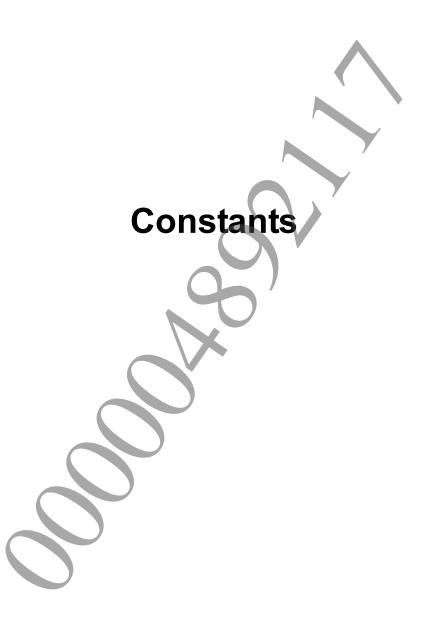


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SCE SFMT86243 ARRAY SIZE

Array size for SFMT86243 pseudo random number calculation

Definition

#include <libsfmt86243.h> #define SCE SFMT86243 ARRAY SIZE /* (86243 / 128) + 1 */ 674

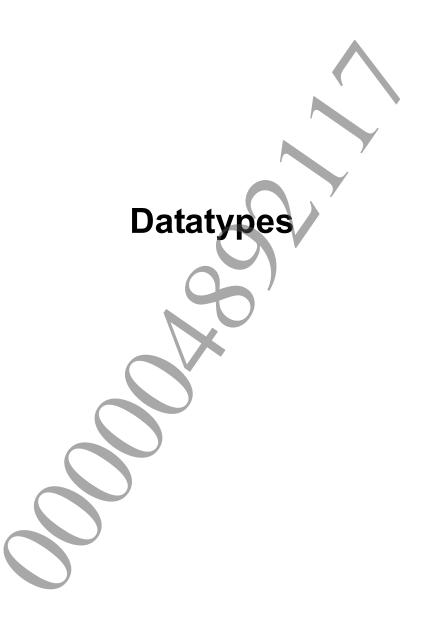
Description

This constant defines the array size for pseudo random numbers in conformance with SFMT86243. In addition to indicating the array size that is maintained as state in the SceSfmt86243Context structure, this constant is also used by the sceSfmt86243FillArray32() and sceSfmt86243FillArray64() functions to indicate the minimum size for generating random numbers.

See Also

SceSfmt86243Context, sceSfmt86243FillArray32(), sceSfmt86243FillArray64()





SceSfmt86243Context

Context information for SFMT86243 pseudo random number calculation

Definition

```
#include <libsfmt86243.h>
typedef struct SceSfmt86243Context {
          unsigned int idx;
          unsigned int sfmt[SCE_SFMT86243_ARRAY_SIZE][4];
} SceSfmt86243Context;
```

Description

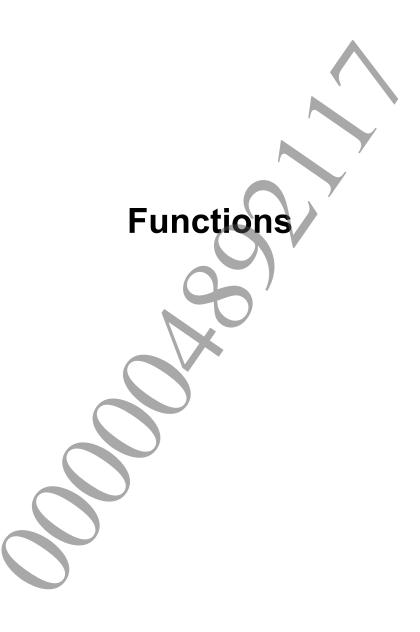
This structure is a work area for calculating pseudo random numbers in conformance with SFMT86243

One instance of this work area must be prepared for each random number sequence.

See Also

SCE SFMT86243 ARRAY SIZE, sceSfmt86243InitGenRand(), sceSfmt86243InitByArray()





sceSfmt86243InitGenRand

Initialize SFMT86243 pseudo random number work area

Definition

Calling Conditions

Multithread safe

Arguments

Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.Specifies a random number sequence.

Return Values

If an error occurs, a negative value is returned.

Value	1100011
SCE_OK	Normal completion

Description

This function uses a 32-bit seed to initialize an SFMT86243 random number sequence, which is represented by the SceSfmt86243Context structure. This function must be executed before the sceSfmt86243GenRand32(), sceSfmt86243GenRand64(), sceSfmt86243FillArray32(), and sceSfmt86243FillArray64() functions.

Since only the SceSfmt86243Context structure indicated by pCtx is initialized, multiple random number sequences can be handled simultaneously by having multiple SceSfmt86243Context structures.

See Also

SceSfmt86243Context, sceSfmt86243InitByArray()

sceSfmt86243InitByArray

Initialize SFMT86243 pseudo random number work area

Definition

Calling Conditions

Multithread safe

Arguments

Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.

initkey Specifies the array to be used for initializing. Number of elements in initkey.

Return Values

If an error occurs, a negative value is returned.

