# RISC and CISC

## RISC - Reduced Instruction Set Computer

RISC processors have a simplified set of instructions, which makes them faster and more efficient than CISC processors. They rely on a technique called pipelining, which allows them to execute multiple instructions at once. This makes them ideal for applications that require high-performance computing, such as gaming, scientific computing, and multimedia processing.

## CISC - Complex Instruction Set Computer

CISC processors have a more complex instruction set, which makes them more flexible and versatile than RISC processors. They can execute complex instructions in a single cycle, making them suitable for applications that require complex calculations and data manipulation, such as databases and enterprise applications.

## Major Difference between RISC and CISC

| RISC | CISC |
|---|---|
| Some of the instructions refer to memory. | Most of the instructions refer to Memory. |
| There are few addressing modes. Most instructions have register to register addressing modes. | There are many addressing modes. |
| There are few instructions. | There are many instructions. |
| It can include simple instructions and takes one cycle. | It can include complex instructions and takes multiple cycles. |
| Hardware executes the instructions. | Micro-program executes the instructions. |
| There are Fixed format instructions. | There are Variable format instructions. |
| It can be easier to decode as instructions have a fixed format. | It can be complex to decode as instructions have variable format. |
| There are multiple register sets are used. | A single register set is used. |
| RISC is highly pipelined. | CISC is not pipelined or less pipelined. |
| It can load and store functions are separate instructions. | It can load and store functions are found in a single instruction. |

The choice between RISC and CISC architecture depends on the specific requirements of the application and the tradeoffs between performance, power consumption, and cost.

In general, RISC processors are preferred for applications that require high-performance computing and low power consumption, such as mobile devices and embedded systems. CISC processors, on the other hand, are preferred for applications that require complex calculations and data manipulation, such as servers and mainframes.