

SCEPNG Reference

© 2011 Sony Computer Entertainment Inc.
All Rights Reserved.
SCE Confidential

Table of Contents

Decoding Function	3
scePngDec.....	4
Decoding Auxiliary Function.....	6
scePngGetOutputInfo.....	7
scePngConvertToRGBA	8
Encoding Auxiliary Function.....	9
scePngGetEncSize	10
Encoding Function	11
scePngEnc	12
Constants	13
SCE_PNG_FORMAT_BPP_MASK	14
SCE_PNG_FORMAT_FLAG_ALPHA.....	15
SCE_PNG_FORMAT_FLAG_CLUT	16
SCE_PNG_FORMAT_FLAG_GRAYSCALE.....	17
SCE_PNG_FORMAT_FLAG_INTERLACE	18
Return Codes	19

Decoding Function

000004892117

SCE CONFIDENTIAL

scePngDec

PNG decoding function

Definition

```
#include <scepng.h>
int scePngDec(
    void *dst,
    unsigned int outsize,
    const unsigned char *src,
    unsigned int insize,
    int *width,
    int *height,
    int *format
)
```

Arguments

dst Pointer to buffer for storing decoding results
outsize Size of buffer for storing decoding results
src Pointer to buffer where PNG data is stored
insize Size of PNG data
width Pointer to destination where width (in pixels) of decoding result data is stored
height Pointer to destination where height (in pixels) of decoding result data is stored
format Pointer to destination where format of decoding result data is stored

Return Value

When processing completes successfully, the number of bytes of decoding result data is returned.
 A negative number indicates one of the following errors.

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_FORMAT	0x80690001	Could not perform decoding because data was invalid
SCE_PNG_ERROR_INVALID_SIZE	0x80690002	Invalid buffer size was specified
SCE_PNG_ERROR_NOT_SUPPORTED	0x80690003	Could not perform decoding because PNG data contains a format that is not supported
SCE_PNG_ERROR_INVALID_POINTER	0x80690004	Invalid buffer pointer

Description

This function expands the given PNG data and converts it to raster scan format (or ADAM7 interlace scan format). If the input PNG data also uses a CLUT (PALETTE), the contents of the CLUT are also included in the output.

The output data begins with the CLUT data (if present) followed by the image data. For details, refer to the "SCEPNG Overview" document.

The data format of the decoded result is stored in **format*. This will be the logical OR of the following values.

Number of bits per pixel (1 to 64)
 SCE_PNG_FORMAT_FLAG_ALPHA
 SCE_PNG_FORMAT_FLAG_CLUT
 SCE_PNG_FORMAT_FLAG_GRAYSCALE
 SCE_PNG_FORMAT_FLAG_INTERLACE

SCE CONFIDENTIAL

Notes

This function is multithread safe.

000004892117

Decoding Auxiliary Function

SCE CONFIDENTIAL

scePngGetOutputInfo

Obtain PNG Decoder output information

Definition

```
#include <scepng.h>
int scePngGetOutputInfo (
    const unsigned char *src,
    unsigned int insize,
    int *width,
    int *height,
    int *outputFormat,
    int *streamFormat
)
```

Arguments

<i>src</i>	Pointer to buffer where PNG data is stored
<i>insize</i>	PNG data size
<i>width</i>	Pointer to location where width (number of pixels) of decoded result data is stored
<i>height</i>	Pointer to location where height (number of pixels) of decoded result data is stored
<i>outputFormat</i>	Pointer to location where format of decoded result data is stored
<i>streamFormat</i>	Pointer to location where stream format is stored

Return Values

During normal behavior, this function returns the number of bytes required for storing the decoded result data.

For negative values, one of the following errors will be returned.

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_FORMAT	0x80690001	Cannot perform decoding because data is invalid
SCE_PNG_ERROR_INVALID_SIZE	0x80690002	Invalid buffer size was specified
SCE_PNG_ERROR_NOT_SUPPORTED	0x80690003	Information cannot be obtained because the PNG format of the data is unsupported
SCE_PNG_ERROR_INVALID_POINTER	0x80690004	Invalid buffer pointer

Description

After reading the header information of the PNG data provided, obtain the image size, the data format and the number of bytes required for the storage buffer for the decoded result data.

The data format of the decoded result data is stored in **outputFormat*. This value is equivalent to the value of **format* obtained by `scePngDec()`. Refer to the description of **format* in `scePngDec()` regarding this value.

The stream data format is stored in **streamFormat*. If the stream data format is RGB888, this value will differ from the value of **outputFormat* because the data format is converted to RGBA8888 during decoding. Refer to the description of **format* in `scePngDec()` regarding this value.

Notes

This function is multithread safe.

SCE CONFIDENTIAL

scePngConvertToRGBA

Convert CLUT/grayscale/ADAM7 interlace to RGBA8888 format.

Definition

```
#include <scepng.h>
int scePngConvertToRGBA(
    void *dst,
    const void *src,
    int width,
    int height,
    int format
)
```

Arguments

dst Pointer to buffer for storing converting results
src Pointer to buffer for storing decoding result data
width Width (in pixels) of decoding result data
height Height (in pixels) of decoding result data
format Format of decoding result data

Return Values

When processing completes successfully, 0 is returned.
 A negative number indicates one of the following errors.

