Spisak instrukcija za µP iAPX86

| Sintaksa | Opis | Flags | | Br. ciklusa |
|---|---|--------------------------------|--|--|
| 1. Data transfer | , | ODITSZAPC | | |
| MOV dst, src | Move | | MOV mem, acc | 10 |
| 1010 0 000, 010 | Move | | MOV acc, mem | 10 |
| | | | MOV acc, mem | 2 |
| | | | | |
| | | | MOV reg, mem | 8+EA |
| | | | MOV mem, reg | 9+EA |
| | | | MOV reg, imd | 4 |
| | | | MOV mem, imd | 10+EA |
| | | | MOV acc, mem | 2 |
| PUSH src | Push word onto stack | | PUSH reg | 11 |
| | | | PUSH sreg(#CS) | 10 |
| | | | PUSH mem | 16+EA |
| DOD dot | Don word off stook | | | |
| POP dst | Pop word off stack | | POP reg | 8 |
| | | | POP sreg(#CS) | 8 |
| | | | POP mem | 17+EA |
| XCHG dst, src | Exchange | | XCHG acc, reg16 | 3 |
| , | S . | | XCHG mem, reg | 17+EA |
| | | | XCHG reg, reg | 4 |
| VI AT are table | Translata | | | |
| XLAT src-table | Translate | | XLAT src-table | 11 |
| IN acc, port | Input byte or word | | IN acc, imd8 | 10 |
| | | | IN acc, DX | 8 |
| OUT port, acc | Output byte or word | | OUT imd8, acc | 10 |
| , | , | | OUT DX, acc | 8 |
| LDS dst, src | Load pointer using DS | | LDS reg16, mem32 | 16+EA |
| | | | LDO 16910, 111611132 | |
| LEA dst, src | Load effective address | | LEA reg16, mem16 | 2+EA |
| LES dst, src | Load pointer using ES | | LES reg16, mem32 | 16+EA |
| LAHF | Load AH from flags | | LAHF | 4 |
| SAHF | Store AH into flags | RRRRR | SAHF | 4 |
| POPF | Pop flags off stack | RRRRRRRR | POPF | 8 |
| PUSHF | Push flags onto stack | | PUSHF | 10 |
| | - | | 1 00111 | 10 |
| Arithmetic instru | | | | |
| ADD -1-1 | A =1 =1:1: = | \/ \/\/\/\/ | ADD | |
| ADD dst, src | Addition | XXXXXX | ADD reg, reg | 3 |
| ADD dst, src | Addition | XXXXXX | ADD reg, mem | 9+EA |
| ADD dst, src | Addition | XXXXXX | ADD reg, mem ADD mem, reg | |
| ADD dst, src | Addition | XXXXXX | ADD reg, mem ADD mem, reg | 9+EA |
| ADD dst, src | Addition | XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd | 9+EA 16+EA 4 |
| ADD dst, src | Addition | XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd | 9+EA 16+EA 4 17+EA |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd | 9+EA 16+EA 4 17+EA 4 |
| ADD dst, src ADC dst, src | Addition Add with carry | XXXXXX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg | 9+EA 16+EA 4 17+EA 4 3 |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg | 9+EA 16+EA 4 17+EA 4 3 |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC reg, imd ADC mem, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA |
| ADC dst, src | Add with carry | XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd ADC acc, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA |
| | | | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 |
| ADC dst, src | Add with carry | XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 |
| ADC dst, src | Add with carry Increment by 1 | XXXXXX XXXXX- | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA |
| ADC dst, src | Add with carry Increment by 1 Decimal adjust for addition | XXXXXX XXXXX- XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 |
