

Fig. 1-1 An Example of Voltage Ranges for Binary Signals

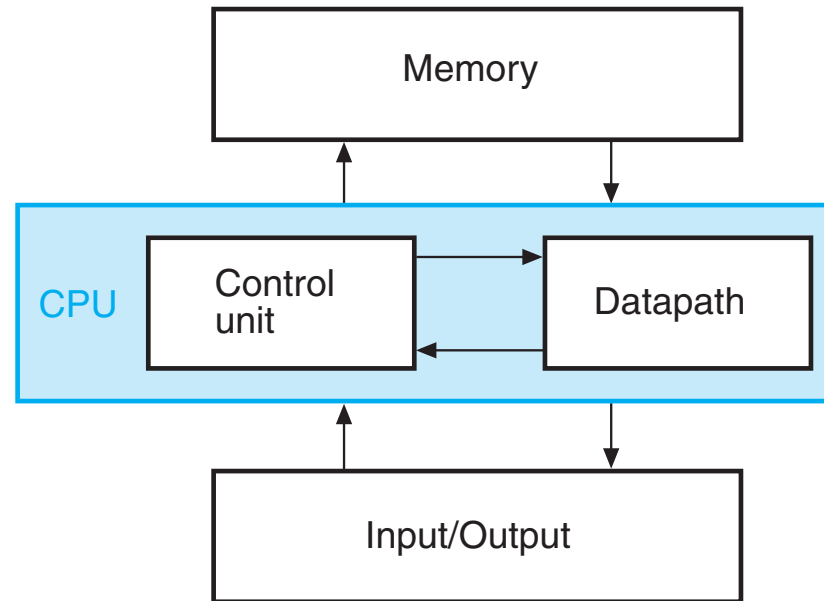


Fig. 1-2 Block Diagram of a Digital Computer

**TABLE 1-1**  
**Powers of Two**

<b>n</b>	<b>2<sup>n</sup></b>	<b>n</b>	<b>2<sup>n</sup></b>	<b>n</b>	<b>2<sup>n</sup></b>
0	1	8	256	16	65,536
1	2	9	512	17	131,072
2	4	10	1,024	18	262,144
3	8	11	2,048	19	524,288
4	16	12	4,096	20	1,048,576
5	32	13	8,192	21	2,097,152
6	64	14	16,384	22	4,194,304
7	128	15	32,768	23	8,388,608

Table 1-1 Powers of Two

**TABLE 1-2**  
**Numbers with Different Bases**

<b>Decimal (base 10)</b>	<b>Binary (base 2)</b>	<b>Octal (base 8)</b>	<b>Hexadecimal (base 16)</b>
00	0000	00	0
01	0001	01	1
02	0010	02	2
03	0011	03	3
04	0100	04	4
05	0101	05	5
06	0110	06	6
07	0111	07	7
08	1000	10	8
09	1001	11	9
10	1010	12	A
11	1011	13	B
12	1100	14	C
13	1101	15	D
14	1110	16	E
15	1111	17	F

Table 1-2 Numbers with Different Bases

**TABLE 1-3**  
**Binary-Coded Decimal (BCD)**

Decimal Symbol	BCD Digit
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001

Table 1-3 Binary-Coded Decimal (BCD)

TABLE 1-4  
American Standard Code for Information Interchange (ASCII)

B <sub>4</sub> B <sub>3</sub> B <sub>2</sub> B <sub>1</sub>	B <sub>7</sub> B <sub>6</sub> B <sub>5</sub>							
	000	001	010	011	100	101	110	111
0000	NULL	DLE	SP	0	@	P	`	p
0001	SOH	DC1	!	1	A	Q	a	q
0010	STX	DC2	"	2	B	R	b	r
0011	ETX	DC3	#	3	C	S	c	s
0100	EOT	DC4	\$	4	D	T	d	t
0101	ENQ	NAK	%	5	E	U	e	u
0110	ACK	SYN	&	6	F	V	f	v
0111	BEL	ETB	'	7	G	W	g	w
1000	BS	CAN	(	8	H	X	h	x
1001	HT	EM	)	9	I	Y	i	y
1010	LF	SUB	*	:	J	Z	j	z
1011	VT	ESC	+	;	K	[	k	{
1100	FF	FS	,	<	L	\	l	
1101	CR	GS	-	=	M	]	m	}
1110	SO	RS	.	>	N	^	n	~
1111	SI	US	/	?	O	_	o	DEL
Control Characters:								
NULL	NULL			DLE	Data link escape			
SOH	Start of heading			DC1	Device control 1			
STX	Start of text			DC2	Device control 2			
ETX	End of text			DC3	Device control 3			
EOT	End of transmission			DC4	Device control 4			
ENQ	Enquiry			NAK	Negative acknowledge			
ACK	Acknowledge			SYN	Synchronous idle			
BEL	Bell			ETB	End of transmission block			
BS	Backspace			CAN	Cancel			
HT	Horizontal tab			EM	End of medium			
LF	Line feed			SUB	Substitute			
VT	Vertical tab			ESC	Escape			
FF	Form feed			FS	File separator			
CR	Carriage return			GS	Group separator			
SO	Shift out			RS	Record separator			
SI	Shift in			US	Unit separator			
SP	Space			DEL	Delete			

Table 1-4 American Standard Code for Information Interchange (ASCII)