Processor Registers

Registers are a type of computer memory used to quickly accept, store, and transfer data and instructions that are being used immediately by the CPU.   
 The registers used by the CPU are often termed as Processor registers.  
 A processor register may hold an instruction, a storage address, or any data (such as bit sequence or individual characters).  
 The register holding the memory location is used to calculate the address of the next instruction after the execution of the current instruction is completed.

program counter

A program counter is a [register](https://whatis.techtarget.com/definition/register) in a computer [processor](https://whatis.techtarget.com/definition/processor) that contains the address (location) of the [instruction](https://whatis.techtarget.com/definition/instruction) being executed at the current time. As each instruction gets [fetched](https://searchsqlserver.techtarget.com/definition/fetch), the program counter increases its stored value by 1. After each instruction is fetched, the program counter points to the next instruction in the sequence. When the computer restarts or is reset, the program counter normally reverts to 0.

Instruction Register (IR)

it contains the instruction most recently fetched or executed. The fetched instruction is loaded into an IR. the [Instruction Register (IR)](http://en.wikipedia.org/wiki/Instruction_register) stores the actual instruction to be executed (but not its address).

Memory Address Register

MAR are used to handle the data transfer between the main memory and the processor. The MAR holds the address of the main memory to or from which data is to be transferred.

Memory Buffer (or Data) Register (MBR or MDR)

MDR are used to handle the data transfer between the main memory and the processor. The MDR contains the data to be written into or read from the addressed word of the main memory.

### Status registers

Status registers are used to test for various conditions in an operation, such as ‘is the result negative’, ‘is the result zero’, and so on.

The two status registers have 16 bits and are called the [instruction pointer](https://www.sciencedirect.com/topics/computer-science/instruction-pointer) (IP) and the flag register (F).