| ADC dst, src | Add with carry Increment by 1 Decimal adjust for addition | XXXXXX XXXXX- | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 |
| ADC dst, src INC dst | Add with carry Increment by 1 Decimal adjust for addition | XXXXXX XXXXX- XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC reg, imd ADC reg, imd ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC reg, imd ADC reg, imd ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC reg, imd ADC reg, imd ADC reg, imd ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB mem, imd SUB acc, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition | XXXXXX XXXXX- XXXXXX UUUXUX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB mem, imd SUB acc, imd SBB reg, reg | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD acc, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB reg, imd SUB acc, imd SUB acc, imd SUB reg, reg SUB reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD acc, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB reg, reg SUB reg, mem SUB reg, reg SUB reg, reg SUB reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB reg, imd SUB reg, imd SUB acc, imd SUB reg, reg SUB reg, mem SUB reg, reg SUB reg, mem SUB reg, reg SUB reg, imd SUB reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD acc, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB reg, reg SUB reg, mem SUB reg, reg SUB reg, reg SUB reg, mem | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, mem SUB mem, imd SUB reg, imd SUB mem, reg SUB reg, imd SUB mem, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src SBB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction Subtract with borrow | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, mem SUB mem, imd SUB acc, imd SBB reg, imd SBB reg, imd SBB mem, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA 4 17+EA |
| ADC dst, src INC dst DAA AAA SUB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD acc, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB acc, imd SUB acc, imd SUB acc, imd SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB acc, imd SUB reg, reg SBB reg, mem SBB reg, mem SBB mem, reg SBB reg, imd SBB reg, imd SBB mem, imd SBB acc, imd DEC reg16 | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 |
| ADC dst, src INC dst DAA AAA SUB dst, src SBB dst, src | Add with carry Increment by 1 Decimal adjust for addition ASCII adjust for addition Subtraction Subtract with borrow | XXXXXX XXXXXX UUUXUX XXXXXX | ADD reg, mem ADD mem, reg ADD reg, imd ADD mem, imd ADD acc, imd ADC reg, reg ADC reg, mem ADC mem, reg ADC reg, imd ADC acc, imd INC reg16 INC reg8 INC mem DAA AAA SUB reg, reg SUB reg, mem SUB mem, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, imd SUB mem, imd SUB acc, imd SUB reg, reg SUB reg, mem SUB mem, imd SUB acc, imd SBB reg, imd SBB reg, imd SBB mem, imd | 9+EA 16+EA 4 17+EA 4 3 9+EA 16+EA 4 17+EA 4 2 3 15+EA 4 4 3 9+EA 16+EA 4 17+EA 4 17+EA 4 17+EA |

