**实 验8：可编程计数器/定时器 8254 的使用**

小组成员:吕建瑶1811400,郑佶1811464,吴京1811440

**实 验内容**

1. 了解计数脉冲来时的计数规律.
2. 构建脉冲计数器,记录脉冲数.
3. 构建可编程定时信号发生器,并记录一个时间段内其发出脉冲的个数.

**程 序代码**

//1.c

#include <stdio.h> #include <stdlib.h> #include <conio.h> #include <bios.h> #include <ctype.h> #include <process.h> #include <time.h>

void main()

{

int clk1,clk2; int i;

int port\_A=0x3000;

int port\_B,port\_C,port\_CMD; unsigned int b,c,a,d=0; port\_B=0x3004; port\_C=0x3008; port\_CMD=port\_A+12; outp(port\_CMD,0x31); outp(port\_CMD,0x71); outp(port\_CMD,0xB1); outp(port\_A,0xE8); outp(port\_A,0x03); for(a=0;a<13567;a++)

{

for(i=0;i<(14652);i++) for(d=0;d<a%23+5568;d++);

outp(port\_CMD,0xC2); b=inp(port\_A); c=inp(port\_A); b=inp(port\_A);

c+=b\*256; printf("%d\n",c);

}

}

//2.c

#include <stdio.h> #include <stdlib.h>

#include <conio.h> #include <bios.h> #include <ctype.h> #include <process.h>

void main()

{

int clk1,clk2; int i;

int port\_A = 0x3000;

int port\_B,port\_C,port\_CMD; int b1,c1,a1,d1 = 0;

int b2,c2,a2 ,d2= 0; int b3,c3,a3 ,d3= 0; port\_B = port\_A+4; port\_C = port\_A+8; port\_CMD = port\_A+12;

outp(port\_CMD,0x31); outp(port\_A,0x00); outp(port\_A,0x00); outp(port\_CMD,0x71); outp(port\_B,0x00); outp(port\_B,0x00); outp(port\_CMD,0xB1); outp(port\_C,0x00); outp(port\_C,0x00); clk1=clock(); do{clk2=clock();} while((clk2-clk1)<2); outp(port\_CMD,0xDE); b1 = inp(port\_A);

c1 = inp(port\_A); a1= c1 +b1\*256; b2 = inp(port\_A); c2 = inp(port\_A); a2= c2 +b2\*256; b3 = inp(port\_A); c3 = inp(port\_A); a3= c3 +b3\*256; clk1=clock();

do{clk2=clock();}while((clk2-clk1)<10); outp(port\_CMD,0xDE);

b1 = inp(port\_A); c1 = inp(port\_A); d1= c1 +b1\*256; b2 = inp(port\_A); c2 = inp(port\_A); d2 = c2 + b2\*256; b3 = inp(port\_A); c3 = inp(port\_A); d3 = c3 +b3\*256;

printf("counter1:%d\n",d1-a1); printf("counter2:%d\n",d2-a2); printf("counter3:%d\n",d3-a3);

}

//3.c

#include <stdio.h> #include <stdlib.h> #include <conio.h> #include <bios.h> #include <ctype.h> #include <process.h> #include <time.h> void main()

{

int clk1,clk2; int i;

int port\_A = 0x3000;

int port\_B,port\_C,port\_CMD; int b1,c1,a1,d1 = 0;

int b2,c2,a2 ,d2= 0; int b3,c3,a3 ,d3= 0; int x;

port\_B = port\_A+4; port\_C = port\_A+8; port\_CMD = port\_A+12;

outp(port\_CMD,0x36); outp(port\_A,0x40); outp(port\_A,0x02);

outp(port\_CMD,0x76); outp(port\_B,0x80); outp(port\_B,0x0C);

outp(port\_CMD,0xB0); outp(port\_C,0xFF); outp(port\_C,0xFF); outp(port\_CMD,0xc8); a1=inp(port\_C); a2=inp(port\_C); a3=inp(port\_C); printf("%d %d\n",a2,a3);

clk1=clock(); do{clk2=clock();}while((clk2-clk1)<55); outp(port\_CMD,0xc8);

