wiki.t-o-f.info

[Arduino](#) > Exemple Mutliplexeur d'entrées numériques 74HC165

1. Tutoriel Arduino

- http://arduino.cc/en/Tutorial/ShiftIn

2. Description

Le 74HC165 est multiplexeur d'entrées numériques.
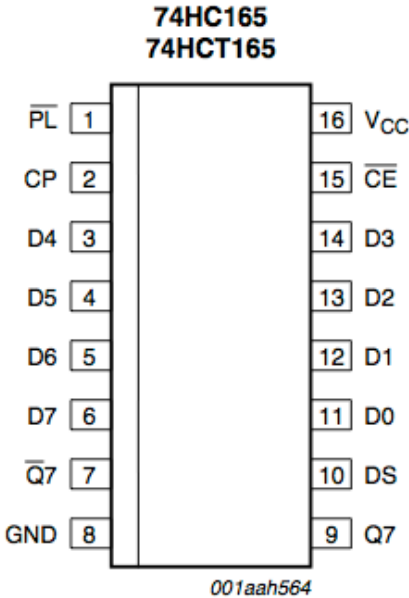
BROCHE	NOM		FONCTION
3-6,11-14	A-H	D0-D7	Entrées numériques
9	QH	Q7	**DATA** (sortie numérique)
2	CLK	CP	**CLOCK** (horloge/impulsion)
15	INH	CE	Brancher au GND
1	SH/LD	PL	**LATCH** (active la sortie Q7 lorsque HIGH)
10	SER	DS	Brancher au Q7 d'un autre 74HC165 si plusieurs sont enchaînés
8	GND		Brancher au GND
16	VCC		Brancher au 5V

