4 bits per pixel with interpolated alpha like DXT5.		ETC_RGBA_INTERPOLATED		0x38
A 8	8-bit alpha texture format.	DX9 A 8	D3D_A8	ePREC_INT8	0x39
VU 88	2 channel 16-bit format.	DX9 VU 88	D3D_V8U8	ePREC_INT8	0x3A
I 16	Single channel 16-bit format.	DX9 I 16	D3D_I16	ePREC_INT16	0x3B

4.1. DirectX 10 Formats

Format	Channel Type	Description	Command Line Identifier	Identifer Enum	PVRTexLib Precision Mode	Enum Value

RGBA 32323232	float	High precision formats with alpha support	DX10_R32G32B32A32_FLOAT	DX10_R32G32B32A32_FLOAT	ePREC_FLOAT	0x50
RGBA 32323232	unsigned int		DX10_R32G32B32A32_UINT	DX10_R32G32B32A32_UINT	ePREC_INT32	0x51
RGBA 32323232	signed int		DX10_R32G32B32A32_SINT	DX10_R32G32B32A32_SINT	ePREC_INT32	0x52
RGB 323232	float	High precision formats with no alpha support	DX10_R32G32B32_FLOAT	DX10_R32G32B32_FLOAT	ePREC_FLOAT	0x53
RGB 323232	unsigned int		DX10_R32G32B32_UINT	DX10_R32G32B32_UINT	ePREC_INT32	0x54
RGB 323232	signed int		DX10_R32G32B32_SINT	DX10_R32G32B32_SINT	ePREC_INT32	0x55
RGBA 16161616	float	16-bit precision formats with alpha support	DX10_R16G16B16A16_FLOAT	DX10_R16G16B16A16_FLOAT	ePREC_FLOAT	0x56
RGBA 16161616	unsigned normalised int		DX10_R16G16B16A16_UNORM	DX10_R16G16B16A16_UNORM	ePREC_INT16	0x57
RGBA 16161616	unsigned int		DX10_R16G16B16A16_UINT	DX10_R16G16B16A16_UINT	ePREC_INT16	0x58
RGBA 16161616	signed normalised int		DX10_R16G16B16A16_SNORM	DX10_R16G16B16A16_SNORM	ePREC_INT16	0x59
RGBA 16161616	signed int		DX10_R16G16B16A16_SINT	DX10_R16G16B16A16_SINT	ePREC_INT16	0x5A
RG 3232	float	High precision two channel formats	DX10_R32G32_FLOAT	DX10_R32G32_FLOAT	ePREC_FLOAT	0x5B
RG 3232	unsigned int		DX10_R32G32_UINT	DX10_R32G32_UINT	ePREC_INT32	0x5C
RG 3232	signed int		DX10_R32G32_SINT	DX10_R32G32_SINT	ePREC_INT32	0x5D
RGBA 1010102	unsigned normalised int	10-bit precision format with basic 2 bit support for alpha.	DX10_R10G10B10A2_UNORM	DX10_R10G10B10A2_UNORM	ePREC_INT16	0x5E
RGBA 1010102	unsigned int		DX10_R10G10B10A2_UINT	DX10_R10G10B10A2_UINT	ePREC_INT16	0x5F
	float			DX10_R11G11B10_FLOAT		0x60
RGBA 8888	unsigned normalised int	32-bit formats with alpha support	DX10_R8G8B8A8_UNORM	DX10_R8G8B8A8_UNORM	ePREC_INT8	0x61
RGBA 8888	unsigned normalised int sRGB colour space		DX10_R8G8B8A8_UNORM_SRGB	DX10_R8G8B8A8_UNORM_SRGB	ePREC_INT8	0x62
RGBA 8888	unsigned int		DX10_R8G8B8A8_UINT	DX10_R8G8B8A8_UINT	ePREC_INT8	0x63
RGBA 8888	signed normalised int		DX10_R8G8B8A8_SNORM	DX10_R8G8B8A8_SNORM	ePREC_INT8	0x64
RGBA 8888	signed int		DX10_R8G8B8A8_SINT	DX10_R8G8B8A8_SINT	ePREC_INT8	0x65
RG 1616	float	16-bit precision two channel formats	DX10_R16G16_FLOAT	DX10_R16G16_FLOAT	ePREC_FLOAT	0x66

