NANO100通过I2C驱动MMA7455

NuMicro® 32 位系列微控制器范例代码介绍

文件信息

代码简述	本范例代码使用 NANO100 的 I2C 接口驱动 MMA7455
BSP 版本	Nano100B_Series_BSP_CMSIS_v3.03.000
开发平台	NuTiny-EVB-Nano130-LQFP128 V1.0

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1 功能介绍

1.1 简介

本范例代码使用NANO100系列通过I2C接口驱动MMA7455，获取3轴加速度值。

1.2 执行结果

执行结果打印数据如下：

```
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 代码介绍

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);
}
```

读取 3 轴加速度值：

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

3 软件与硬件环境

- 软件环境
  - BSP 版本
    - Nano100B_Series_BSP_CMSIS_v3.03.000
  - IDE 版本
    - Keil uVersion4.74
- 硬件环境
  - 电路组件
    - NuTiny-EVB-Nano130-LQFP128 V1.0
    - MMA7455
  - 示意图

NANO100 使用 I2C 接口对 MMA7455 进行初始化，获取 3 轴加速度值。

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

4 目录信息

- 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 如何执行范例程序

1. 根据目录信息章节进入 ExampleCode 路径中的 KEIL 文件夹，双击 I2C_MMA7455.uvproj。
2. 进入编译模式接口
   a. 编译
   b. 下载代码至内存
   c. 进入 / 离开除错模式
3. 进入除错模式接口
   a. 执行代码

6 修订纪录

Date	Revision	Description
Oct.10, 2019	1.00	1. 初始发布.

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