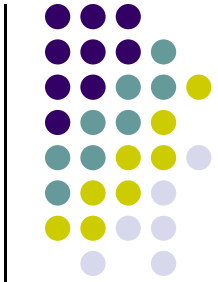
Addressing Codes



- **Major Addressing Methods**

1. Immediate Addressing (V)
2. Implied Addressing (Register Addressing) (L)
3. Direct Addressing (D)
4. Indirect Addressing (K)
5. Indexed Addressing (S)
6. Relative Addressing (B)

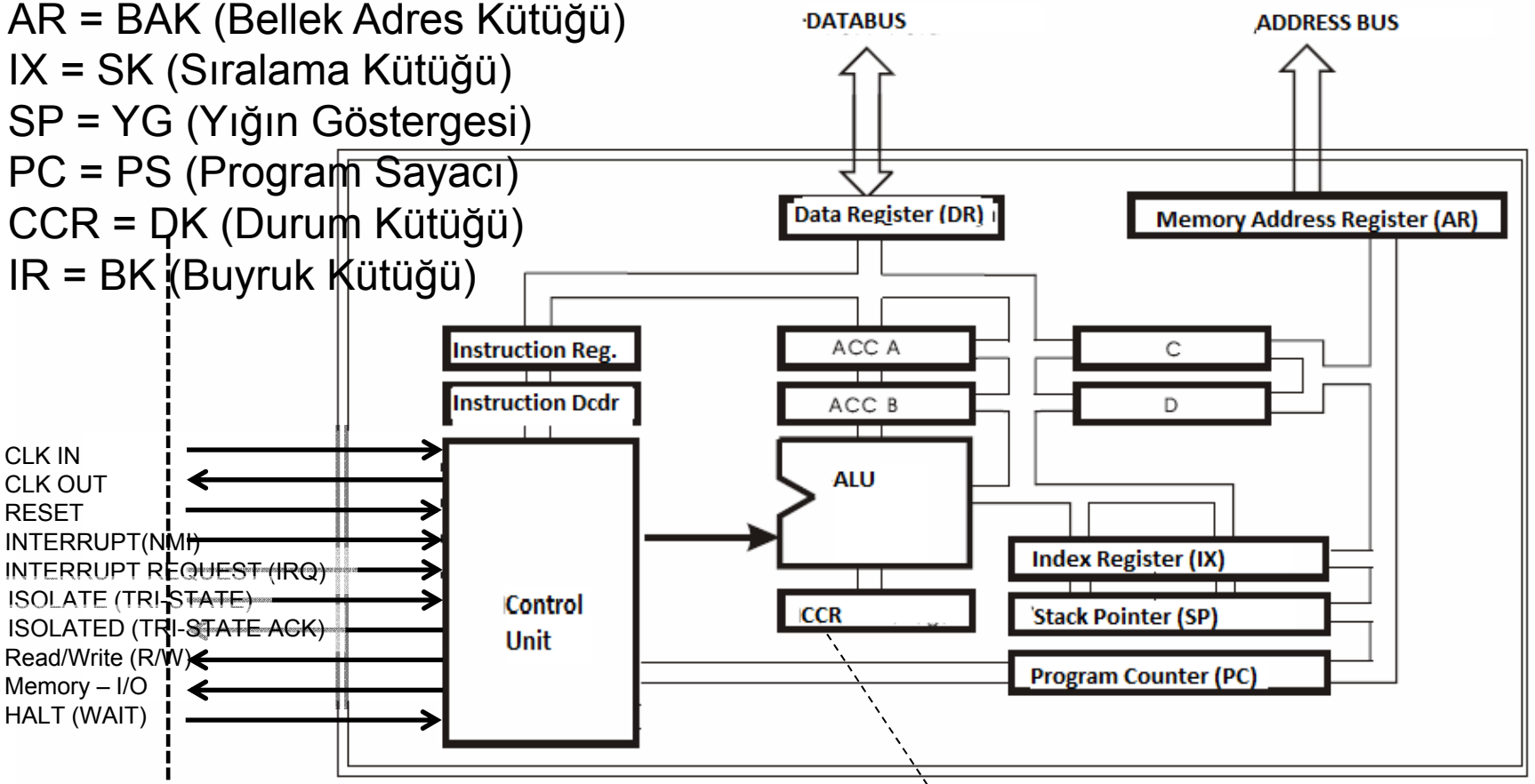
- **Advanced Addressing Methods**

1. Memory Immediate Write (V)
2. Incremented Index Addressing (R)
3. Decremented Index Addressing (Z)
4. Register Relative Index Addressing (U)
5. Stack Pointer Relative Addressing (Y)