iAPX86 SPISAK INSTRUKCIJA

| NEC det | Negata | V V////// | NICO ::: | 2 |
|------------------------------------|--|-------------------------------------|--------------------------------|------------------------------|
| NEG dst | Negate | XXXXXU | NEG reg NEG mem | 3 16+EA |
| CMP dst, src | Compare destination to source | XXXXXX | CMP reg, reg | 3 |
| 2 | | | CMP reg, mem | 9+EA |
| | | | CMP mem, reg | 9+EA |
| | | | CMP reg, imd | 4 |
| | | | CMP mem, imd | 10+EA |
| A A C | A COUL and it set for a subtraction | | CMP acc, imd | 4 |
| AAS DAS | ASCII adjust for subtraction Decimal adjust for subtraction | UUUXUX UXXXXX | AAS DAS | 4 4 |
| MUL src | Multiplication, unsigned | X - UUUUX | MUL reg8 | 70-77 |
| | amp.noation, among.noa | | MUL reg16 | 118-133 |
| | | | MUL mem8 | (76-83)+EA |
| | | | MUL mem16 | (124-139)+EA |
| IMUL src | Integer multiplication | X - UUUUX | IMUL reg8 | 80-98 |
| | | | IMUL reg16 | 128-154 |
| | | | IMUL mem8 IMUL mem16 | (86-104)+EA (134-160)+EA |
| AAM | ASCII adjust for multiply | UUUXUX | AAM | (134-160)+EA 83 |
| DIV src | Division unsigned | UUUUUU | DIV reg8 | 80-90 |
| | | 2 22000 | DIV reg16 | 144-162 |
| | | | DIV mem8 | (86-96)+EA |
| | | | DIV mem16 | (158-168)+EA |
| IDIV src | Integer division | UUUUUU | IDIV reg8 | 101-112 |
| | | | IDIV reg16 | 165-184 |
| | | | IDIV mem8 IDIV mem16 | (107-118)+EA (171-190)+EA |
| AAD | ASCII adjust for division | UUUXUX | AAD | 80 |
| CBW | Convert byte to word | | CBW | 2 |
| CWD | Convert word to doubleword | | CWD | 5 |
| 3. Bit manipulation | | | NOT | |
| NOT dst | Logical not | | NOT reg NOT mem | 3 16+EA |
| AND dst, src | Logical and | 0XXUX0 | AND reg, reg | 3 |
| | | 2 70.07.0 | AND reg, imd | 4 |
| | | | AND reg, mem | 9+EA |
| | | | AND mem, reg | 16+EA |
| | | | AND mem, imd | 17+EA |
| OP det ara | Logical or | 0XXUX0 | AND acc, imd | 4 9+EA |
| OR dst, src | Logical or | 0 ^ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | OR reg, mem OR mem, reg | 9+EA 16+EA |
| | | | OR filefil, reg OR acc, imd | 4 |
| | | | OR reg, imd | 4 |
| | | | OR mem, imd | 17+EA |
| XOR dst, src | Logical exclusive or | 0 0XXUX0 | XOR reg, reg | 3 |
| | | | XOR reg, mem | 9+EA |
| | | | XOR mem, reg | 16+EA |
| | | | XOR acc, imd XOR reg, imd | 4 4 |
| | | | XOR reg, ind XOR mem, imd | 4 17+EA |
| TEST dst, src | Test | 0XXUX0 | TEST reg, reg | 3 |
| , | | | TEST reg, mem | 9+EA |
| | | | TEST acc, imd | 4 |
| | | | TEST reg, imd | 4 |
| SAL det count / | Shift arithmetic/logical left | XX | TEST mem, imd | 17+EA 2 |
| SAL dst, count / SHL dst, count | Shift arithmetic/logical left (synonims) | Λ Λ | SAL reg, 1 SHL reg, imd8 | ∠ 5+1/bit |
| or in dot, court | (Gyrioriii116) | | SAL reg, CL | 8+4/bit |
| | | | SHL mem, 1 | 15+EA |
| | | | SHL mem, imd8 | 17+1/bit |
| | | | SAL mem, CL | 20+EA+4/bit |
| SHR dst, count | Shift logical right | XX | SHR reg, 1 | 2 |
| | | | SHR reg, CL | 8+4/bit |
| | | | SHR reg, imd8 SHR mem, 1 | 5+1/bit 15+EA |
| | | | SHR mem, imd8 | 17+1/bit |
| | | | SHR mem, CL | 20+EA+4/bit |
| | | | , | |