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_FORMAT	0x80690001	Cannot perform decoding because data is invalid
SCE_PNG_ERROR_NOT_SUPPORTED	0x80690003	Could not perform converting because format is not supported
SCE_PNG_ERROR_INVALID_POINTER	0x80690004	Invalid buffer pointer

Description

This function converts decode results obtained from `scePngDec()` to RGBA8888 format.

If the given data is in CLUT (PALETTE) or grayscale format, it is converted to RGBA8888. If the given data is in ADAM7 interlace scan format, it is rearranged in raster scan format.

To *src*, *width*, *height* and *format*, specify the decode results obtained from `scePngDec()`.

To *dst*, specify where the converted results will be stored. The buffer size will not be checked. Specify the buffer where the specified image size using *width* and *height* in RGBA8888 format can be stored.

Notes

This function is multithread safe.

Encoding Auxiliary Function

SCE CONFIDENTIAL

scePngGetEncSize

Estimate size of PNG encoding result

Definition

```
#include <scepng.h>
int scePngGetEncSize (
    int width,
    int height
)
```

Arguments

width Width (in pixels) of data to be encoded
height Height (in pixels) of data to be encoded

Return Value

When processing completes successfully, the maximum data size (in bytes) of the result of encoding an image of the given size is returned.

A negative number indicates the following error.

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_SIZE	0x80690002	Invalid image size was specified

Description

This function returns an estimate of the size of the encoding result. Normally, the size of data generated by `scePngEnc()` will not exceed the return value of this function (however, it may be several bytes smaller).

By calling this function before performing encoding, you can check whether the output buffer size will be large enough.

Notes

This function is multithread safe.

Encoding Function

000004892117

SCE CONFIDENTIAL

scePngEnc

PNG encoding function

Definition

```
#include <scepng.h>
int scePngEnc(
    void *dst,
    const void *src,
    int width,
    int height,
    int framewidth,
    int format
)
```

Arguments

<i>dst</i>	Pointer to buffer for storing encoding result
<i>src</i>	Pointer to frame buffer which contains the image to be encoded
<i>width</i>	Width (in pixels) of data to be encoded
<i>height</i>	Height (in pixels) of data to be encoded
<i>framewidth</i>	Width (in pixels) of frame buffer
<i>format</i>	Pixel format of data to be encoded

Return Value

When processing completes successfully, the number of bytes of encoding result data is returned.
A negative number indicates the following error.

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_SIZE	0x80690002	Invalid image size was specified
SCE_PNG_ERROR_NOT_SUPPORTED	0x80690003	Could not perform encoding because format is not supported by this library
SCE_PNG_ERROR_INVALID_POINTER	0x80690004	Invalid buffer pointer

Description

This function converts input data in raster scan format (RGBA8888) to uncompressed PNG format (RGB888).

Notes

This function is multithread safe.

The alpha information included in the input data is constantly discarded.

Constants

000004892117

SCE CONFIDENTIAL

SCE_PNG_FORMAT_BPP_MASK

Value used to get number of bits from return value indicated by format

Definition

```
#include <scepng.h>
#define SCE_PNG_FORMAT_BPP_MASK    (0xff)
```

Description

The number of bits per pixel in the image data that is output can be obtained by taking the logical AND of this value and the value of *format* returned from `scePngDec()`.

See Also

`scePngDec()`

SCE CONFIDENTIAL

SCE_PNG_FORMAT_FLAG_ALPHA

Flag indicating whether alpha information is included

Definition

```
#include <scepng.h>
#define SCE_PNG_FORMAT_FLAG_ALPHA (0x400)
```

Description

Whether alpha information is included in the image data that is output can be known by taking the logical AND of this value and the value of *format* returned from *scePngDec()*.

See Also

scePngDec()

SCE CONFIDENTIAL

SCE_PNG_FORMAT_FLAG_CLUT

Flag indicating whether CLUT is included

Definition

```
#include <scepng.h>
#define SCE_PNG_FORMAT_FLAG_CLUT    (0x100)
```

Description

Whether a CLUT is included in the image data that is output can be known by taking the logical AND of this value and the value of *format* returned from `scePngDec()`.

See Also

`scePngDec()`

SCE CONFIDENTIAL

SCE_PNG_FORMAT_FLAG_GRAYSCALE

Flag indicating whether image is in grayscale format

Definition

```
#include <scepng.h>
#define SCE_PNG_FORMAT_FLAG_GRAYSCALE (0x200)
```

Description

Whether the image data that is output is in grayscale format can be known by taking the logical AND of this value and the value of *format* returned from `scePngDec()`.

See Also

`scePngDec()`

SCE CONFIDENTIAL

SCE_PNG_FORMAT_FLAG_INTERLACE

Flag indicating whether image is interlaced

Definition

```
#include <scepng.h>
#define SCE_PNG_FORMAT_FLAG_INTERLACE (0x1000)
```

Description

Whether the image data that is output is interlaced can be known by taking the logical AND of this value and the value of *format* returned from *scePngDec()*.

See Also

scePngDec()

Return Codes

List of return codes returned by SCEPNG

Definition

Value	Hexadecimal	Description
SCE_PNG_ERROR_INVALID_FORMAT	0x80690001	Invalid data format
SCE_PNG_ERROR_INVALID_SIZE	0x80690002	An invalid size was specified
SCE_PNG_ERROR_NOT_SUPPORTED	0x80690003	Unsupported data format
SCE_PNG_ERROR_INVALID_POINTER	0x80690004	Invalid buffer pointer