

# **libsfmt19937 Overview**

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# 1 Library Overview

## Overview

The SIMD-oriented Fast Mersenne Twister library (libsfmt19937) is used for generating pseudo random numbers in conformance with SMFT19937.

## Related Files

The following files are required to use libsfmt19937.

Filename	Description
libsfmt19937.h	Header file
libSceSfmt19937.a	Static link library file
libSceSfmt19937_stub.a	Stub library file
libSceSfmt19937_stub_weak.a	weak import stub library file
libsfmt19937.suprx	PRX module file

## 2 Using the Library

### Basic Usage Procedure

#### (1) Initialize random number sequence

Call `sceSfmt19937InitGenRand()` to initialize the random number sequence.

```
SceSfmt19937Context ctx;  
  
sceSfmt19937InitGenRand(&ctx, seed);
```

A 32-bit seed value is passed in the *seed* argument. This value is used to initialize the random number sequence and initialize the state of the `SceSfmt19937Context` structure. Subsequently, pseudo random numbers can be obtained by calling the `sceSfmt19937GenRand32()` function.

#### (2) Obtain random number

The `sceSfmt19937GenRand32()` function is used to generate a pseudo random number.

```
res = sceSfmt19937GenRand32(&ctx);
```

When the `sceSfmt19937GenRand32()` function is called, a pointer to the `SceSfmt19937Context` structure that was previously initialized by the `sceSfmt19937InitGenRand()` function, is passed as the argument. Since `libsfmt19937` does not maintain any state internally, an arbitrary number of random number sequences can be generated by preparing multiple `SceSfmt19937Context` structures.

### Saving and Getting a Random Number Sequence

If the contents of the `SceSfmt19937Context` structure are saved in advance, the random number sequence can be replayed later.