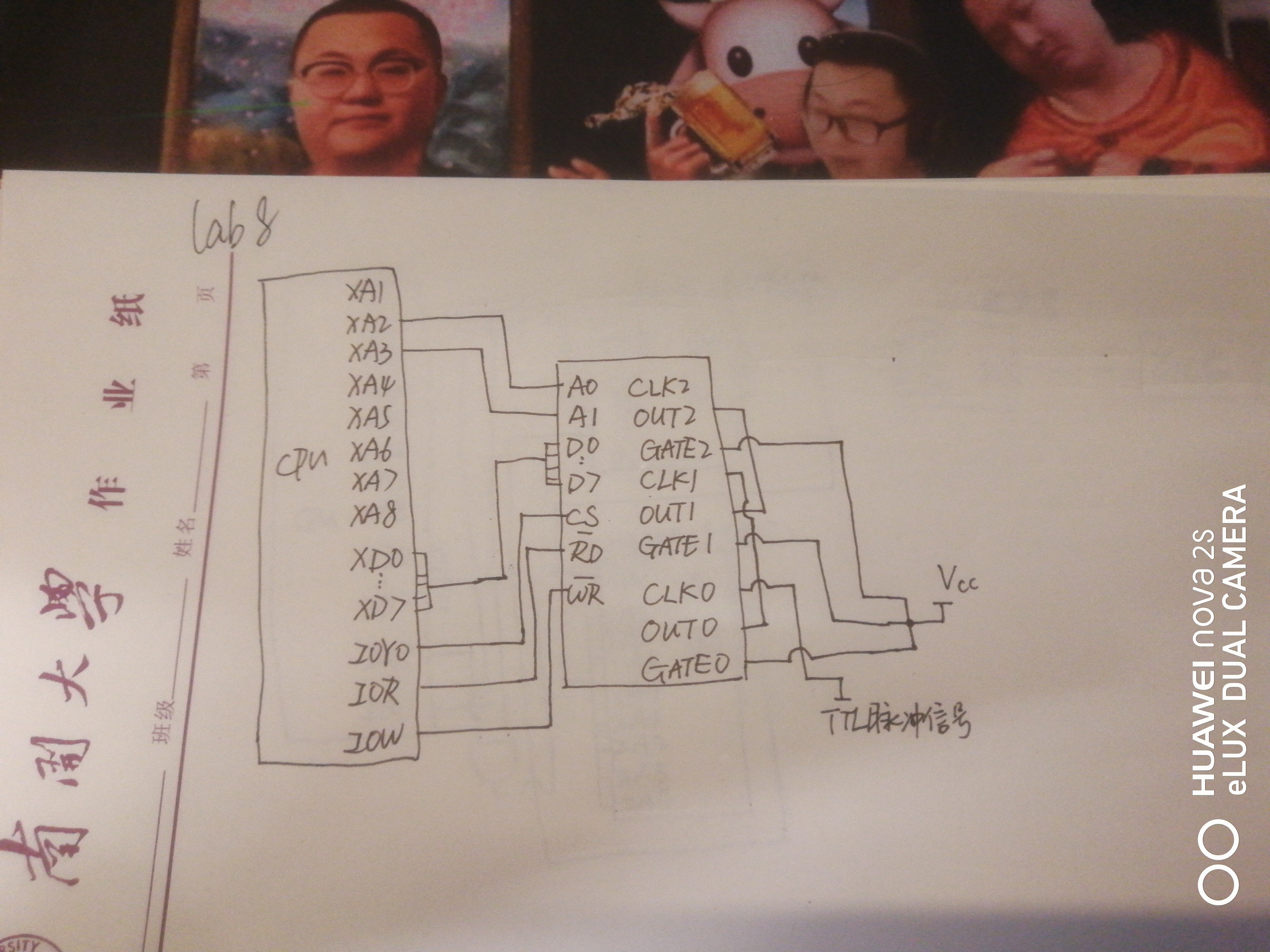
d1=inp(port\_C); d2=inp(port\_C); d3=inp(port\_C); printf("%d %d\n",d2,d3);

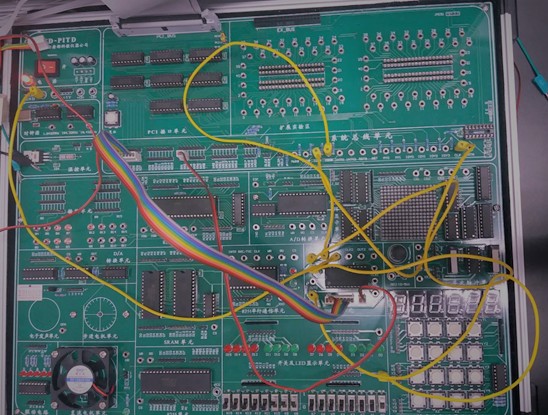
x=(d2-a2)+(d3-a3)\*256;

printf("%d \n",x);

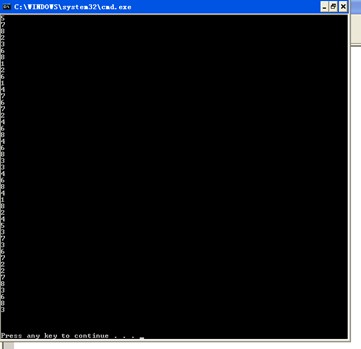
}

# 抽 象接线图



**实 验连线图**

1:



2:



3:

