JPEG Encoder Reference

PlayStation®Vita Programmer Tool Runtime Library Release 3.50

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Encoding Functions

sceJpegEncoderGetContextSize

Get context size of encoder

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderGetContextSize(
        void
)
```

Arguments

None

Return Values

Returns the memory size required for the context of the encoder.

Description

This function is multithread safe.

Be sure to use this function to obtain the context size.

sceJpegEncoderInit

Initialize encoder

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderInit(
        SceJpegEncoderContext context,
        int iFrameWidth,
        int iFrameHeight,
        int pixelFormat,
        void *pJpeg,
        SceSize oJpegbufSize
)
```

Arguments

context	Encoder context
iFrameWidth	Width of frame buffer storing image to be encoded
iFrameHeight	Height of frame buffer storing image to be encoded
pixelFormat	Format of image to be encoded
pJpeg	Pointer to buffer for storing encoding results
oJpegbufSize	Size of buffer for storing encoding results

Return Values

Returns `SCE_OK(0)` for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
`SCE_JPEGENC_ERROR_IMAGE_SIZE`	0x80650200	Invalid frame buffer size storing image to be encoded
`SCE_JPEGENC_ERROR_INVALID_PIXELFORMAT`	0x80650203	Invalid format of image to be encoded
`SCE_JPEGENC_ERROR_INVALID_POINTER`	0x80650205	Invalid encoder context address or invalid address of buffer storing encoder results or invalid size of buffer storing encoder results

Description

This function initializes the encoder.

To *context*, specify the work area to be used as the encoder context. Specify the pointer to an area with more bytes than the value returned with the `sceJpegEncoderGetContextSize()` function. Use a multiple of four for the starting address of the area. Retain the area without direct access until JPEG encoding is completed.

To *iFrameWidth* and *iFrameHeight*, specify the size of the frame buffer storing the image to be encoded. They are sizes (pixels) in the x and y directions respectively. For encoded images in YCbCr420, specify both in multiples of 16. When the image is YCbCr422, specify the width in multiples of 16 and the height in multiples of 8. If the input image is RGBA and the `sceJpegEncoderCsc()` function will be used to convert color space to YCbCr422/420, specify the image size between 64 x 64 pixels and 2032 x 1088 pixels.

To *pixelFormat*, specify the format of the image to be encoded. When the image is YCbCr420, specify SCE_JPEGENC_PIXEL_YCBCR420, and when the image is YCbCr422, specify SCE_JPEGENC_PIXEL_YCBCR422. If the input image is RGBA and the sceJpegEncoderCsc() function will be used to convert color space to YCbCr422/420, add SCE_JPEGENC_PITCH_HW_CSC to these values.

To *pJpeg*, specify the pointer to the buffer for storing the encoding results, and to *oJpegbufSize*, specify the buffer size in bytes. Specify the buffer size in multiples of 256.

This function is initialized to access only the video memory as input/output buffer region to pass data to encoder. In order to use the main memory, use sceJpegEncoderInitWithParam() instead of this function.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

The buffer (*pJpeg*) for storing the encoding results has several restrictions. Refer to "Buffer Restrictions for Positioning I/O Data" in "Precautions" under the "JPEG Encoder Overview" document for details.

sceJpegEncoderInitWithParam

Initialize encoder (parameter-specified version)

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderInitWithParam(
        SceJpegEncoderContext context,
        const SceJpegEncoderInitParam *pInitParam
)
```

Arguments

context	Encoder context
pInitParam	parameter to be used at initialization

Return Values

Returns `SCE_OK(0)` for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
`SCE_JPEGENC_ERROR_IMAGE_SIZE`	0x80650200	Invalid frame buffer size storing image to be encoded
`SCE_JPEGENC_ERROR_INVALID_PIXELFORMAT`	0x80650203	Invalid format of image to be encoded
`SCE_JPEGENC_ERROR_INVALID_POINTER`	0x80650205	Invalid encoder context address or invalid address of buffer storing encoder results or invalid size of buffer storing encoder results
`SCE_JPEGENC_ERROR_INVALID_INIT_PARAM`	0x80650207	Value contained in the initialization parameter is invalid

Description

This function initializes the encoder.

To *context*, specify the work area to be used as the encoder context. Specify the pointer to an area with more bytes than the value returned with the `sceJpegEncoderGetContextSize()` function. Use a multiple of four for the starting address of the area. Retain the area without direct access until JPEG encoding is completed.

For *pInitParam*, specify parameters to be used at initialization.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

sceJpegEncoderEncode

Execute encoding

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderEncode(
        SceJpegEncoderContext context,
        const void *pYCbCr
)
```