iAPX86 SPISAK INSTRUKCIJA

2

| SAR dst, count | Shift arithmetic right | XX | SAR reg, 1 SAR reg, imd8 SAR reg, CL SAR mem, 1 | 2 5+1/bit 8+4/bit 15+EA |
|--|--|--|---|---|
| ROL dst, count | Rotate left | XX | SAR mem, imd8 SAR mem, CL ROL reg, 1 ROL reg, imd8 | 17+1/bit 20+EA+4/bit 2 5+1/bit |
| | | | ROL reg, CL ROL mem, 1 ROL mem, imd8 ROL mem, CL | 8+4/bit 15+EA 17+1/bit 20+EA+4/bit |
| ROR dst, count | Rotate right | XX | ROR reg, 1 ROR reg, imd8 ROR reg, CL ROR mem, 1 ROR mem, imd8 ROR mem, CL | 2 5+1/bit 8+4/bit 15+EA 17+1/bit 20+EA+4/bit |
| RCL dst, count | Rotate left trough carry | XX | RCL reg, 1 RCL reg, imd8 RCL reg, CL RCL mem, 1 RCL mem, imd8 RCL mem, CL | 2 5+1/bit 8+4/bit 15+EA 17+1/bit 20+EA+4/bit |
| RCR dst, count | Rotate right trough carry | XX | RCR reg, 1 RCR reg, imd8 RCR reg, CL RCR mem, 1 RCR mem, imd8 RCR mem, CL | 2 5+1/bit 8+4/bit 15+EA 17+1/bit 20+EA+4/bit |
| 4. String manipula | tion | | | |
| REP | Repeat string operation | | | |
| REPE/REPZ | Repeat string operation while equal/ | zero | | |
| REPNE/REPNZ | Repeat string operation while not eq | ual/ not zero | | |
| | | | | |
| MOVS dss, srs | Move string | | MOVS dss, srs | 18 |
| · | · · | REP | MOVS dss, srs | 2+17/rep |
| MOVSB/ | Move string Move string (byte / word) | REP | MOVS dss, srs MOVSB | 2+17/rep 18 |
| MOVSB/ MOVSW | Move string (byte / word) | REP REP | MOVS dss, srs MOVSB MOVDW | 2+17/rep 18 2+17/rep |
| MOVSB/ | · · | REP REP XXXXXX | MOVS dss, srs MOVSB MOVDW CMPS dss, srs | 2+17/rep 18 2+17/rep 22 |
| MOVSB/ MOVSW CMPS dss, srs | Move string (byte / word) Compare string | REP REP XXXXXX REPE | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs | 2+17/rep 18 2+17/rep 22 9+22/rep |
| MOVSB/ MOVSW | Move string (byte / word) | REP REP XXXXXX | MOVS dss, srs MOVSB MOVDW CMPS dss, srs | 2+17/rep 18 2+17/rep 22 |
| MOVSB/ MOVSW CMPS dss, srs | Move string (byte / word) Compare string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs | Move string (byte / word) Compare string Scan string Load string (byte or word) | REPREP XXXXXX REPE XXXXXX REPNEREP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss | Move string (byte / word) Compare string Scan string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REPREP XXXXXX REPE XXXXXX REPNEREP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg, const RET inter-seg | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL near-proc CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const JMP slb | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL near-proc CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss STOS dss CALL near-proc CALL far-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg, const RET inter-seg, const JMP slb JMP near-lbl | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure | REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP regptr16 JMP regptr16 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 18+EA 11 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target RET const | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure Jump | REP XXXXXX REPE XXXXXX REPNE REP REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss STOS dss CALL near-proc CALL far-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP regptr16 JMP regptr16 JMP regptr16 JMP memptr32 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 18+EA 11 24+EA |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target RET const JMP target | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure Jump | REP XXXXXX REPE XXXXXX REPNE | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP far-lbl JMP regptr16 JMP regptr16 JMP memptr32 JA slb | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 18+EA 11 24+EA |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target RET const | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure Jump | REP XXXXXX REPE XXXXXX REPNE REP REP | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss STOS dss CALL near-proc CALL far-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP regptr16 JMP regptr16 JMP regptr16 JMP memptr32 | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 18+EA 11 24+EA |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target RET const JMP target JA/JNBE slb JAE/JNB slb JB/JNAE slb JBE/JNA slb JBE/JNA slb | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure Jump Ju | REP XXXXXX REPE XXXXXX REPNE REP REP CF=0, ZF=0 CF=0 CF=1 CF=1, ZF=1 | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP regptr16 JMP regptr16 JMP memptr32 JA slb JAE slb JB slb JB slb JBE slb | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 16 17 15 16 17 17 17 17 18 18 17 17 18 18 17 18 17 18 18 17 18 18 17 18 18 17 18 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18 |
| MOVSB/ MOVSW CMPS dss, srs SCAS dss LODS srs STOS dss 5. Control transfer CALL target RET const JMP target JA/JNBE slb JAE/JNB slb JB/JNAE slb JB/JNAE slb | Move string (byte / word) Compare string Scan string Load string (byte or word) Store (byte or word) string Call a procedure Return from procedure Jump Jump Jump Jump Jump if above Jump if above or equal Jump if below | REP XXXXXX REPE XXXXXX REPNE REP REP CF=0, ZF=0 CF=0 CF=1 | MOVS dss, srs MOVSB MOVDW CMPS dss, srs CMPS dss, srs SCAS dss SCAS dss LODS srs LODS srs STOS dss STOS dss CALL near-proc CALL far-proc CALL memptr16 CALL regptr16 CALL memptr32 RET intra-seg RET intra-seg RET inter-seg RET inter-seg, const JMP slb JMP near-lbl JMP far-lbl JMP far-lbl JMP regptr16 JMP regptr16 JMP memptr32 JA slb JAE slb JB slb | 2+17/rep 18 2+17/rep 22 9+22/rep 15 9+15/rep 12 9+13/rep 11 9+10/rep 19 28 21+EA 16 37+EA 8 12 18 17 15 15 15 15 15 16 or 4 16 or 4 16 or 4 |