Register Equivalents of Edu.CPU

Turkish Equivalents for the Educational CPU

DR = BVK (Bellek Veri Kütüğü)
AR = BAK (Bellek Adres Kütüğü)
IX = SK (Sıralama Kütüğü)
SP = YG (Yığın Göstergesi)
PC = PS (Program Sayacı)
CCR = DK (Durum Kütüğü)
IR = BK (Buyruk Kütüğü)



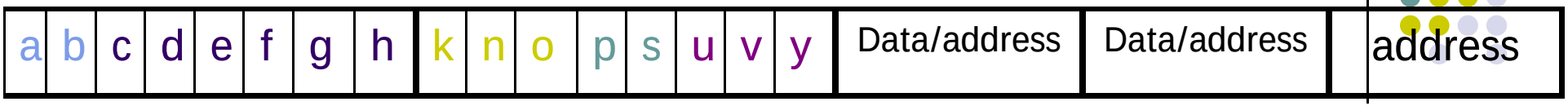
CCR (Condition Code Register): I V Z N H C
I (Interrupt mask), V (oVerflow), Z (Zero), N (Negative), H (Half carry), C (Carry)

{Turkish} DK: K T S N Y E
K (Kesme izin), T (Taşma), S (Sıfır), N (Negatif), Y (Yarım elde), E (Elde)

Instruction Set Categories for Educational CPU

Data Transfer Instructions	Arithmetic-Logic-Shift Instructions		Program Control and Sequencing Instructions		Input – Output
Transfer (AKT)	Add (TOP)	And (VE)	Compare (KAR)	Branch if Smaller (magnitude) (DEU)	Load from I/O address (YÜK)
Load (YÜK)	Add with carry (TOPE)	Or (VEYA)	Test (SIN)	Branch if Overflow (DTV)	
Store (YAZ)	Subtract (ÇIK)	Exor (YADA)	Unconditional Jump (BAĞ)	Branch if Carry (DEV)	
Exchange (TKS)	Subtract with carry (ÇIKE)	Complement (TÜM)	Unconditional Branch (DAL)	Branch if Half Carry (DYV)	Store to I/O address (YAZ)
Swap (DĞŞ)	Multiply (ÇAR)	Shift Left (SOL)	Conditional Jump (BAĞK)	Branch if Not Overflow (DTY)	
Push (YIĞ)	Divide (BÖL)	Shift Right (SAĞ)	No operation (GEÇ)	Branch if Not Carry (DEY)	
Pull (ÇEK)	Increment (ART)	Arithmetic Shift Right (SAĞİ)	Branch if Equal (DEE)	Branch if No Half Carry (DYY)	
	Decrement (AZT)	Circular Shift Left (SOLD)	Branch if Not Equal (DED)	Decrement, branch if not zero (ADED)	
	Negative (EKS)	Circular Shift Right (SAĞD)	Branch if Greater (DEB)	Branch to Subroutine address (ALTD)	
	Convert bin to BCD (ONA)	Clear (SİL)	Branch if Greater or Equal (DBE)	Branch to Subroutine step (ALT)	
		Set (KUR)	Branch if Lower (DEK)	Conditional Branch to Subroutine (ALTK)	
			Branch if Larger (magnitude) (DEİ)	Return from Subroutine (DÖN)	
			Branch if Larger or Equal (DİE)	Return from Interrupt (DÖNK)	

Instruction Format of the EDU-CPU



1. Octal 2. Octal 3. Octal 4. Octal 5. Octal

a	b	Instruction Type
0	0	General
0	1	Inherent
1	0	Relative
1	1	Single octal

k	n	Operand for Inherent type
0	0	Two registers
0	1	Single register
1	0	CCR operation
1	1	Operation on a bit of register

c	word length
0	8 bit
1	16 bit

p	s	Operand for General type
0	0	Single register
0	1	Memory operation
1	0	Operation on a bit of memory
1	1	CCR related operation

k	n	o		Addressing Method
0	0	0	V	
0	0	1	D	
0	1	0	K	
0	1	1	S	
1	0	0	R	
1	0	1	Z	
1	1	0	U	
1	1	1	Y	

o	p	s		Register
u	v	y		
0	0	0	A	ACCA
0	0	1	B	ACCB
0	1	0	C	C
0	1	1	D	D
1	0	0	CCR	
1	0	1	IX	
1	1	0	SP	

o	p	s		Register Pair
u	v	y		
0	0	0	AB	
0	1	0	CD	