

### Addendum to the instruction set

| INSTRUCTION              | OP<br>CODE | C | V | Z | S | DESCRIPTION   | SYNTAX         |
|--------------------------|------------|---|---|---|---|---|----------------|
| <b>Subroutines:</b>      |            |   |   |   |   |   |                |
| Load SP (Imm)            | 89         | X | X | X | X | $SP \leftarrow \text{mem}[PC+1], \text{mem}[PC]$  | LDSI <data>    |
| Call                     | C8         | X | X | X | X | $SP \leftarrow (SP) - 1; \text{mem}[SP] \leftarrow (PC_L);$<br>$SP \leftarrow (SP) - 1; \text{mem}[SP] \leftarrow (PC_H)$ | CALL <address> |
| Return                   | C0         | X | X | X | X | $PC_H \leftarrow \text{mem}[SP]; SP \leftarrow (SP) + 1;$<br>$PC_L \leftarrow \text{mem}[SP]; SP \leftarrow (SP) + 1$     | RET            |
| <b>Index addressing:</b> |            |   |   |   |   |   |                |
| Load X (Imm)             | 8A         | X | X | X | X | $X \leftarrow \text{mem}[PC+1], \text{mem}[PC]$   | LDXI <data>    |
| Load Acc (Indx)          | BC         | X | X | X | X | $A \leftarrow \text{mem}[(X) + b]$  | LDAA b,X       |
| Store Acc (Indx)         | EC         | X | X | X | X | $\text{mem}[(X) + b] \leftarrow (A)$  | STAA b,X       |
| Increment X              | FC         | X | X | X | X | $X \leftarrow (X) + 1$  | INCX           |
| Decrement X              | FD         | X | X | X | X | $X \leftarrow (X) - 1$  | DECX           |