NANO100通過I2C驅動MMA7455

NuMicro® 32 位系列微控制器範例代碼介紹

文件資訊

代碼簡述	本範例代碼使用 NANO100 的 I2C 接口驅動 MMA7455
BSP 版本	Nano100B_Series_BSP_CMSIS_v3.03.000
開發平台	NuTiny-EVB-Nano130-LQFP128 V1.0

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1 功能介紹

1.1 簡介

本範例代碼使用NANO100系列通過I2C接口驅動MMA7455，獲取3軸加速度值。

1.2 執行結果

執行結果打印數據如下：

```
Core Clock = 42000000 Hz

+------------------------------------------------------+
|   Nano100 Series I2C Sample Code with MMA7455        |
+------------------------------------------------------+
Data:  X: 230  Y: 175  Z: 234
Data:  X: 230  Y: 176  Z: 236
Data:  X: 231  Y: 175  Z: 236
Data:  X: 231  Y: 175  Z: 233
Data:  X: 220  Y: 193  Z: 203
Data:  X: 24  Y: 238  Z: 210
Data:  X: 47  Y: 207  Z: 211
Data:  X: 234  Y: 204  Z: 204
Data:  X: 229  Y: 186  Z: 205
Data:  X: 231  Y: 186  Z: 204
Data:  X: 230  Y: 186  Z: 205
```

2 代碼介紹

初始化 MMA7455：

```
void MMA7455_Init(void)
{
    I2C0_Init();

    I2C0_Write(MMA7455_ADDR, MMA7455_MCTL, 0x05);

    I2C0_Write(MMA7455_ADDR, MMA7455_XOFFL, 0xF8);
    I2C0_Write(MMA7455_ADDR, MMA7455_XOFFH, 0xFF);
    I2C0_Write(MMA7455_ADDR, MMA7455_YOFFL, 0x26);
    I2C0_Write(MMA7455_ADDR, MMA7455_YOFFH, 0x00);
    I2C0_Write(MMA7455_ADDR, MMA7455_ZOFFL, 0xD8);
    I2C0_Write(MMA7455_ADDR, MMA7455_ZOFFH, 0xFF);
}
```

獲取 3 軸加速度值：

```
void MMA7455_ReadData(uint8_t au8Data[3])
{
    I2C0_Read(MMA7455_ADDR, MMA7455_XOUT8, 3, au8Data);
}
```

3 軟體與硬體環境

● 軟體環境

- ■ BSP 版本
  - ◆ Nano100B_Series_BSP_CMSIS_v3.03.000
- ■ IDE 版本
  - ◆ Keil uVersion4.74

● 硬體環境

- ■ 電路元件
  - ◆ NuTiny-EVB-Nano130-LQFP128 V1.0
  - ◆ MMA7455
- ■ 示意圖

NANO100 使用 I2C 接口對 MMA7455 進行初始化，獲取 3 軸加速度值。

NANO100		MMA7455
VDD	↔	AVDD
VDD	↔	DVDD_I/O
VDD	↔	IADDR0
VDD	↔	CS
I2C0_SCL (PA.9)	↔	SCL
I2C0_SDA (PA8)	↔	SDA
GND	↔	GND

4 目錄資訊

EC_NANO100_I2C_MMA7455_V1.00	
Library	Sample code header and source files
CMSIS	Cortex®Microcontroller Software Interface Standard (CMSIS) V4.5.0 definitions by ARM® Corp.
Device	CMSIS compliant device header file
StdDriver	All peripheral driver header and source files
SampleCode	
ExampleCode	Source file of example code

5 如何執行範例程式

1. 根據目錄資訊章節進入 ExampleCode 路徑中的 KEIL 資料夾，雙擊 I2C_MMA745.uvproj。
2. 進入編譯模式介面
   a. 編譯
   b. 下載代碼至記憶體
   c. 進入 / 離開除錯模式
3. 進入除錯模式介面
   a. 執行代碼

6 修訂紀錄

Date	Revision	Description
Oct.10, 2019	1.00	1. 初始發布.

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