

```
void configure_vin_on_off_thresholds(void)
struct qnote adc12_vin_scaler = {ADC12_VIN_SCALER_MANTISSA, ADC12_VIN_SCALER_EXPONENT};
pmbus_dcdc_config_translated[0].vin_on_limit = qnote_linear11_multiply_fit(adc12_vin_scaler, pmbus_dcdc_config[0].vin_on_limit, MAX_VALUE_FIT_12_BITS
```

相對應參數

```
#define ADC12_VIN_SCALER_MANTISSA (32380)
#define ADC12_VIN_SCALER_EXPONENT (-12)
#define MAX_VALUE_FIT_12_BITS (0x00FFF)
#define VIN_ON_LIMIT 320
```

結構定義

```
struct qnote
{
    int16 mantissa;
    int16 exponent;
};
```

我的理解

呼叫程式

帶入參數({32380,-12},320,0x00FFF)

```
//-----
//      Uint32 qnote multiply linear 11 fit      struct qnote x 定義出 x.mantissa x.exponent 兩個參數
//-----      x.mantissa=32380 x.exponent=-12
Uint32 qnote_linear11_multiply_fit(struct qnote x, int16 linear11, Uint32 max_value)
{      int16 linear11=320 Uint32 max_value=0x00FFF
    struct qnote final,y;      定義出 final.mantissa final.exponent y.mantissa y.exponent 四個參數
    int32 mantissa;

    if(linear11 & 0x0400)      // if mantissa is negative      320= 0000 0001 0100 0000
        y.mantissa = linear11 | 0xFC00;      0x0400= 0000 0100 0000 0000
    else      &= 0000 0000 0000 0000 結果為0
        y.mantissa = linear11 & 0x07FF;      y.mantissa=320

    y.exponent = linear11 >> 11;      y.exponent=0

    final.exponent = x.exponent + y.exponent;      final.exponent=-12+0=-12
    mantissa = (int32)x.mantissa * (int32)y.mantissa;      mantissa=32380*320 正確嗎?

    while(final.exponent > 0)
    {
        mantissa = mantissa << 1;
        final.exponent = final.exponent - 1;
    }
    while(final.exponent < 0)
    {
        mantissa = mantissa >> 1;
        final.exponent = final.exponent + 1;
    }
    final.mantissa = mantissa;

    if(mantissa > max_value)
        mantissa = max_value;

    return mantissa;
}
```