Adobe Texture Format

ATF		
Field	**Type**	**Comment**
Signature	U8[3]	Always 'ATF'.
Reserved	U32	Reserved for future use. Currently set to 0x000000FF.
Version	U8	Version of ATF file format.
Length	U32	Size of ATF file in bytes, does not include signature, reserved, version bytes, and this length field.
Cubemap	UB[1]	0 = normal texture 1 = cube map texture
Format	UB[7]	0 = RGB888 1 = RGBA88888 2 = Compressed 3 = RAW Compressed 4 = Compressed With Alpha 5 = RAW Compressed With Alpha
Log2Width	U8	Width of texture expressed as 2^Log-2Width. Maximum value allowed is 12.
Log2Height	U8	Height of texture expressed as 2^Log2Height. Maximum value allowed is 12.
Count	U8	Total number of textures encoded per face. Maximum value allowed is 13.

TextureData	If Cubemap == 0 {
	  If Format == 0
	  ATFRGB888[Count]
	  If Format == 1
	  ATFRGBA8888[Count]
	  If Format == 2
	  ATFCOMPRESSED[Count]
	  If Format == 3
	  ATFRAWCOMPRESSED[Count]
	  If Format == 4
	  ATFCOMPRESSEDALPHA[Count]
	  If Format == 5
	  ATFRAWCOMPRESSEDALPHA[Count]
	}
	if Cubemap == 1 {
	  If Format == 0
	  ATFRGB888[6][Count]
	  If Format == 1
	  ATFRGBA8888[6][Count]
	  If Format == 2
	  ATFCOMPRESSED[6][Count]
	  If Format == 3
	  ATFRAWCOMPRESSED[6][Count]
	  If Format == 4
	  ATFCOMPRESSEDALPHA[6][Count]
	  If Format == 5
	  ATFRAWCOMPRESSEDALPHA[6][Count]
	}
		The first image encoded is the main texture image encoded at the size specified above. Each consecutive image encoded contains the next mip map level of that main image.
		
		Cube maps contain 6 faces. They are placed in the following order: [-X, +X, -Y, +Y, -Z, +Z], i.e. [Left, Right, Bottom, Top, Back, Front]

ATFRGB888		
Field	**Type**	**Comment**
Length	U32	Length of payload data in bytes
Data	U8[Length]	JPEG-XR data (JXRC_FMT_24bppRGB)

ATFRGBA8888		
Field	**Type**	**Comment**
Length	U32	Length of payload data in bytes
Data	U8[Length]	JPEG-XR data (JXRC_FMT_32bppBGRA)

ATFRAWCOMPRESSED		
Field	**Type**	**Comment**
DXT1ImageDataLength	U32	Length of DXT1 image data in bytes
DXT1ImageData	U8[DXT1ImageDataLength]	RAW DXT1 data
PVRTCImageDataLength	U32	Length of PVRTC4bpp image data in bytes
PVRTCImageData	U8[PVRTCImageDataLength]	RAW PVRTC data
ETC1ImageDataLength	U32	Length of ETC1 image data in bytes
ETC1ImageData	U8[ETC1ImageDataLength]	RAW ETC1 data

ATFRAWCOMPRESSEDALPHA		
Field	**Type**	**Comment**
DXT5ImageDataLength	U32	Length of DXT5 image data in bytes
DXT5ImageData	U8[DXT5ImageDataLength]	RAW DXT5 data
PVRTCImageDataLength	U32	Length of PVRTC4bpp image data in bytes
PVRTCImageData	U8[PVRTCImageDataLength]	RAW PVRTC data
ETC1ImageDataLength	U32	Length of ETC1 image data in bytes
ETC1ImageData	U8[ETC1ImageDataLength/2]	RAW ETC1 data
ETC1AlphaImageData	U8[ETC1ImageDataLength/2]	RAW ETC1 data

