

**NAME**

EVP\_sha224, EVP\_sha256, EVP\_sha512\_224, EVP\_sha512\_256, EVP\_sha384, EVP\_sha512 - SHA-2  
For EVP

**SYNOPSIS**

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

```
const EVP_MD *EVP_sha224(void);  
const EVP_MD *EVP_sha256(void);  
const EVP_MD *EVP_sha512_224(void);  
const EVP_MD *EVP_sha512_256(void);  
const EVP_MD *EVP_sha384(void);  
const EVP_MD *EVP_sha512(void);
```

**DESCRIPTION**

SHA-2 (Secure Hash Algorithm 2) is a family of cryptographic hash functions standardized in NIST FIPS 180-4, first published in 2001.

**EVP\_sha224()**, **EVP\_sha256()**, **EVP\_sha512\_224**, **EVP\_sha512\_256**, **EVP\_sha384()**, **EVP\_sha512()**

The SHA-2 SHA-224, SHA-256, SHA-512/224, SHA512/256, SHA-384 and SHA-512 algorithms, which generate 224, 256, 224, 256, 384 and 512 bits respectively of output from a given input.

The two algorithms: SHA-512/224 and SHA512/256 are truncated forms of the SHA-512 algorithm. They are distinct from SHA-224 and SHA-256 even though their outputs are of the same size.

**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 180-4.

**SEE ALSO**

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

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