RG 1616	unsigned normalised int		DX10_R16G16_UNORM	DX10_R16G16_UNORM	ePREC_INT16	0x67
RG 1616	unsigned int		DX10_R16G16_UINT	DX10_R16G16_UINT	ePREC_INT16	0x68
RG 1616	signed normalised int		DX10_R16G16_SNORM	DX10_R16G16_SNORM	ePREC_INT16	0x69
RG 1616	signed int		DX10_R16G16_SINT	DX10_R16G16_SINT	ePREC_INT16	0x6A
R 32	float	32-bit single channel formats	DX10_R32_FLOAT	DX10_R32_FLOAT	ePREC_FLOAT	0x6B
R 32	unsigned int		DX10_R32_UINT	DX10_R32_UINT	ePREC_INT32	0x6C
R 32	signed int		DX10_R32_SINT	DX10_R32_SINT	ePREC_INT32	0x6D
RG 88	unsigned normalised int	8-bit precision two channel formats	DX10_R8G8_UNORM	DX10_R8G8_UNORM	ePREC_INT8	0x6E
RG 88	unsigned int		DX10_R8G8_UINT	DX10_R8G8_UINT	ePREC_INT8	0x6F
RG 88	signed normalised int		DX10_R8G8_SNORM	DX10_R8G8_SNORM	ePREC_INT8	0x70
RG 88	signed int		DX10_R8G8_SINT	DX10_R8G8_SINT	ePREC_INT8	0x71
R 16	float	16-bit single channel formats	DX10_R16_FLOAT	DX10_R16_FLOAT	ePREC_FLOAT	0x72
R 16	unsigned normalised int		DX10_R16_UNORM	DX10_R16_UNORM	ePREC_INT16	0x73
R 16	unsigned int		DX10_R16_UINT	DX10_R16_UINT	ePREC_INT16	0x74
R 16	signed normalised int		DX10_R16_SNORM	DX10_R16_SNORM	ePREC_INT16	0x75
R 16	signed int		DX10_R16_SINT	DX10_R16_SINT	ePREC_INT16	0x76
R 8	unsigned normalised int	8-bit single channel formats	DX10_R8_UNORM	DX10_R8_UNORM	ePREC_INT8	0x77
R 8	unsigned int		DX10_R8_UINT	DX10_R8_UINT	ePREC_INT8	0x78
R 8	signed normalised int		DX10_R8_SNORM	DX10_R8_SNORM	ePREC_INT8	0x79
R 8	signed int		DX10_R8_SINT	DX10_R8_SINT	ePREC_INT8	0x7A
A 8	unsigned normalised int	8-bit single channel alpha format	DX10_A8_UNORM	DX10_A8_UNORM	ePREC_INT8	0x7B
R 1	unsigned normalised int	1-bit per pixel texture format	DX10_R1_UNORM	DX10_R1_UNORM	ePREC_INT8	0x7C
				DX10_R9G9B9E5_SHAREDEXP		0x7D
	unsigned normalised int			DX10_R8G8_B8G8_UNORM		0x7E
	unsigned normalised int			DX10_G8R8_G8B8_UNORM		0x7F