ATFCOMPRESSED		
Field	**Type**	**Comment**
DXT1DataLength	U32	Length of DXT1 data in bytes
DXT1Data	U8[DXT1DataLength]	LZMA compressed DXT1 data
DXT1ImageDataLength	U32	Length of DXT1 image data in bytes
DXT1ImageData	U8[DXT1ImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR565)
PVRTCTopDataLength	U32	Length of PVRTC4bpp top data in bytes
PVRTCTopData	U8[PVRTCTopDataLength]	LZMA compressed PVRTC top data
PVRTCBottomDataLength	U32	Length of PVRTC4bpp bottom data in bytes
PVRTCBottomData	U8[PVRTCBottomDataLength]	LZMA compressed PVRTC bottom data
PVRTCImageDataLength	U32	Length of PVRTC4bpp image data in bytes
PVRTCImageData	U8[PVRTCImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR555)
ETC1TopDataLength	U32	Length of ETC1 top data in bytes
ETC1TopData	U8[ETC1TopDataLength]	LZMA compressed ETC1 top data
ETC1BottomDataLength	U32	Length of ETC1 bottom data in bytes
ETC1BottomData	U8[ETC1BottomDataLength]	LZMA compressed ETC1 bottom data
ETC1ImageDataLength	U32	Length of ETC1 image data in bytes
ETC1ImageData	U8[ETC1ImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR555)

Splitting source texture streams into ATF data streams:

PVRTC 4bpp input data stream(*)					
32bits	1bit	15bits	1bit	14bits	1bit
Modulation Data	Alpha 0 Bit	Color 0 (5:5:5)	Alpha 1 Bit	Color 1 (5:5:4)	Modulation mode

Data |= (Alpha bit << 1)

Data |= (Mod bit << 0)

Color0(5:5:5)

Data |= (Alpha bit << 2)

ATF PVRTCTopData			
Data 0	Data 1	...	Data N

ATF PVRTCBottomData			
Data 0	Data 1	...	Data N

ATF PVRTCImageData

Color1(5:5:5)

(*) PVRTC texture streams usually need to be de-twiddled first.

ETC1 input data stream		
24bits	8bits	32bits
Color0+1(**)	Flags	Modulation Data

ATF ETC1TopData			
Data 0	Data 1	...	Data N

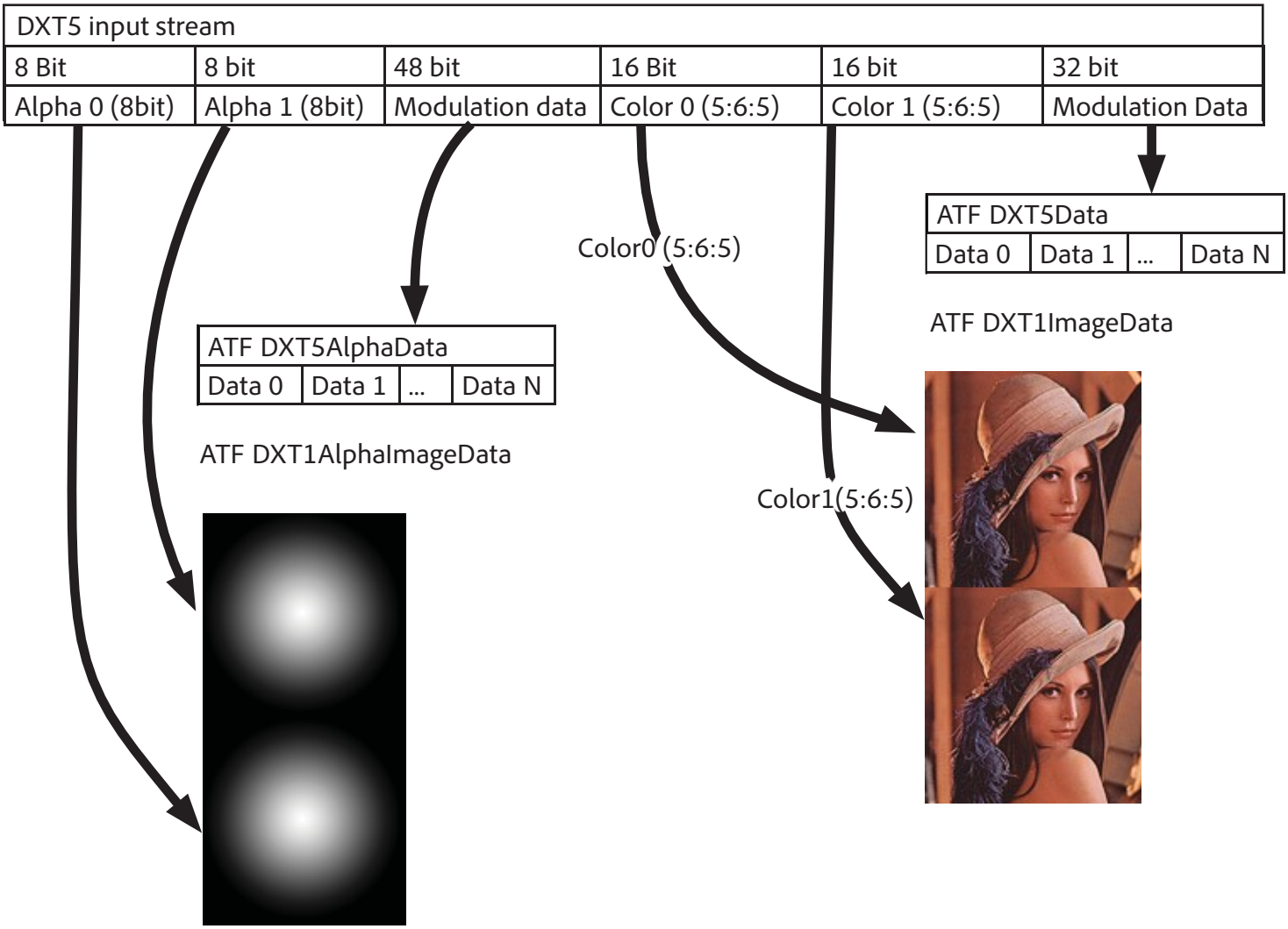
ATF ETC1BottomData			
Data 0	Data 1	...	Data N