3. Un seul multiplexeur

3.1 Circuit
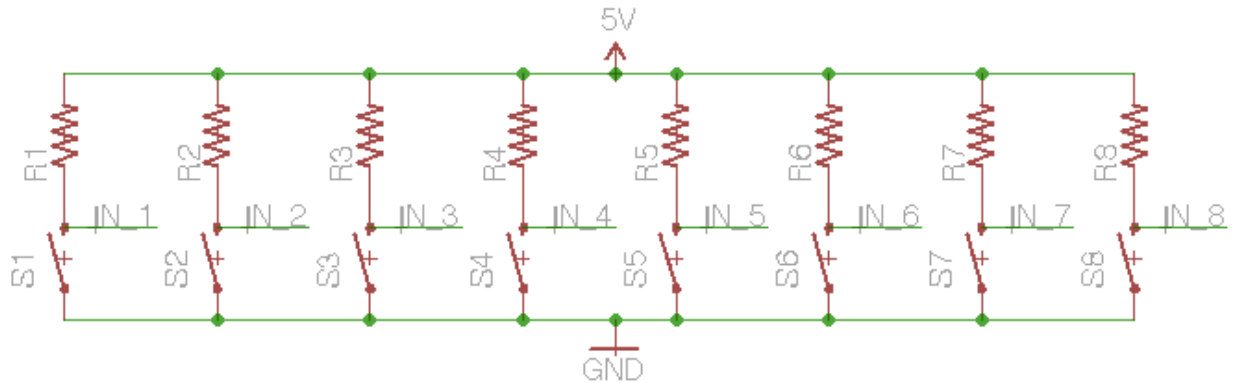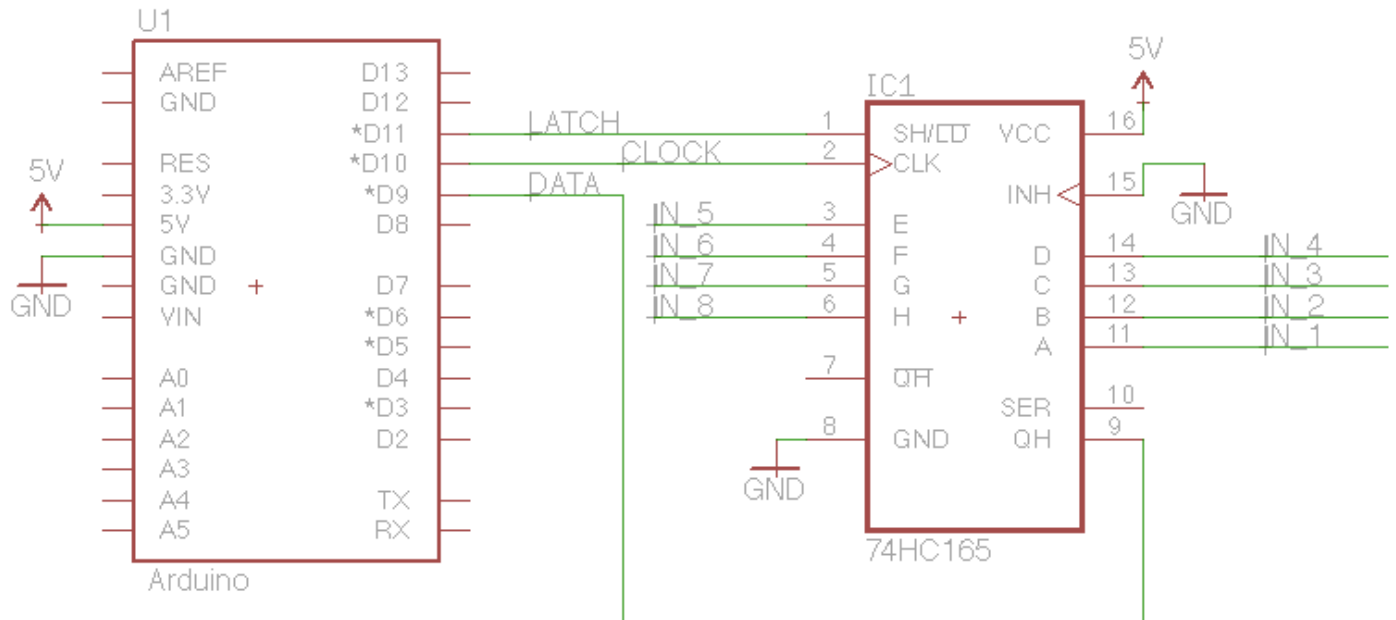
multiplexer.sch

3.2 Code

```cpp
// HARDWARE CONNECTIONS
int LATCH = 11;
int CLOCK = 10;
int DATA = 9;

byte a=0;


void setup() {
        Serial.begin(57600);

        pinMode(LATCH, OUTPUT);
        pinMode(CLOCK, OUTPUT);
        pinMode(DATA, INPUT);

        digitalWrite(CLOCK,LOW);
        digitalWrite(LATCH,LOW);
}

void loop() {

        digitalWrite(LATCH,HIGH);
```

```
        byte a_temp = shiftInFixed(DATA,CLOCK);

        digitalWrite(LATCH,LOW);

        // Envoie la valeur lue si elle change
        if ( a_temp != a ) {
                a = a_temp;
                Serial.print("A ");
                Serial.println(a,DEC);
        }

}

byte shiftInFixed(byte dataPin, byte clockPin) {
        byte value = 0;

        for (byte i = 0; i < 8; ++i) {
                value = value | (digitalRead(dataPin) << i);
                digitalWrite(clockPin, HIGH);
                digitalWrite(clockPin, LOW);
        }
        return value;
}
```
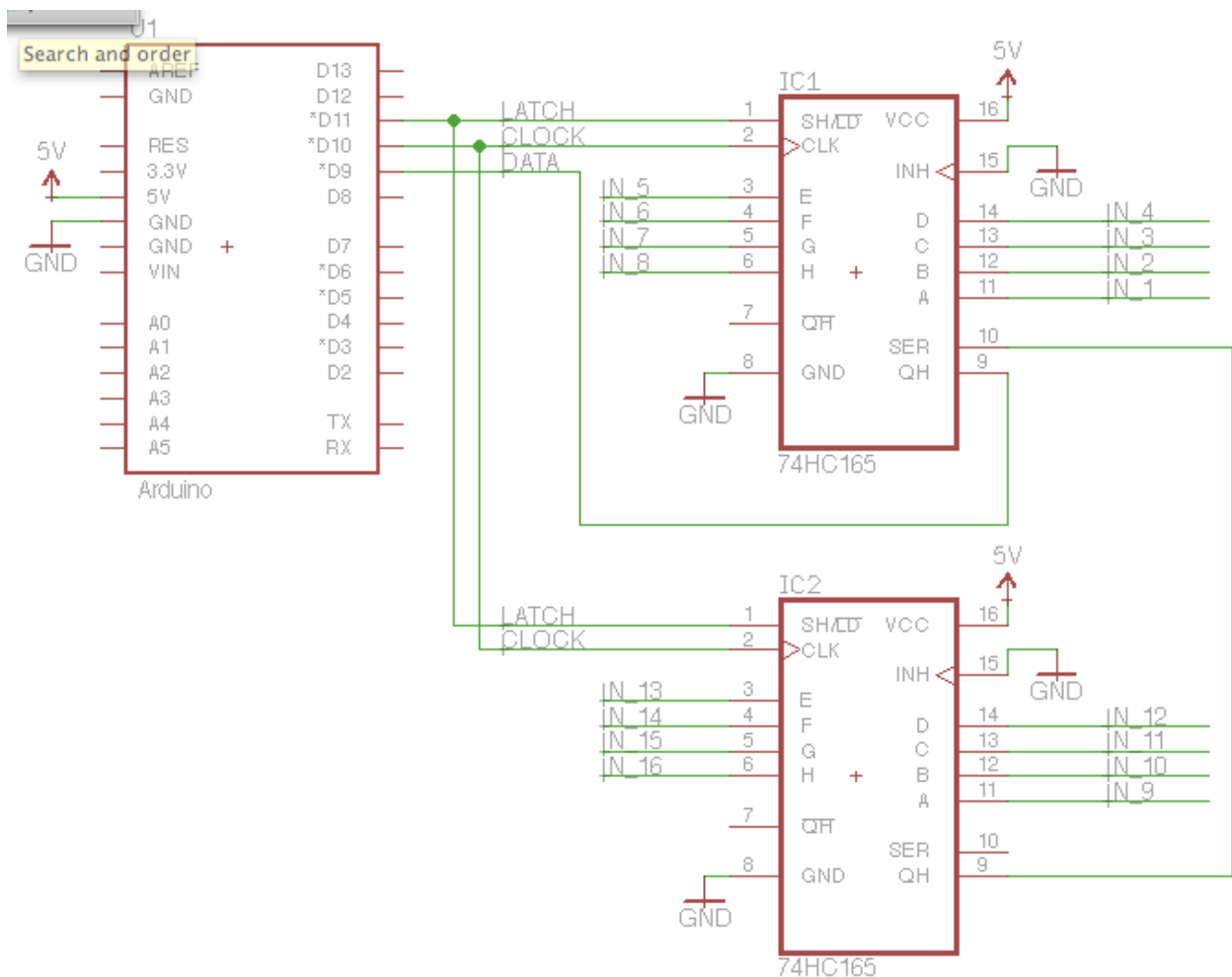
4. Cascade de multiplexeurs

4.1 Circuit

multiplexer_cascade.sch

4.2 Code

```cpp
// HARDWARE CONNECTIONS
int LATCH = 11;
int CLOCK = 10;
