

**NAME**

EVP\_sha3\_224, EVP\_sha3\_256, EVP\_sha3\_384, EVP\_sha3\_512, EVP\_shake128, EVP\_shake256 - SHA-3 For EVP

**SYNOPSIS**

```
#include <openssl/evp.h>
```

```
const EVP_MD *EVP_sha3_224(void);  
const EVP_MD *EVP_sha3_256(void);  
const EVP_MD *EVP_sha3_384(void);  
const EVP_MD *EVP_sha3_512(void);
```

```
const EVP_MD *EVP_shake128(void);  
const EVP_MD *EVP_shake256(void);
```

**DESCRIPTION**

SHA-3 (Secure Hash Algorithm 3) is a family of cryptographic hash functions standardized in NIST FIPS 202, first published in 2015. It is based on the Keccak algorithm.

**EVP\_sha3\_224(), EVP\_sha3\_256(), EVP\_sha3\_384(), EVP\_sha3\_512()**

The SHA-3 SHA-3-224, SHA-3-256, SHA-3-384, and SHA-3-512 algorithms respectively. They produce 224, 256, 384 and 512 bits of output from a given input.

**EVP\_shake128(), EVP\_shake256()**

The SHAKE-128 and SHAKE-256 Extendable Output Functions (XOF) that can generate a variable hash length.

Specifically, **EVP\_shake128** provides an overall security of 128 bits, while **EVP\_shake256** provides that of 256 bits.

**NOTES**

Developers should be aware of the negative performance implications of calling these functions multiple times and should consider using **EVP\_MD\_fetch(3)** instead. See "Performance" in **crypto(7)** for further information.

**RETURN VALUES**

These functions return a **EVP\_MD** structure that contains the implementation of the message digest. See **EVP\_MD\_meth\_new(3)** for details of the **EVP\_MD** structure.

**CONFORMING TO**

NIST FIPS 202.

**SEE ALSO**

**evp(7)**, **EVP\_DigestInit(3)**

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