Digital Electronics

- Range of Signed Binary number

$$= -[2^{n-1} - 1] \text{ to } +[2^{n-1} - 1]$$

- Range In 1's complement representation =

$$-[2^{n-1} - 1] \text{ to } +[2^{n-1} - 1]$$

- Range In 2's complement representation=

$$-[2^{n-1}] \text{ to } +[2^{n-1} - 1]$$

- Boolean algebra,

$$A.1 = A, A.0 = A, A + 0 = A, A + 1 = 1$$

$$A + A = A, A + \bar{A} = 1, A.\bar{A} = 0,$$

$$\overline{A + B} = \bar{A}.\bar{B}, \overline{A.B} = \bar{A} + \bar{B}$$

- Excess 3 is unweighted and self complementing code.
- In gray code, two consecutive codes differs by 1 bit only.
- ASCII is a 7 bit code.
- K-Map is pictorial device to minimize Boolean function.
- RTL family- low noise margin and low speed.
- TTL susceptible to power transient.
- ECL family has highest speed.
- MOS family has high packing density.
- CMOS- lowest power consumption.
- CMOS susceptible to static discharge.
- In asynchrouns counter frequency of nth Flip-Flop $= \dfrac{f_{CLK}}{2^n}$
- Johnson counter provides 2n-state
- Ring counter provides n-state with n-Flip-Flop.
- Different ADCs are as:
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ADC	Speed	Conversion time
Dual Slope		$2^{N+1}T$
Ramp Type		
Successive Approximation		$2^{N}T$
		NT
Flash Type		T

- RAM is volatile memory

- ROM is non-volatile memory;
- Comparison between 8085 and 8086

8085

(1) 8-bit μp

(2) 40 pin IC

(3) operating freq. 3 MHz

(4) power supply = +5 V

(5) data bus = 8 lines

(6) address Bar = 16 line

(7) maximum memory can attached 97 KB

(8) flag register = 8 bit

(9) 5 bits are used as flag.

8086

(1) 16-bit μp

(2) 40 pin IC

(3) operating freq 5 MHz

(4) power supply require = + 5 V

(5) data bus = 16 lines

(6) address bar = 20 lines

(7) max memory = 1 MB

(8) flag = 16 bit

(9) 9 bit be used as flag .

- 8085 has μp has five hardware interrupt pins.
- TRAP has highest priority and INTR has the lowest.
- Except TRAP, all are maskable interrupts.
- $\overline{RD}$ & $\overline{WR}$ are control signals.
- Number of status signal =3($IO / \overline{M}$, S_0 and S_1)