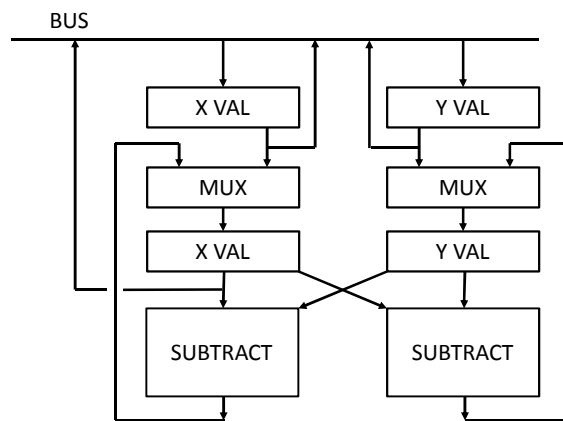# Greatest Common Divisor
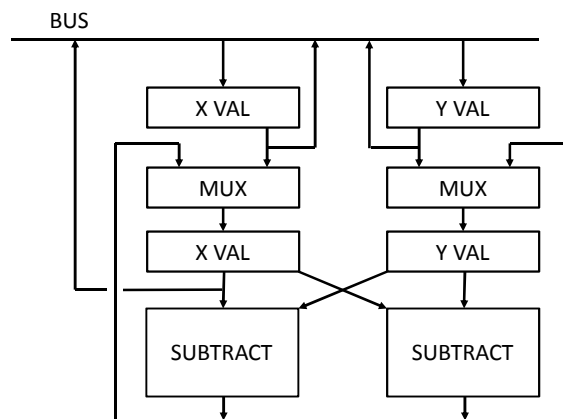
Original Problem Statement

```
int  x, y;
while (1) {
  while (!go_i);
  x = x_i;
  y = y_i;
  while ( x != y ) {
    if ( x < y )
      y = y - x;
    else
      x = x - y;
  }
  d_o = x;
}
```
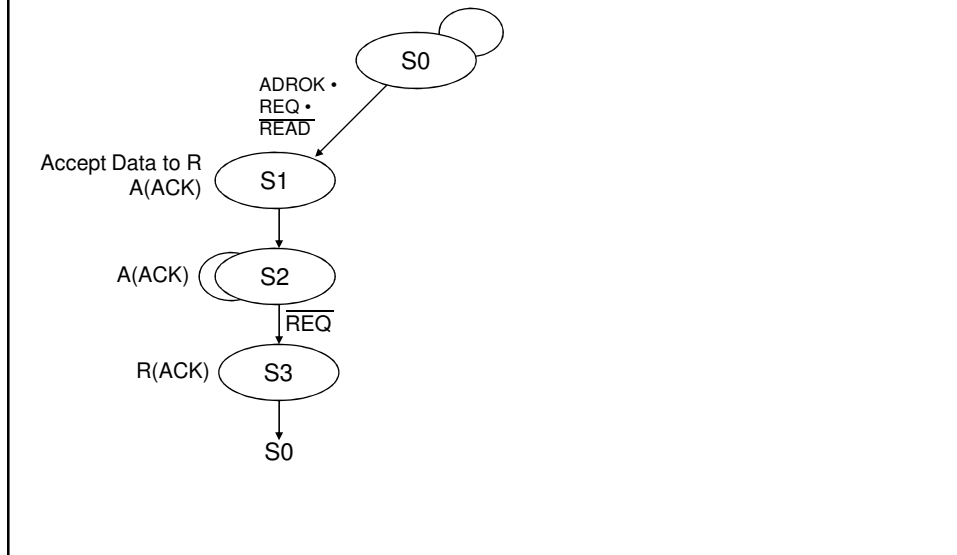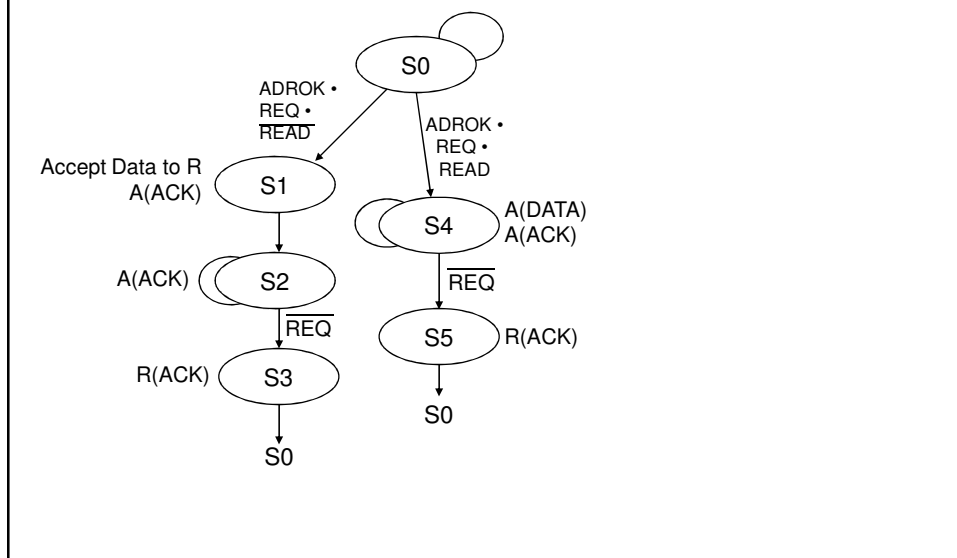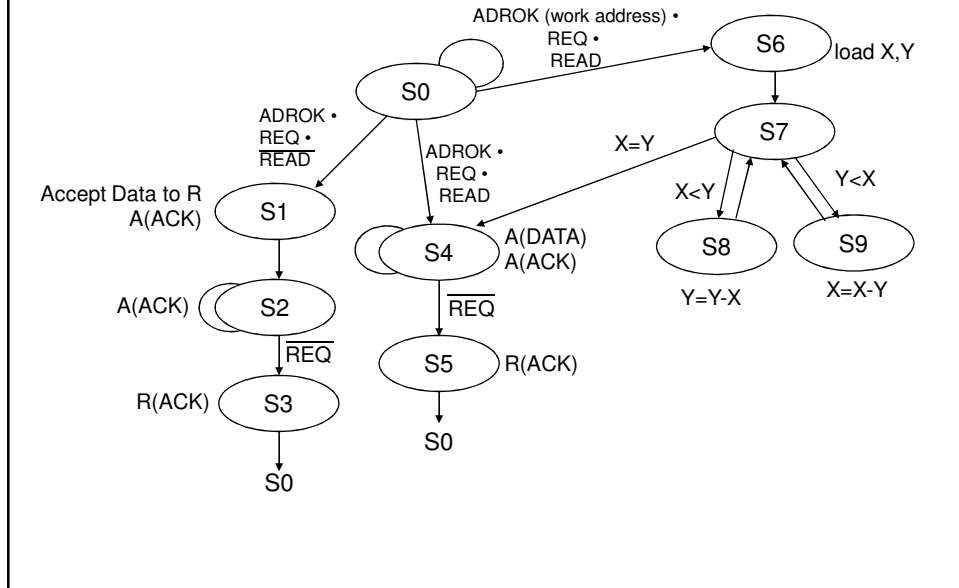
Block Diagram

Block Diagram

Activity of Slave (on Write)

S0

ADROK •
REQ •
READ̄

Accept Data to R
A(ACK)   S1

A(ACK)   S2

REQ̄

R(ACK)   S3

S0

Activity of Slave (on Read, Write)

S0

ADROK •
REQ •
READ̄

ADROK •
REQ •
READ

Accept Data to R
A(ACK)   S1

S4   A(DATA)
     A(ACK)

A(ACK)   S2

REQ̄

REQ̄

R(ACK)   S3

S5   R(ACK)

S0

S0

Activity of Slave

Block Diagram