# isPrime Data Path Design

X-bus

Y-bus

Tx

Tremoutput

Tn

X    Y    Bo

Tdiv

Trem

SW    x    n    div    rem

Z    check

ldx    ldn    opsel    lddiv    ldrem

Z-bus

**Divide module**

X-bus

Y-bus

Trem

X    Y    Tdv

rem    dv

Z    rem

ldrem    lddv

Z-bus
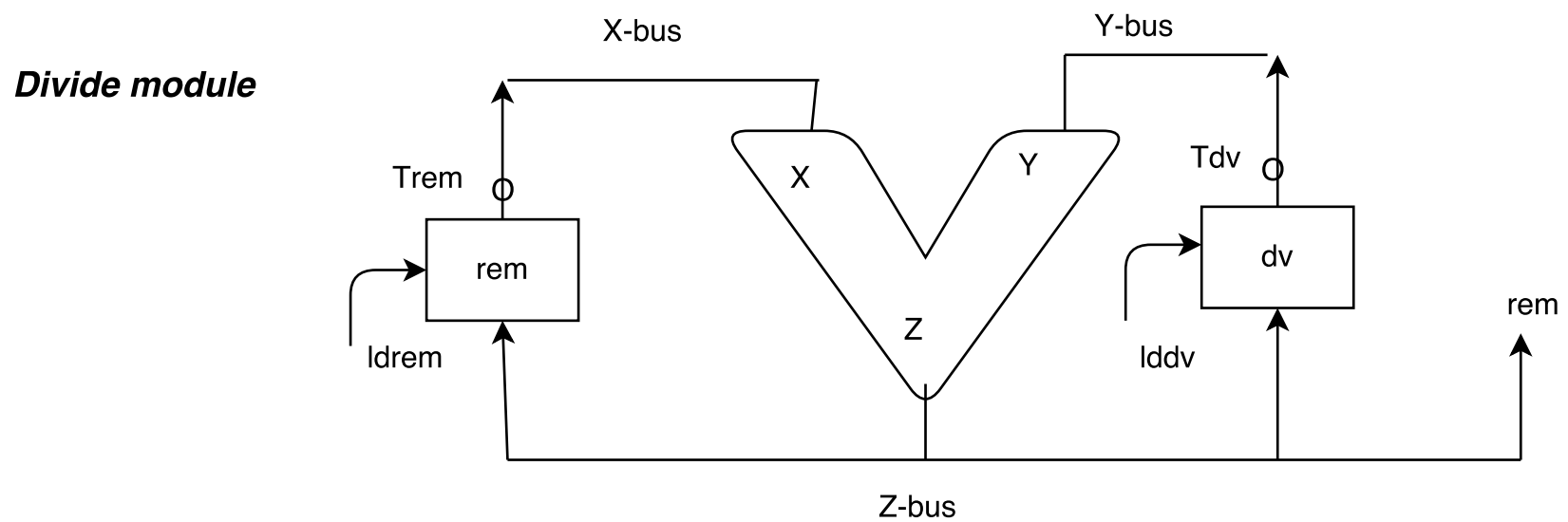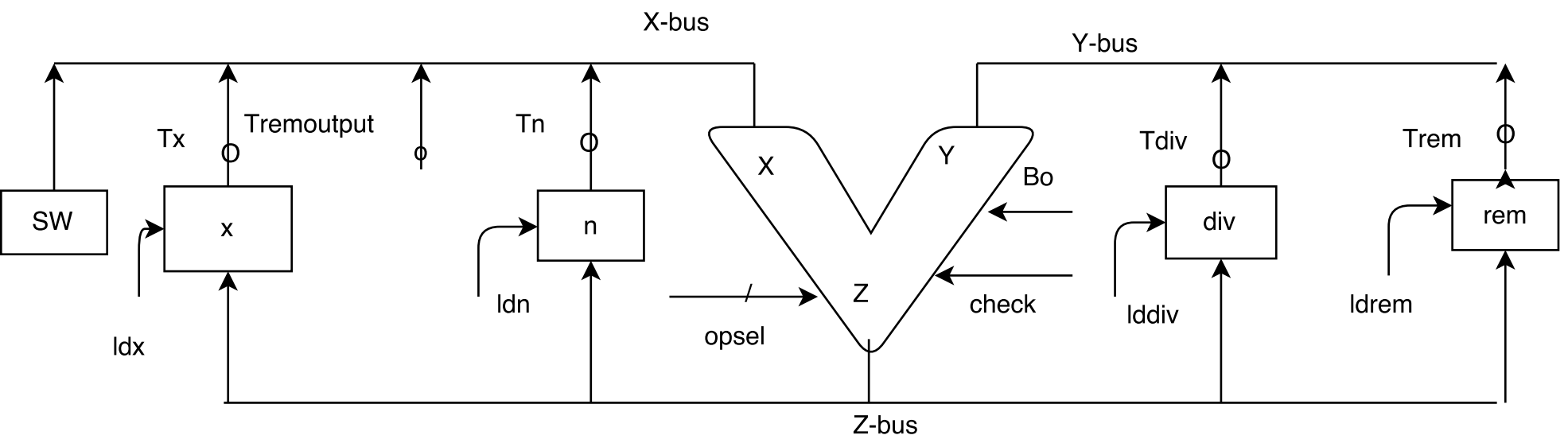
## Functional units :

transX : X <=Z
zero : Z <=0
sub : Z <=X-Y
incY : Y <=Y+1

## Data -registers :

N [15:0] - PIPO
x [15:0] - PIPO
div [15:0] - PIPO
rem[15:0] - PIPO
dv [15:0] - PIPO
lddiv,lrem,ldn,lddv,
ldx

## Control signals :

Trem
Tremoutput
Tx
Tn
Tdiv
Tdv

## Status detectors :
Bo : rem>=div
check : x >=N