

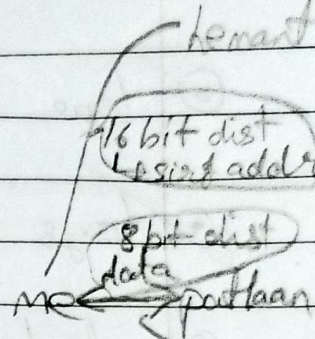
Features of 8051 Microcontroller

4KB ~~bytes~~

ROM

128 bytes

RAM



4 register banks

8 bit bidirectional data bus

16 bit unidirectional address bus

32 general purpose registers (8 bit each)

16 bit Timer

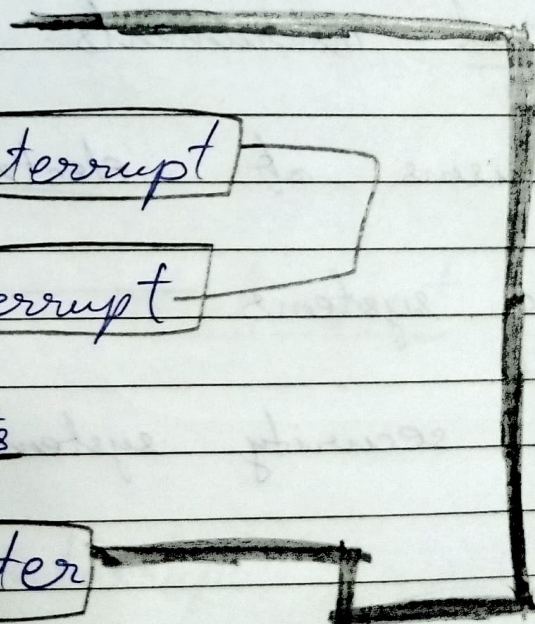
3 Internal Interrupt

2 External Interrupt

four 8-bit ports

16 bit prog counter

16 bit data pointer



→ Application of Microcontroller

- ① low cost product
- ① Toys
- ① electric drills
- ① microwave ovens
- ① machine tools
- ① chemical processors
- ① medical instruments
- ① mechanisms of electronic systems
- ① music systems
- ① home security systems

Main features of 8051 Microcontroller

- 1) 8 bit ALU
- 2) 4KB x 8 ROM (EPROM)
- 3) 128B x 8 RAM
- 4) Dual 16 bit timer event counter
- 5) 32 I/O lines
- 6) 64 KB of prog mem addr
- 7) 64KB of data memory
- 8) 111 instruc set
- 9) full featured serial port
- 10) 12 MHz clock
- 11) 2 External Interrupt

Architecture of 8051

32 pin

needed by

8 additional pins

- Power

- Connect clock crystal

- Timing signal

- Ctrl signal

4 8-bit bi-directional I/O ports

Series of 20 has RAM & ROM

8051 Internal 8-bit data bus

ALU

accumulator

block of reg

stack pt

General Purpose reg

Diagram

Mem reg Map

8051
 has 2 mem spaces

Storage

Store prg

Read only

has

Internal ROM

Var data

R/W

has

Internal RAM

22 special purpose
 reg;
 mem space = 80H - F8H

128 bytes

↓

aka general purpose reg

↓

general R/W data storage

X ——— X ——— X ——— X ———

Downloaded prg

Input

through serial com. port

mem

exe

load

as
 prg

block of data