嵌入式C语言之-

整形数据类型

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整形数据类型定义

关键字（C99标准）	对应C89标准	位数	取值范围
int8_t	(signed) char	8	-128 ~ 127
uint8_t	unsigned char	8	0 ~ 255
int16_t	(signed) short int	16	-32768 ~ 32767
uint16_t	unsigned short int	16	0 ~ 65535
int32_t	(signed) int	32	-2147483648 ~ 2147483647
uint32_t	unsigned int	32	0 ~ 4294967295
int64_t	(signed) long long	64	-9223372036854775808 ~ 9223372036854775807
uint64_t	unsigned long long	64	0 ~ 18446744073709551615

强烈建议使用C99标准，编写和阅读程序时都非常清晰。

整形数据类型定义

在stdint.h中描述了相关的定义：

```
    /* exact-width signed integer types */
typedef   signed          char int8_t;
typedef   signed short     int int16_t;
typedef   signed           int int32_t;
typedef   signed       __INT64 int64_t;

    /* exact-width unsigned integer types */
typedef unsigned          char uint8_t;
typedef unsigned short     int uint16_t;
typedef unsigned           int uint32_t;
typedef unsigned       __INT64 uint64_t;
```

```
    /* minimum values of exact-width signed integer types */
#define INT8_MIN                   -128
#define INT16_MIN                -32768
#define INT32_MIN          (~0x7fffffff)   /* -2147483648 is unsigned */
#define INT64_MIN  __INT64_C(~0x7fffffffffffffff) /* -9223372036854775808 is unsigned */

    /* maximum values of exact-width signed integer types */
#define INT8_MAX                    127
#define INT16_MAX                 32767
#define INT32_MAX            2147483647
#define INT64_MAX  __INT64_C(9223372036854775807)

    /* maximum values of exact-width unsigned integer types */
#define UINT8_MAX                   255
#define UINT16_MAX                65535
#define UINT32_MAX           4294967295u
#define UINT64_MAX __UINT64_C(18446744073709551615)
```

sizeof 运算符

- **sizeof是C语言中保留关键字，也可以认为是一种运算符，单目运算符。能获取某个数据类型所占用空间的字节数。**

  sizeof使用形式：**sizeof（var_name）**或 **sizeof var_name** 或 **sizeof(数据类型)**

  变量名可以不用括号括住。如sizeof (var_name)，sizeof var_name等都是正确形式。带括号的用法更普遍，大多数程序员采用这种形式。

```
int i;
sizeof( i );      // ok
sizeof i;         // ok
sizeof( int );  // ok
sizeof int;     // error
```

THANK YOU!