Arguments

context	Encoder context
pYCbCr	Pointer to frame buffer storing image to be encoded

Return Values

Returns the JPEG size of the encoding result with a positive number for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_INSUFFICIENT_BUFFER	0x80650201	Insufficient size of buffer for storing encoding results
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address or frame buffer address storing image to be encoded
SCE_JPEGENC_ERROR_NOT_PHY_CONTINUOUS_MEMORY	0x80650206	Frame buffer storing image to be encoded or buffer for storing encoding results is a physical address and is not a continuous area

Description

This function performs encoding. The encoding results are stored in *pJpeg* specified with sceJpegEncoderInit(). The size of the output JPEG is returned as the return value.

To *context*, specify the context of the encoder initialized with sceJpegEncoderInit().

To *pYCbCr*, specify the pointer to the frame buffer storing the image to be encoded.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

The frame buffer (*pYCbCr*) storing the image to be encoded has several restrictions. Refer to "Buffer Restrictions for Positioning I/O Data" in "Precautions" under the "JPEG Encoder Overview" document for details.

sceJpegEncoderCsc

Convert color space from RGBA to YCbCr

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderCsc(
        SceJpegEncoderContext context,
        void *pYCbCr,
        const void *pRGBA,
        int iFrameWidth,
        int inputPixelFormat
)
```

Arguments

context	Encoder context
pYCbCr	Start pointer of buffer for storing conversion results
pRGBA	Pointer to input frame buffer
iFrameWidth	Width of input frame
inputPixelFormat	Format of input frame

Return Values

Returns SCE_OK(0) for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_IMAGE_SIZE	0x80650200	Invalid frame buffer size or input frame width
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address or frame buffer address of I/O image
SCE_JPEGENC_ERROR_NOT_PHY_CONTINUOUS_MEMORY	0x80650206	Frame buffer of I/O image is a physical address and is not continuous

Description

This function converts color space of image data from RGBA to YCbCr. The format of the conversion results is set to *pixelFormat* as specified with sceJpegEncoderInit(), so call the sceJpegEncoderEncode() function to encode an image in RGBA to JPEG.

To *context*, specify the context of the encoder initialized with sceJpegEncoderInit().

To *pYCbCr*, specify the start pointer of the buffer for storing the conversion results. The output buffer size will not be checked, so specify sufficient memory area to store the converted image. Note that when the number of bytes per line for both Cb and Cr are not multiples of 16, the buffer must allow for the addition of a pitch difference.

To *pRGBA*, specify the start pointer of the buffer storing the image to be performed color space conversion.

To *iFrameWidth*, specify in pixels the width of the image specified with *pRGBA*. Specify the values in multiples of 4, ranging from the width of the frame buffer specified with sceJpegEncoderInit() to 2032.

To *inputPixelFormat*, specify the format of input frame, SCE_JPEGENC_PIXEL_RGBA8888 or SCE_JPEGENC_PIXEL_BGRA8888.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

The frame buffer (*pYCbCr*, *pRGBA*) of the I/O image has several restrictions. Refer to "Buffer Restrictions for Positioning I/O Data" in "Precautions" under the "JPEG Encoder Overview" document for details.

sceJpegEncoderEnd

End encoder

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderEnd(
        SceJpegEncoderContext context
);
```

Arguments

context Encoder context

Return Values

Returns SCE_OK(0) for success.

Returns the following error code (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address

Description

This function ends the encoder.

To *context*, specify the context of the encoder initialized with sceJpegEncoderInit().

