# OLULISEMAD MIKROKONTROLLIRI ATmega88 KÄSID

| Mnemokood | Operandid | Kirjeldus | Tegevus | Lipud | Taktide arv |
|---|---|---|---|---|---|
| ADD | Rd, Rr | Add two Registers<br>Liida kaks registrit | Rd < Rd + Rr | Z,C,N,V,H | 1 |
| ADC | Rd, Rr | Add with Carry two Registers<br>Liida kaks registrit arvestades ülekannet | Rd < Rd + Rr + C | Z,C,N,V,H | 1 |
| SUB | Rd, Rr | Subtract two Registers<br>Lahuta kaks registrit | Rd < Rd - Rr | Z,C,N,V,H | 1 |
| SUBI | Rd, K | Subtract Constant from Register<br>Lahuta konstant registrist | Rd < Rd - K | Z,C,N,V,H | 1 |
| SBC | Rd, Rr | Subtract with Carry two Registers<br>Lahuta kaks registrit arvestades ülekannet | Rd < Rd - Rr - C | Z,C,N,V,H | 1 |
| SBCI | Rd, K | Subtract with Carry Constant from Reg.<br>Lahuta konstant registris ja arvesta ülekannet | Rd < Rd - K - C | Z,C,N,V,H | 1 |
| AND | Rd, Rr | Logical AND Registers<br>Loogiline JA registrite vahel | Rd < Rd • Rr | Z,N,V | 1 |
| ANDI | Rd, K | Logical AND Register and Constant<br>Loogiline JA registry ja konstandi vahel | Rd < Rd • K | Z,N,V | 1 |
| INC | Rd | Increment<br>Suurenda | Rd < Rd + 1 | Z,N,V | 1 |
| DEC | Rd | Decrement<br>Vähenda | Rd < Rd - 1 | Z,N,V | 1 |
| SEC | | Set Carry<br>Pane ülekande lipp üheks | C<1 | C | 1 |
| CLC | | Clear Carry<br>Pane ülekande lipp nulliks | C<0 | C | 1 |
| TST | Rd | Test for Zero or Minus<br>Kontrolli nulli või miinust | Rd < Rd • Rd | Z,N,V | 1 |
| SBI | P,b | Set Bit in I/O Register<br>Pane bitt I/O registris üheks | I/O(P,b) < 1 | None | 2 |
| CBI | P,b | Clear Bit in I/O Register<br>Pane bitt I/O registris nulliks | l/O(P,b)<0 | None | 2 |
| LSL | Rd | Logical Shift Left<br>Loogiline nihutamine vasakule | Rd(n+1) <Rd(n), Rd(0) <0 | Z,C,N,V | 1 |
| ROL | Rd | Rotate Left Through Carry<br>Ringnihe vasakule läbi ülekande | Rd(0)<C, Rd(n+1)<Rd(n), C<Rd(7) | Z,C,N,V | 1 |
| ROR | Rd | Rotate Right Through Carry<br>Ringnihe paremale läbi ülekande | Rd(7)<C, Rd(n)<Rd(n+1), C<Rd(0) | Z,C,N,V | 1 |
| MOV | Rd, Rr | Move Between Registers<br>Liiguta ühest registrist teise | Rd,Rr | None | 1 |
| MOVW | Rd, Rr | Copy Register Word<br>Liiguta 16 bitiline sõna ühest registrist teise | Rd+1:Rd<Rr+1:Rr | None | 1 |
| LDI | Rd, K | Load Immediate<br>Lae konstant otse registrisse | Rd<K | None | 1 |
| IN | Rd, P | In Port<br>Loe sisendpordist | Rd,P | None | 1 |
| OUT | P, Rr | Out Port<br>Kirjuta väljundporti | P,Rr | None | 1 |
| RJMP | k | Relative Jump<br>Suhteline hüppamine | PC < PC + k +1 | None | 2 |
| RCALL | k | Relative Subroutine Call<br>Suhteline alamprogrammi hüppamine | PC<PC + k+ 1 | None | 3 |
| RET | | Subroutine Return<br>Alamprogrammist tagasi pöördumine | PC < STACK | None | 4 |
| BRBS | s, k | Branch if Status Flag Set<br>Hüppa kui statuslipp on "1" | if (SREG(s) = 1) then PC<PC+k + 1 | None | 1/2 |
| BRBC | s, k | Branch if Status Flag Cleared<br>Hüppa kui statuslipp on "0" | if (SREG(s) = 0) then PC<PC+k + 1 | None | 1/2 |