LDC1000 Arduino Interface: Reading Zeros from proximity data registers

Resolved

Pelonomi Moiloa

Hi there

I am attempting to interface Arduino with the LDC1000. I have simply snapped the LDC1000 and the coil off of the LDC1000EVM and I am using those. I am using an Arduino Uno. This is my code:

```
#include "SPI.h" // include arduino SPI library

const int CSB = 10; // chip select bit for Arduino Uno


void setup()
{
  Serial.begin(9600);
  // start SPI library/ activate BUS
  SPI.begin();

  pinMode(CSB, OUTPUT);
}

void loop()
{
  unsigned int val = 0;
  byte READ = 0x80; // MSB = 1 which is a 'read' bit
  byte reg = 0x04; // register address


  SPI.setBitOrder(MSBFIRST);
  SPI.setDataMode(SPI_MODE0); // CPOL = 0 and CPH = 0 mode 3 also works
```

```
  SPI.setClockDivider(SPI_CLOCK_DIV4); // set SCLK @ 4MHz, LDC1000 max is 4MHz DIV2 also works

  // begin data transfer
  digitalWrite(CSB, LOW);
  byte data_2_send = READ + reg;
  SPI.transfer(data_2_send);
  val = SPI.transfer(0x00);

  // prints 8 bit decimal value between 0 and 255 found in desired register
  Serial.println(val);

  // end data transfer
  digitalWrite(CSB, HIGH);

  delay(500);

}
```

I am able to obtain values from reading registers 0x00 to 0x20, that match the defaults specified in the LDC1000 data sheet. But reading the proximity registers in the same way I have read the other registers results in zeros.

I have left the INTB and TBCLK pins disconnected. I would just like to read the values of the proximity registers and so the INTB pin is of no use to me at this point (to my knowledge) and it would seem that connecting the TBCLK pin is only neccessary for reading frequency data?

I have scoped the INA and INB pins and there is a signal coming through from the coil so that connection seems fine.

Any help on why I am getting zeros would be greatly appreciated

Thank you in advance

Pelonomi Moiloa

Pelonomi Moiloa

I have found that the default Rpmin is greater than the default Rpmax. In an attempt to correct this, it was found that I am unable to initialize the threshold and Rpmin and max registers. I can read and write to the power mode register fine, but not the other registers.

My method in initializing is setting the power mode to 0, writing to the register setting the power mode to 1 and then reading, but the read value is the default value.

Any suggestions?

Pelonomi Moiloa

In reply to Pelonomi Moiloa:

Problem of initializing is solved. Registers were initialized in the following way:

PWRCONFIG: 0x00

RpMax: 0x12
RpMin: 0x0A
SENSORFREQ: 0x45 default
LDCCONFIG: 0x1B default
CLKCONFIG: 0x01 default
INTCONFIG: 0x00

ThresHiLsb: 0x50
ThresHiMsb: 0x14
ThresLoLsb: 0xC0
ThresLoMsb: 0x12

PWRCONFIG: 0x01

Still, no proximity data readings other than 0!

Pelonomi Moiloa

In reply to Pelonomi Moiloa:

Nevermind, I am getting proximity readings now.

P.S I have enjoyed this conversation with myself

Christian Redd

In reply to Pelonomi Moiloa:

Would you mind posting your working Arduino code? I am not having much success in correctly writing to the registers. Thanks in advance!

Pelonomi Moiloa

In reply to Christian Redd:

Helloooo Christian

The code posted here is pretty much it! But if you absolutely need more, I have just uploaded code (in .txt files because I can't upload .ino files) . I have also uploaded a PDF which roughly explains what I did step by step.

This can all by found under my Files in my profile

Hope it helps

Otherwise do not hesitate to give me a shout.

Pelonomi

George Small

In reply to Pelonomi Moiloa:

Hello Pelonomi,

Nicely done documenting your findings. Thanks for sharing! I will try this myself.

George

Jinseok Jeon

In reply to George Small:

Dear Pelonomi,

Nicely done!

Thank you for sharing the code and very nicely documented note.

Jin

Mital Z

In reply to Jinseok Jeon:

Your work is very helpful. Thank you!

Natallia Holubeva1

In reply to Mital Z:

Hello All,

I am glad this is resolved. Please let us know if you have any questions.

Best Regards,

Natallia Holubeva

Best Regards,

Natallia Holubeva

satheesh s

In reply to Pelonomi Moiloa:

may i get the working code for ldc1000. your code posted above for help full understanding but i did not get any value from reg.