Instruction set architectures

ISA is an abstract model of a computer.

Characteristics of architecture.

Number of bits per word.

Number of bits per instruction.

How bits are ordered.

How the bits are addressed.

How the levels of memory are organized.

Stack based versus accumulator based.

General purpose register or specialized registers.

Factors that are used to measure the instruction set: -

* The amount of space a program will take.
* The complexity of the instruction set in terms of: -
* Effort required to decode an instruction
* Of features (CISC or RISC)

Fixed length instructions

* Is the memory will be byte addressable and word addressable
* What order should bytes be stored in memory
* 2 Possible orderings for multibyte values: -
* Most significant byte first (big endian)
* Least significant byte first (little endian)

For e.g.: - Store AABBCCDD

If big endian: - AA BB CC DD

Little endian: - DD CC BB AA

All intel chip are little endian.

Network has byte order and When network software are written there are two functions: -

* TCP/IP (network API)

- Ntoh(

- Hton(sender receive)