iAPX86 SPISAK INSTRUKCIJA 3

| JG/JNLE slb | Jump if greater | ZF=0, SF=0F | JNLE slb | 16 or 4 |
|--------------------|----------------------------------|-------------|------------------|---------|
| JGE/JNL slb | Jump if greater or equal | SF=0F | JNL slb | 16 or 4 |
| JL/JNGE slb | Jump if less | SF≠0F | JL slb | 16 or 4 |
| JLE/JNG slb | Jump if less or equal | ZF=1, SF≠0 | JNG slb | 16 or 4 |
| JNC slb | Jump if not carry | CF=0 | JNC slb | 16 or 4 |
| JNE/JNZ slb | Jump if not equal/not zero | ZF=0 | JNE slb | 16 or 4 |
| JNO slb | Jump if not overflow | OF=0 | JNO slb | 16 or 4 |
| JNP/JPO slb | Jump if not parity / if odd | PF=0 | JNP slb | 16 or 4 |
| JNS slb | Jump if not sign | SF=0 | JNS slb | 16 or 4 |
| JO slb | Jump if overflow | OF=1 | JO slb | 16 or 4 |
| JP/JPE slb | Jump if parity/even | PF=1 | JP slb | 16 or 4 |
| JS slb | Jump if sign | SF=1 | JS slb | 16 or 4 |
| LOOPslb | Loop | | LOOP slb | 17 or 5 |
| LOOPE/LOOPZ | Loop if equal/zero | | LOOPE slb | 18 or 6 |
| slb | | | | |
| LOOPNE/ | Lopp if not equal/not zero | | LOOPNE slb | 19 or 5 |
| LOOPNZ slb | | | | |
| JCXZ slb | Jump if CX is zero | | JCXZ slb | 16 or 4 |
| INT int-type | Interrupt | 00 | INT imd8(type-3) | 52 |
| 1 | • | | INT imd8(type#3) | 51 |
| INTO | Interrupt is overflow | 00 | INTO | 53 |
| IRET | Interrupt return | RRRRRRRR | IRET | 24 |
| 6. Processor contr | ol | | | |
| STC | Set carry flag | 1 | STC | 2 |
| CLC | Clear carry flag | 0 | CLC | 2 |
| CMC | Complement carry flag | X | CMC | 2 |
| STD | Set direction flag | -1 | STD | 2 |
| CLD | Clear direction flag | - 0 | CLD | 2 |
| STI | Set interrupt flag | 1 | STI | 2 |
| CLI | Clear interrupt flag | 0 | CLI | 2 |
| ESC eoc, src | Escape | | ESC imd, mem | 8+EA |
| | • | | ESC imd, reg | 2 |
| HLT | Halt | | HLT | 2 |
| LOCK | Lock bus | | LOCK | 2 |
| WAIT | Wait while TEST pin not asserted | | WAIT | 3+5n |
| NOP | No anaustian | | NOD | 2 |
| 1101 | No operation | | NOP | 3 |

| Oznake za flag registar: | 0 1 X | ne utiče na stanje flega postavlja fleg na 0 postavlja fleg na 1 briše ili postavlja fleg |
|--------------------------|-------------|---|
| | U R | vrednost flega nije važeća obnovljena vrednost flega |

| Broj taktova za | Displacement | 6 |
|-------------------|------------------------------|----------|
| izračunavanje EA: | Base or Index | 5 |
| - | Displacement + Base or Index | 9 |
| | Base + Index | 7 or 7 |
| | Displacement + Base + Index | 11 or 12 |

| Legenda: | | | | | |
|----------|--|-------|--|-----------|--|
| acc | akumulator | sreg | segmentni registar | memptr16 | pointer u memoriji |
| mem | - memorija | src | - source | memeptr32 | |
| mem16 | | dst | destination | regptr16 | - pointer u registru |
| mem32 | | srs | source string | | |
| imd | neposredni operand | dss | destination string | | |
| imd8 | | slb | - short label | | |
| reg | - registar | lbl | - label | | |
| reg8 | _ | const | - constant | | |
| reg16 | | | | | |
| | | | | | |

iAPX86 SPISAK INSTRUKCIJA