int DATA = 9;

#define NUM_OF_74HC165 2

byte received[NUM_OF_74HC165];
byte previous[NUM_OF_74HC165];


void setup() {
        Serial.begin(57600);

        pinMode(LATCH, OUTPUT);
        pinMode(CLOCK, OUTPUT);
        pinMode(DATA,  INPUT);

        digitalWrite(CLOCK,LOW);
        digitalWrite(LATCH,LOW);
}

void loop() {

        digitalWrite(LATCH,HIGH);

        for ( byte i=0; i < NUM_OF_74HC165 ; i++ ) {
                received[i] = shiftInMSBFirst(DATA,CLOCK);
        }

        digitalWrite(LATCH,LOW);

        // Envoie la valeur si elle a changé
        for ( byte i=0; i < NUM_OF_74HC165 ; i++ ) {
                if ( previous[i] != received[i] ) {
                        previous[i] = received[i];
                        Serial.print(i,DEC);
                        Serial.print(' ');
                        Serial.print(received[i],DEC);
                        Serial.println();
                }
        }
}

byte shiftInMSBFirst(byte dataPin, byte clockPin) {
        byte value = 0;

        for (byte i = 0; i < 8; ++i) {
                value = value | digitalRead(dataPin) << (7 - i);
                digitalWrite(clockPin, HIGH);
                digitalWrite(clockPin, LOW);
        }
        return value;
}
```