BC 1	unsigned normalised int	Microsoft S3TC format, 4 bits per pixel with no alpha information.	DX10_BC1_UNORM	DX10_BC_1	ePREC_INT8	0x80
BC 1	unsigned normalised int sRGB colour space	Microsoft S3TC format, 4 bits per pixel with no alpha information.	DX10_BC1_UNORM_SRGB	DX10_BC_1_SRGB	ePREC_INT8	0x81
BC 2	unsigned normalised int	Microsoft S3TC format, 8 bits per pixel. Good for sharp alpha transitions.	DX10_BC2_UNORM	DX10_BC_2	ePREC_INT8	0x82
BC 2	unsigned normalised int sRGB colour space	Microsoft S3TC format, 8 bits per pixel. Good for sharp alpha transitions.	DX10_BC2_UNORM_SRGB	DX10_BC_2_SRGB	ePREC_INT8	0x83
BC 3	unsigned normalised int	Microsoft S3TC format, 8 bits per pixel. Good for smooth alpha transitions.	DX10_BC3_UNORM	DX10_BC_3	ePREC_INT8	0x84
BC 3	unsigned normalised int sRGB colour space	Microsoft S3TC format, 8 bits per pixel. Good for smooth alpha transitions.	DX10_BC3_UNORM_SRGB	DX10_BC_3_SRGB	ePREC_INT8	0x85
BC 4	unsigned normalised int			DX10_BC4_UNORM		0x86
BC 4	signed normalised int			DX10_BC4_SNORM		0x87
BC 5	unsigned normalised int			DX10_BC5_UNORM		0x88
BC 5	signed normalised int			DX10_BC5_SNORM		0x89

4.2. OpenVG

All these formats are treated by PVRTexLib as ePREC_INT8.

Format	Description	Command Line Identifier	Identifer Enum	Enum Value
RGBX 8888 sRGB	32 bits per pixel, no alpha support, sRGB colour space	OVG_RGBX_8888_SRGB	ePT_VG_sRGBX_8888	0x90
RGBA 8888 sRGB	32 bits per pixel, alpha support, sRGB colour	OVG_RGBA_8888_SRGB	ePT_VG_sRGBA_8888	0x91

	space			
RGBA 8888 sRGB PRE	32 bits per pixel, pre-multiplied alpha support, sRGB colour space	OVG_RGBA_8888_SRGB_PRE	ePT_VG_sRGBA_8888_PRE	0x92
RGB 565 sRGB	16 bits per pixel, no alpha support, sRGB colour space	OVG_RGB_565_SRGB	ePT_VG_sRGB_565	0x93
RGBA 5551 sRGB	16 bits per pixel, punch-through alpha support, sRGB colour space	OVG_RGBA_5551_SRGB	ePT_VG_sRGBA_5551	0x94
RGBA 4444 sRGB	16 bits per pixel, alpha support, sRGB colour space	OVG_RGBA_4444_SRGB	ePT_VG_sRGBA_4444	0x95
L 8 sRGB	Single channel 8 bits per pixel format, sRGB colour space	OVG_L_8_SRGB	ePT_VG_sL_8	0x96
RGBX 8888 lRGB	32 bits per pixel, no alpha support, lRGB colour space	OVG_RGBX_8888_LRGB	ePT_VG_lRGBX_8888	0x97
RGBA 8888 lRGB	32 bits per pixel, no alpha support, lRGB colour space	OVG_RGBA_8888_LRGB	ePT_VG_lRGBA_8888	0x98
RGBA 8888 lRGB PRE	32 bits per pixel, pre-multiplied alpha support, sRGB colour space	OVG_RGBA_8888_LRGB_PRE	ePT_VG_lRGBA_8888_PRE	0x99
L 8 lRGB	Single channel 8 bits per pixel format, lRGB colour space	OVG_L_8_LRGB	ePT_VG_lL_8	0x9A
A 8	Alpha texture 8 bits per channel	OVG_A_8	ePT_VG_A_8	0x9B
1 BPP	Single bit per pixel B&W texture	OVG_1_BPP	ePT_VG_BW_1	0x9C
XRGB 8888 sRGB	32 bits per pixel, no alpha support, sRGB colour space	OVG_XRGB_8888_SRGB	ePT_VG_sXRGB_8888	0x9D
ARGB 8888 sRGB	32 bits per pixel, alpha support, sRGB colour space	OVG_ARGB_8888_SRGB	ePT_VG_sARGB_8888	0x9E

