



4.7.3.7 Processor Performance

Factors That Affect Processor Performance

Increase clock speed

- The system clock provides regular timing signals that synchronise processor operations. A higher clock speed allows more clock cycles per second, allowing more instructions to be executed per second.

Increase number of cores

- Each processor core can run its own FDE cycle.
- Multiple cores allow for parallel processing where instructions can be executed concurrently.
- Programs have to be written to take advantage of parallel processing otherwise the impact of extra cores will be reduced.

Increase cache size

- Cache is memory close to the CPU that stores frequently used instructions and data.
- It has very high read/write speed (faster than RAM).
- More cache memory means more instructions and data can be stored reducing the number of times RAM has to be accessed.

Larger word length

- A larger word length allows more bits to be processed at once.
- This allows larger values or more data to be processed in a single operation.

Larger address bus width

- A wider address bus increases the amount of addressable memory that can be accessed.

Data bus width

- A wider data bus allows more data to be transferred between the processor and main memory in one cycle.

