

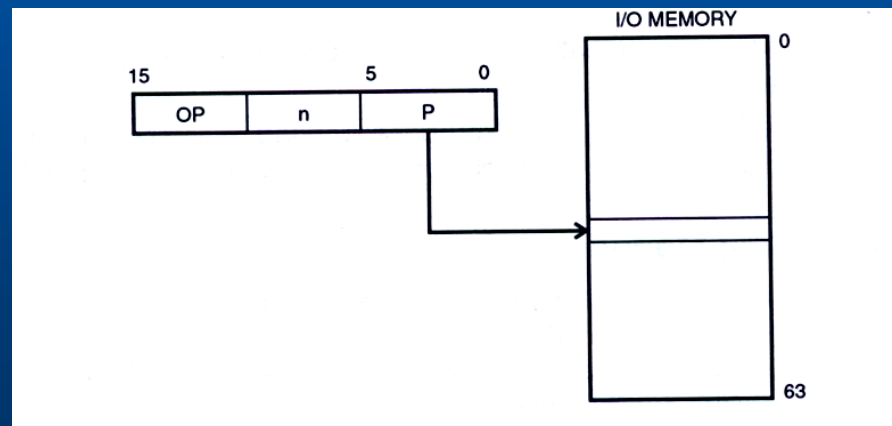
ATmega1284P I/O PORTS



I/O Direct Addressing

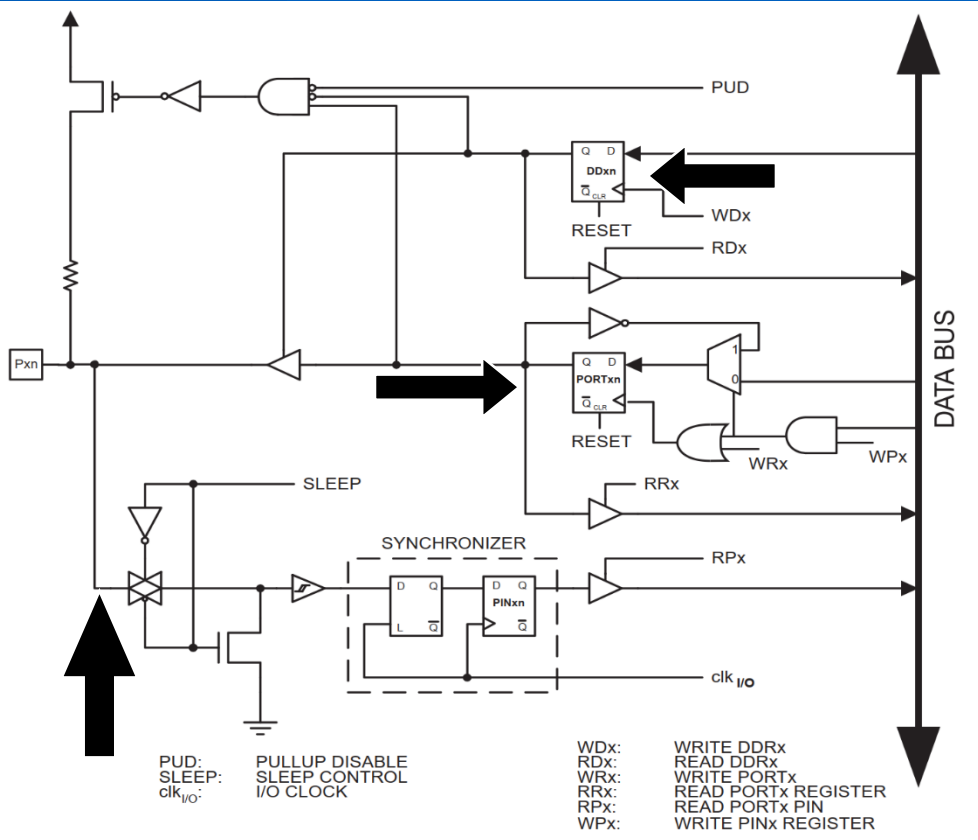
To read or write to the ATmega1284P ports use the commands:

IN Rd, PINX ←
OUT PORTX, Rx ; X is A-D





An Example of a Single Pin in a PORT:



DDRA : Direction Reg.

PORTA : OUTPUT Reg.

PINA : INPUT (no Reg.)



Program Header I:

```
; ** ATmega1284 Assembly Language File - IAR Assembler Syntax **  
;  
    .ORG    0  
;  
; ** Author : Costas Foudas  
; ** Company : CERN  
; ** Comment : Program Header; PORTB=OUT
```



Setting up a port:

```
; ***** Port B Setup when we need to make it an OUTPUT *****
```

```
;
```

```
    ldi r16, $FF ← PORTB : OUTPUT PORT
    out DDRB, r16    ; Port B Direction Register
    ldi r16, $FF    ; Init value
    out PORTB, r16  ; Initialize Port B output to $FF (not necessary)
```

```
;
```

```
; ***** Port B Setup when we want it to be an INPUT Port *****
```

```
    ldi r16, $00    ; I/O: ← PORTB : INPUT PORT
    out DDRB, r16    ; Port D Direction Register
    ldi r16, $FF    ; Init value
    out PORTB, r16  ; Enable pull-up resistors
```



Example LED Program:

Main:

```
INC r16 ; Increment r16
```

```
OUT PORTB, r16 ; Send the data on r16 to PORTB
```

```
rjmp Main ; Go back to Main
```