

ARCHITECTURE

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BCA PART I

PAPER 1

INTRODUCTION

- A computer is basically a programmable computing machine. In every day computers were used for complex computation and used by scientist and engineers and for army used. The tradition was to design large and powerful computers to handle large data and solve complex problem, they were very costly.

INTRODUCTION

- The technology breakthrough in design and fabrication of semiconductor devices has made now possible to manufacture powerful microcomputer. Which are within the range of small organization and even individual

Microprocessor

- In electronic more and more component were fabricated on a single chip, fewer chips are needed to construct a single processor. In 1971 Intel achieved the break through of putting all the components on a single chip. The single chip processor is known as *microprocessor*.

Microprocessor

- Intel 4004 is the first microprocessor. It was primitive microprocessor design for a specific application. Intel 8080 which comes in 1974 was the first general purpose microprocessor. It was an 8 bit microprocessor.

Microprocessor

- Computers has been classified under three main classes, these are-
- Micro processor
- Mini computer
- Mainframe computer
- A micro computer CPU is a microprocessor, the micro computer originated in late 1970. The first micro computer were built around 8 bit microprocessor chip.

Microprocessor

- Some important microprocessors are:-
- **8-bit microprocessor**:- Intel 8085, Motorola 6800, Zilog Z80, Zilog Z800 etc.
- **16-bit microprocessor**:- Intel 8086, Intel 80286, Motorola 68000, Zilog Z8000 etc.
- **32-bit microprocessor**:- Intel 486 (80486), Pentium PRO, Pentium I, Celeron, Pentium III, AMD, Pentium 4, Athlon, Power pc 601, 604, 760 etc.
- **64-bit microprocessor**:- Dec's Alpha 21264, Power Pc 620, Sun's Ultra Sparc, Intel Pentium etc.

CACHE MEMORY

- The cache memory is placed in between CPU and Main Memory, the processor is connected to the cache memory through a cache controller. It is a semiconductor memory. It's access time is about 10 ns (nano second).

REGISTER

- As instructions are interpreted and executed by a computer's CPU, there is movement of information between various units of the computer. In order to handle these processes and to speed up the rate of information transfer a number of special memory units called registers are used.
- These registers are used to hold information on a temporary basis and are part of the CPU (not main memory).

REGISTER

- Registers are classified as follow:-
- General purpose register
- Accumulator register
- Special purpose register

REGISTER:-

- Special purpose register is classified as follow:-
- Memory address register
- Memory Buffer register / Data register
- Program control register
- Instruction register
- Input / output register
- Status register / flag register
- Index register
- Stack register

ADVANCE PROCESSOR FAMILY

- Architecture family of modern processor are introduced below with the under laying microelectronic technology. The coverage span from VLSI microprocessor used in work station of multiprocessor to heavy duty processor used in main frame and super computer.
- Major processor family to be study included the RISC, CISC, Super Scalar, Super pipelined, Vector and symbolic processor, Scalar vector etc.