

# 1 INSTRUCTION SET OF MICROPROCESSOR INTEL 8080 (KP580ИK80A)

One Byte Transfers MOV R1, R ;5/7; R→R1. MVI R, D8 ;7/10; D8→R. STAX YZ ;7; A→M(YZ). LDAX YZ ;7; M(YZ)→A. STA ADR ;13; A→M(ADR). LDA ADR ;13; M(ADR)→A.		Two Bytes Transfers LXI YZ, D16 ;10; D16→YZ. SHLD ADR ;16; H→M(ADR+1), L→M(ADR). LHLD ADR ;16; M(ADR)→L, M(ADR+1)→H. PUSH YZ ;11; YZ→M(SP-1) M(SP-2), SP-2→SP. POP, YZ ;10; M(SP) M(SP+1)→YZ, (POP' PSW) SP+2→SP. SPHL ;5; HL→SP. Exchange of Bytes XCHG ;4; HL↔DE. XTHL ;18; H↔M(SP+1), L↔M(SP).	
Input and Output Instructions IN N ;10; (N)→A. OUT N ;10; A→(N).			
Arithmetic and Logic Instructions with One Operand CMC'' ;4; C→C. STC'' ;4; 1→C. CMA ;4; A→A. DAA' ;4; Decimal Adjust INR''' R ;5/10; R+1→R. DCR''' R ;5/10; R-1→R. INX YZ ;5; YZ+1→YZ. DCX YZ ;5; YZ-1→YZ.			
Arithmetic and Logic Instructions with Two Operands 8 bit Instructions ADD' R ;4/7; A+R→A. ADC' R ;4/7; A+R+CY→A. SUB' R ;4/7; A-R→A. SBB' R ;4/7; A-R-CY→A. ANA' R ;4/7; A∩R→A. ORA' R ;4/7; A∪R→A. XRA' R ;4/7; A⊕R→A. ADI' D8 ;7; A+D8→A. ACI' D8 ;7; A+D8+CY→A. SUI' D8 ;7; A-D8→A. SBI' D8 ;7; A-D8-CY→A. ANI' D8 ;7; A∩D8→A. ORI' D8 ;7; A∪D8→A. XRI' D8 ;7; A⊕D8→A.			CPI' D8 ;7; Flags Fixing CMP' R ;4/7; accordingly to A-D8 or A-R  16 bit Instructions DAD'' YZ ;10; HL+YZ→HL
Accumulator Content Rotation Operations RLC'' ;4; Rotate Left. RAL'' ;4; Rotate Left Through Carry Flag CY. RRC'' ;4; Rotate Right. RAR'' ;4; Rotate Right Through Carry Flag CY.		Control Transfer Instructions PCHL ;5; HL→PC. JMP ADR ;10; ADR→PC. J-CON ADR ;10; ADR→PC.	
Microprocessor Control Instructions EI ;4; Enable Interrupts. DI ;4; Disable Interrupts. HLT ;4; Halt. NOP ;4; No Operations.		Instructions of Subroutine Call and Return from It CALL ADR ;17; PC→M(SP-1) M(SP-2); ADR→PC. C-CON ADR ;11(17); PC→M(SP-1) M(SP-2); ADR→PC. RST X ;11; PC→M(SP-1) M(SP-2); ADR→PC, where X=0,1,...,7 ADR accordingly equal to 0H, 8H, 10H, 18H, 20H, 28H, 30H, 38H. RET ;10; M(SP) M(SP+1)→PC. R-CON ;5(11); SP+2→SP.	
Format of Flags Register F D7 D6 D5 D4 D3 D2 D1 D0 S Z 0 AC 0 P 1 CY			
Notes ' - Instruction Affect All Flags. '' - Instruction Affect Flag CY. ''' - Instruction Affect All Flags Except CY. R, R1 - Contents of Registers A, B, C, D, E, H, L or Content of Memory Cell M(HL). YZ - Register Pairs BC, DE, HL, SP or Content of PSW. SP - Content of Stack Pointer Before Instruction Execution. D8 - 8 bit Immediate Data (Content of Second Byte of Two Bytes Instruction). (N) - Content of Input or Output Port, which Number N (N=0, 1, ..., 255). D16 - 16 bit Operand (Content of Second and Third Byte of Instruction). ADR - 16 bit Address of Three Bytes Instruction. M( ) - Content of Memory Cell (In Brackets are Address of Memory Cell). -CON - Condition (-CON Must be Replaced by NZ, Z, NC, C, PO, PE, P or M).			