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

sceJpegEncoderSetValidRegion

Specify encoding area

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderSetValidRegion(
        SceJpegEncoderContext context,
        int iFrameWidth,
        int iFrameHeight
)
```

Arguments

context	Encoder context
iFrameWidth	Width of encoding image frame buffer to be encoded
iFrameHeight	Height of encoding image frame buffer to be encoded

Return Values

Returns `SCE_OK(0)` for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_IMAGE_SIZE	0x80650200	Specified area size is invalid
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address

Description

This function specifies the area to be encoded.

To specify only one part of the frame buffer as a valid area, you can specify the size of the valid area and prevent unneeded areas from being encoded.

To *context*, specify the context of the encoder initialized with `sceJpegEncoderInit()`.

To *iFrameWidth* and *iFrameHeight*, specify the size of the area to be encoded. They are sizes (pixels) in the x and y directions respectively. Specify these so as not to exceed the frame buffer size.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

sceJpegEncoderSetCompressionRatio

Set compression ratio

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderSetCompressionRatio(
        SceJpegEncoderContext context,
        int compratio
)
```

Arguments

context	Encoder context
compratio	Compression ratio

Return Values

Returns SCE_OK(0) for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_INVALID_COMPRATIO	0x80650202	Invalid compression ratio
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address

Description

This function sets the JPEG compression ratio.

To *context*, specify the context of the encoder initialized with sceJpegEncoderInit().

To *compratio*, specify the compression ratio. Specify a value between 0 (SCE_JPEGENC_COMPRATIO_NONE) and 255 (SCE_JPEGENC_COMPRATIO_HIGH). A value of 0 represents the lowest compression ratio (higher quality), and a value of 255 represents the highest compression ratio (lower quality).

After the encoder is initialized, 64 (SCE_JPEGENC_COMPRATIO_DEFAULT) is specified by default.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

sceJpegEncoderSetHeaderMode

Specify header format

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderSetHeaderMode(
        SceJpegEncoderContext context,
        int headerMode
)
```

Arguments

context	Encoder context
headerMode	Format of output data header

Return Values

Returns SCE_OK(0) for success.

Returns one of the following error codes (negative value) for errors.

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_INVALID_HEADER_MODE	0x80650204	Invalid header format
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid encoder context address

Description

This function specifies the format of output data header.

To *context*, specify the context of the encoder initialized with sceJpegEncoderInit().

To *headerMode*, specify the value representing the header format. To output the data as a normal JPEG file, specify SCE_JPEGENC_MODE_JPEG. To output the data as Motion JPEG, specify SCE_JPEGENC_MODE_MJPEG.

After the encoder is initialized, SCE_JPEGENC_MODE_JPEG is specified by default.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

sceJpegEncoderSetOutputAddr

Reuse encoding context (Change only output destination)

Definition

```
#include <scejpegenc.h>
int sceJpegEncoderSetOutputAddr(
        SceJpegEncoderContext context,
        void *pJpeg,
        SceSize oJpegbufSize
)
```

Arguments

context	Encoder context
pJpeg	Pointer to buffer for storing encoding results
oJpegbufSize	Size of buffer for storing encoding results

Return Values

Returns `SCE_OK(0)` for success.

Returns the following error code (negative value) for errors.

Value	Hexadecimal	Description
`SCE_JPEGENC_ERROR_INVALID_POINTER`	0x80650205	Invalid encoder context address or invalid address of buffer storing encoder results

Description

This function specifies the buffer for storing the encoding results, again.

To *context*, specify the context of the encoder initialized with `sceJpegEncoderInit()`.

To *pJpeg*, specify the pointer to the buffer for storing the encoding results, and to *oJpegbufSize*, specify the buffer size in bytes. Specify the buffer size in multiples of 256.

Notes

When this function uses a separate encoder context for each thread, it is multithread safe.

The buffer (*pJpeg*) for storing the encoding results has several restrictions. Refer to "Buffer Restrictions for Positioning I/O Data" in "Precautions" under the "JPEG Encoder Overview" document for details.

SceJpegEncoderContext

JPEG encoder context

Definition