ATF PVRTCImageData

Color0(5:5:5)

Color1(5:5:5)

(**) Encoding of Color 0 and Color 1 depend on diffbit in the Flag data. See ETC1 specification.

ATFALPHACOMPRESSED		
Field	**Type**	**Comment**
DXT5AlphaDataLength	U32	Length of DXT5 alpha data in bytes
DXT5AlphaData	U8[DXT5AlphaDataLength]	LZMA compressed DXT1 data
DXT5AlphaImgDataLength	U32	Length of DXT5 alpha image data in bytes
DXT5AlphaImageData	U8[DXT5AlphaImgDataLength]	JPEG-XR data (JXRC_FMT_8bppGray)
DXT5DataLength	U32	Length of DXT5 data in bytes
DXT5Data	U8[DXT5DataLength]	LZMA compressed DXT5 data
DXT5ImageDataLength	U32	Length of DXT5 image data in bytes
DXT5ImageData	U8[DXT5ImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR565)
PVRTCTopDataLength	U32	Length of PVRTC4bpp top data in bytes
PVRTCTopData	U8[PVRTCTopDataLength]	LZMA compressed PVRTC top data
PVRTCBottomDataLength	U32	Length of PVRTC4bpp bottom data in bytes
PVRTCBottomData	U8[PVRTCBottomDataLength]	LZMA compressed PVRTC bottom data
PVRTCImageDataLength	U32	Length of PVRTC4bpp image data in bytes
PVRTCImageData	U8[PVRTCImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR555)
ETC1TopDataLength	U32	Length of ETC1 top data in bytes
ETC1TopData	U8[ETC1TopDataLength]	LZMA compressed ETC1 top data
ETC1BottomDataLength	U32	Length of ETC1 bottom data in bytes
ETC1BottomData	U8[ETC1BottomDataLength]	LZMA compressed ETC1 bottom data
ETC1ImageDataLength	U32	Length of ETC1 image data in bytes
ETC1ImageData	U8[ETC1ImageDataLength]	JPEG-XR data (JXRC_FMT_16bppBGR555)

Splitting source texture streams into ATF data streams: