CPU Registers

- Small storage inside CPU
- ↳ 2 types
  - general purpose → (G.P.R)
 - Special purpose → (S.P.R)

Special purpose Register

1. Accumulator (AC)
2. Program Counter (PC)
3. Instruction Register (IR)
4. Stack pointer (SP)
5. Flag Register / program status word (PSW)
6. Address Register (AR) / Memory address Register (MAR)
7. Data Register (DR) / Memory data Register (MDR / MBR)

↓

Memory buffer Register

* Accumulator

used to store result of ALU and sometimes
one of the operand for ALU too

operands $\longrightarrow$ | ALU | $\xrightarrow{result}$ | AC |
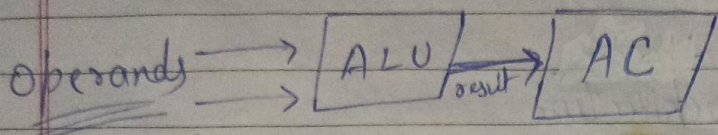
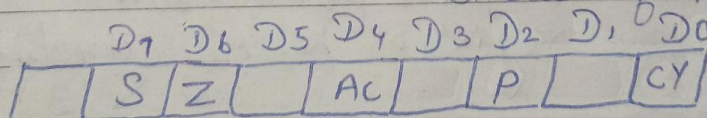- ALU can have only 2 input at a time

* Program Counter
- used to the address of next instruction to
to executed.

* Instruction Register → used to store current
instruction.

* Stack pointer → used to store the address of the
top of the stack

* Flag Register / Status Register → Used to store
status of ALU result.

D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0
	S	Z		AC		P		CY

also, Conditing checker
called

* Address or Memory Address Register

Used to send address to memory

Data & Memory Data Register
used to:
- Send data to memory (memory write)
- to receive data from memory (memory read)

* **Types** of Architecture

Based on ALU input:
1. AC - based Architecture
2. Register based Architecture
3. " Memory based Architecture
4. Complex System Architecture
5. Stack based Architecture

* Accumulator based architecture

in this arch. we can have one operand (input) from accumator for Sure and 2nd one is Open.

* ALU take input from Gr.P.R called register based architecture.

* Register memory based Architecture → ALU will take one operand from Gr.P.R for Sure and 2nd one from Gr.P.R or memory

* Complex System arch → we can take input from anywhere Gr.P.R or memory