

**NAME**

`BN_add_word`, `BN_sub_word`, `BN_mul_word`, `BN_div_word`, `BN_mod_word` - arithmetic functions on BIGNUMs with integers

**SYNOPSIS**

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

int BN_add_word(BIGNUM *a, BN_ULONG w);

int BN_sub_word(BIGNUM *a, BN_ULONG w);

int BN_mul_word(BIGNUM *a, BN_ULONG w);

BN_ULONG BN_div_word(BIGNUM *a, BN_ULONG w);

BN_ULONG BN_mod_word(const BIGNUM *a, BN_ULONG w);
```

**DESCRIPTION**

These functions perform arithmetic operations on BIGNUMs with unsigned integers. They are much more efficient than the normal BIGNUM arithmetic operations.

`BN_add_word()` adds **w** to **a** ( $a+=w$ ).

`BN_sub_word()` subtracts **w** from **a** ( $a-=w$ ).

`BN_mul_word()` multiplies **a** and **w** ( $a*=w$ ).

`BN_div_word()` divides **a** by **w** ( $a/=w$ ) and returns the remainder.

`BN_mod_word()` returns the remainder of **a** divided by **w** ( $a\%w$ ).

For `BN_div_word()` and `BN_mod_word()`, **w** must not be 0.

**RETURN VALUES**

`BN_add_word()`, `BN_sub_word()` and `BN_mul_word()` return 1 for success, 0 on error. The error codes can be obtained by [ERR\\_get\\_error\(3\)](#).

`BN_mod_word()` and `BN_div_word()` return  $a\%w$  on success and **(BN\_ULONG)-1** if an error occurred.

**SEE ALSO**

[bn\(3\)](#), [ERR\\_get\\_error\(3\)](#), [BN\\_add\(3\)](#)

**HISTORY**

`BN_add_word()` and `BN_mod_word()` are available in all versions of SSLeay and OpenSSL. `BN_div_word()` was added in SSLeay 0.8, and `BN_sub_word()` and `BN_mul_word()` in SSLeay 0.9.0.

Before 0.9.8a the return value for `BN_div_word()` and `BN_mod_word()` in case of an error was 0.