```
#include <scejpegenc.h>
typedef void *SceJpegEncoderContext;
```

Description

This is the context of the JPEG encoder.

Use this function after initializing the JPEG encoder with `sceJpegEncoderInit()`. Thereafter, the context is set to argument *`context`* when `sceJpegEncoderEncode()` or another function is called.

See Also

`sceJpegEncoderInit()`

SceJpegEncoderInitParam

Initialization parameter of encoder

Definition

```
#include <scejpegenc.h>
typedef struct {
        SceSize size;
        int iFrameWidth;
        int iFrameHeight;
        int pixelFormat;
        void *pJpeg;
        SceSize oJpegbufSize;
        int option;
} SceJpegEncoderInitParam;
```

Arguments

size	Number of bytes of this structure (`sizeof(SceJpegEncoderInitParam)`)
iFrameWidth	Width of frame buffer storing image to be encoded
iFrameHeight	Height of frame buffer storing image to be encoded
pixelFormat	Format of image to be encoded
pJpeg	Pointer to buffer for storing encoding results
oJpegbufSize	Size of buffer for storing encoding results
option	Option

Description

This structure is used to store parameters to pass when initializing encoder with `sceJpegEncoderInitWithParam()`.

For *size*, specify the size of this structure in bytes.

To *iFrameWidth* and *iFrameHeight*, specify the size of the frame buffer storing the image to be encoded. They are sizes (pixels) in the x and y directions respectively. For encoded images in YCbCr420, specify both in multiples of 16. When the image is YCbCr422, specify the width in multiples of 16 and the height in multiples of 8. If the input image is RGBA and the `sceJpegEncoderCsc()` function will be used to convert color space to YCbCr422/420, specify the image size between 64 x 64 pixels and 2032 x 1088 pixels.

To *pixelFormat*, specify the format of the image to be encoded. When the image is YCbCr420, specify `SCE_JPEGENC_PIXEL_YCBCR420`, and when the image is YCbCr422, specify `SCE_JPEGENC_PIXEL_YCBCR422`. If the input image is RGBA and the `sceJpegEncoderCsc()` function will be used to convert color space to YCbCr422/420, add `SCE_JPEGENC_PITCH_HW_CSC` to these values.

To *pJpeg*, specify the pointer to the buffer for storing the encoding results, and to *oJpegbufSize*, specify the buffer size in bytes. Specify the buffer size in multiples of 256.

To *option*, specify an initialization option. Specify `SCE_JPEGENC_INIT_OPTION_NONE` to utilize video memory as an input/output buffer region to pass on to the encoder. If you wish to use only the main memory, or both video/main memory, use `SCE_JPEGENC_INIT_OPTION_LPDDR2_MEMORY` instead.

Notes

The buffer (*pJpeg*) for storing the encoding results has several restrictions. Refer to "Buffer Restrictions for Positioning I/O Data" in "Precautions" under the "JPEG Encoder Overview" document for details.

Constants

Return Codes

List of JPEG encoder return codes

Definition

Value	Hexadecimal	Description
SCE_JPEGENC_ERROR_IMAGE_SIZE	0x80650200	Invalid image size
SCE_JPEGENC_ERROR_INSUFFICIENT_BUFFER	0x80650201	Insufficient output buffer size
SCE_JPEGENC_ERROR_INVALID_COMPRATIO	0x80650202	Invalid compression ratio
SCE_JPEGENC_ERROR_INVALID_PIXELFORMAT	0x80650203	Invalid image format
SCE_JPEGENC_ERROR_INVALID_HEADER_MODE	0x80650204	Invalid header output mode
SCE_JPEGENC_ERROR_INVALID_POINTER	0x80650205	Invalid buffer pointer or size
SCE_JPEGENC_ERROR_NOT_PHY_CONTINUOUS_MEMORY	0x80650206	Physical address of specified memory area is not continuous
SCE_JPEGENC_ERROR_INVALID_INIT_PARAM	0x80650207	Value contained in the initialization parameter is invalid