ARGB 8888 sRGB PRE	32 bits per pixel, pre-multiplied alpha support, sRGB colour space	OVG_ARGB_8888_SRGB_PRE	ePT_VG_sARGB_8888_PRE	0x9F
ARGB 1555 sRGB	16 bits per pixel, punch-through alpha support, sRGB colour space	OVG_ARGB_1555_SRGB	ePT_VG_sARGB_1555	0x100
ARGB 4444 sRGB	16 bits per pixel, alpha support, sRGB colour space	OVG_ARGB_4444_SRGB	ePT_VG_sARGB_4444	0x101
XRGB 8888 lRGB	32 bits per pixel, no alpha support, lRGB colour space	OVG_XRGB_8888_LRGB	ePT_VG_lXRGB_8888	0x102
ARGB 8888 lRGB	32 bits per pixel, alpha support, lRGB colour space	OVG_ARGB_8888_LRGB	ePT_VG_lARGB_8888	0x103
ARGB 8888 lRGB PRE	32 bits per pixel, pre-multiplied alpha support, lRGB colour space	OVG_ARGB_8888_LRGB_PRE	ePT_VG_lARGB_8888_PRE	0x104
BGRX 8888 sRGB	32 bits per pixel, no alpha support, sRGB colour space	OVG_BGRX_8888_SRGB	ePT_VG_sBGRX_8888	0x105
BGRA 8888 sRGB	32 bits per pixel, alpha support, sRGB colour space	OVG_BGRA_8888_SRGB	ePT_VG_sBGRA_8888	0x106
BGRA 8888 sRGB PRE	32 bits per pixel, premultiplied alpha support, sRGB colour space	OVG_BGRA_8888_SRGB_PRE	ePT_VG_sBGRA_8888_PRE	0x107
BGR 565 sRGB	16 bits per pixel, no alpha support, sRGB colour space	OVG_BGR_565_SRGB	ePT_VG_sBGR_565	0x108
BGR 5551 sRGB	16 bits per pixel, punch-through alpha support, sRGB colour space	OVG_BGR_5551_SRGB	ePT_VG_sBGRA_5551	0x109
BGRA 4444 sRGB	16 bits per pixel, alpha support, sRGB colour space	OVG_BGRA_4444_SRGB	ePT_VG_sBGRA_4444	0x10A

BGRX 8888 lRGB	32 bits per pixel, no alpha support, lRGB colour space	OVG_BGRX_8888_LRGB	ePT_VG_lBGRX_8888	0x10B
BGRA 8888 lRGB	32 bits per pixel, alpha support, lRGB colour space	OVG_BGRA_8888_LRGB	ePT_VG_lBGRA_8888	0x10C
BGRA 8888 lRGB PRE	32 bits per pixel, pre-multiplied alpha support, lRGB colour space	OVG_BGRA_8888_LRGB_PRE	ePT_VG_lBGRA_8888_PRE	0x10D
XBGR 8888 sRGB	32 bits per pixel, no alpha support, sRGB colour space	OVG_XBGR_8888_SRGB	ePT_VG_sXBGR_8888	0x10E
ABGR 8888 sRGB	32 bits per pixel, alpha support, sRGB colour space	OVG_ABGR_8888_SRGB	ePT_VG_sABGR_8888	0x10F
ABGR 8888 sRGB PRE	32 bits per pixel, pre-multiplied alpha support, sRGB colour space	OVG_ABGR_8888_SRGB_PRE	ePT_VG_sABGR_8888_PRE	0x110
ABGR 1555 sRGB	16 bits per pixel, no alpha support, sRGB colour space	OVG_ABGR_1555_SRGB	ePT_VG_sABGR_1555	0x111
ABGR 4444 lRGB	16 bits per pixel, alpha support, sRGB colour space	OVG_ABGR_4444_SRGB	ePT_VG_sABGR_4444	0x112
XBGR 8888 lRGB	32 bits per pixel, no alpha support, lRGB colour space	OVG_XBGR_8888_LRGB	ePT_VG_lXBGR_8888	0x113
ABGR 8888 lRGB	32 bits per pixel, alpha support, lRGB colour space	OVG_ABGR_8888_LRGB	ePT_VG_lABGR_8888	0x114
ABGR 8888 lRGB PRE	32 bits per pixel, pre-multiplied alpha support, lRGB colour space	OVG_ABGR_8888_LRGB_PRE	ePT_VG_lABGR_8888_PRE	0x115