Value	
SCE_OK	Normal completion

Description

This function uses an array of 32-bit seeds to initialize an SFMT86243 random number sequence, which is represented by the SceSfmt86243Context structure. This function must be executed before the sceSfmt86243GenRand32(), sceSfmt86243GenRand64(), sceSfmt86243FillArray32(), and sceSfmt86243FillArray64() functions.

Since only the SceSfmt86243Context structure indicated by pCtx is initialized, multiple random number sequences can be handled simultaneously by having multiple SceSfmt86243Context structures.

See Also

SceSfmt86243Context, sceSfmt86243InitGenRand()

sceSfmt86243GenRand32

Generate an SFMT86243 32-bit pseudo random number

Definition

Calling Conditions

Multithread safe

Arguments

PCtx Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.

Return Values

32-bit pseudo random number

Description

This function generates a 32-bit pseudo random number that conforms to SFMT86243.

Before using this function, the SceSfmt86243Context structure must be initialized by calling the sceSfmt86243InitGenRand() or sceSfmt86243InitByArray() functions.

See Also

SceSfmt86243Context, sceSfmt86243InitGenRand(), sceSfmt86243InitByArray()

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sceSfmt86243GenRand64

Generate an SFMT86243 64-bit pseudo random number

Definition

Calling Conditions

Multithread safe

Arguments

PCtx Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.

Return Values

64-bit pseudo random number

Description

This function generates a 64-bit pseudo random number that conforms to SFMT86243.

Before using this function, the SceSfmt86243Context structure must be initialized by calling the sceSfmt86243InitGenRand() or sceSfmt86243InitByArray() functions.

Note that if the sceSfmt86243GenRand32() and sceSfmt86243GenRand64() functions are used together and the sceSfmt86243GenRand64() function is called after the sceSfmt86243GenRand32() function has been called an odd number of times, a full 64-bit random number will not be obtained. Instead, this function will return a 64-bit value in which the upper 32 bits are zero.

See Also

SceSfmt86243Context, sceSfmt86243InitGenRand(), sceSfmt86243InitByArray()

sceSfmt86243FillArray32

Generate an array of SFMT86243 32-bit pseudo random numbers

Definition

Calling Conditions

Multithread safe

Arguments

```
Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.

array Buffer for receiving the generated random numbers
Size Number of elements in array (multiple of 4 that is larger than SCE_SFMT86243_ARRAY_SIZE*4)
```

Return Values

If an error occurs, a negative value is returned.

Value	
SCE_OK	Normal completion

Description

This function generates an arbitrary number of 32-bit pseudo random numbers that conform to SFMT86243. *size* specifies the number of elements in *array* and must be a multiple of 4 that is larger than (SCE SFMT86243 ARRAY SIZE * 4).

Before using this function, the SceSfmt86243Context structure must be initialized by calling the sceSfmt86243InitGenRand() or sceSfmt86243InitByArray() functions.

When the sceSfmt86243Fillarray32() function is used together with the sceSfmt86243GenRand32() function, the sceSfmt86243Fillarray32() function can be called only after the sceSfmt86243GenRand32() function has been called (SCE SFMT86243 ARRAY SIZE * 4) times.

When the sceSfmt86243FillArray32() function is used together with the sceSfmt86243GenRand64() function, the sceSfmt86243FillArray32() function can be called only after the sceSfmt86243GenRand64() function has been called (SCE_SFMT86243_ARRAY_SIZE * 2) times.

See Also

SceSfmt86243Context, sceSfmt86243InitGenRand(), sceSfmt86243InitByArray()

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sceSfmt86243FillArray64

Generate an array of SFMT86243 64-bit pseudo random numbers

Definition

Calling Conditions

Multithread safe

Arguments

```
Pointer to an SceSfmt86243Context structure, which represents a random number sequence as a context.

array Buffer for receiving the generated random numbers
Size Number of elements in array (multiple of 2 that is larger than SCE_SFMT86243_ARRAY_SIZE*2)
```

Return Values

If an error occurs, a negative value is returned.

Value	
SCE_OK	Normal completion

Description

This function generates an arbitrary number of 64-bit pseudo random numbers that conform to SFMT86243. *size* specifies the number of elements in *array* and must be a multiple of 2 that is larger than (SCE SFMT86243 ARRAY SIZE * 2).

Before using this function, the SceSfmt86243Context structure must be initialized by calling the sceSfmt86243InitGenRand() or sceSfmt86243InitByArray() functions.

When the sceSfmt86243Fillarray64() function is used together with the sceSfmt86243GenRand32() function, the sceSfmt86243Fillarray64() function can be called only after the sceSfmt86243GenRand32() function has been called (SCE SFMT86243 ARRAY SIZE * 4) times.

When the sceSfmt86243FillArray64() function is used together with the sceSfmt86243GenRand64() function, the sceSfmt86243FillArray64() function can be called only after the sceSfmt86243GenRand64() function has been called (SCE_SFMT86243_ARRAY_SIZE * 2) times.

See Also

SceSfmt86243Context, sceSfmt86243InitGenRand(), sceSfmt86243InitByArray()

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