| LABEL | OpCode/Directive | Operand(s) | Label Information | Type (OC/D) | Clock Cycles | Addressing Mode | Description |
|---|---|---|---|---|---|---|---|
| PortT | EQU | $240 | PortT = $0240 | D | N/A | N/A | Equates the label PortT to $0240 |
| DDRT | EQU | $242 | DDRT = $0242 | D | N/A | N/A | Equates the label DDRT to $0242 |
| INITRG | EQU | $11 | INITRG = $11 | D | N/A | N/A | Equates the label INITRG to $11 |
| INITRM | EQU | $10 | INITRM = $10 | D | N/A | N/A | Equates the label INITRM to $10 |
| CLKSEL | EQU | $39 | CLKSEL = $39 | D | N/A | N/A | Equates the label CLKSEL to $39 |
| PLLCTL | EQU | $3A | PLLCTL = $3A | D | N/A | N/A | Equates the label PLLCTL to $3A |
| CRGFLG | EQU | $37 | CRGFLG = $37 | D | N/A | N/A | Equates the label CRGFLG to $37 |
| SYNR | EQU | $34 | SYNR = $34 | D | N/A | N/A | Equates the label SYNR to $34 |
| REFDV | EQU | $35 | REFDV = $35 | D | N/A | N/A | Equates the label REFDV to $35 |
| COPCTL | EQU | $3C | COPCTL = $3C | D | N/A | N/A | Equates the label COPCTL to $3C |
| TSCR1 | EQU | $46 | TSCR1 = $46 | D | N/A | N/A | Equates the label TSCR1 to $46 |
| TSCR2 | EQU | $4D | TSCR2 = $4D | D | N/A | N/A | Equates the label TSCR2 to $4D |
| TIOS | EQU | $40 | TIOS = $40 | D | N/A | N/A | Equates the label TIOS to $40 |
| TCNT | EQU | $44 | TCNT = $44 | D | N/A | N/A | Equates the label TCNT to $44 |
| TC0 | EQU | $50 | TC0 = $50 | D | N/A | N/A | Equates the label TC0 to $50 |
| TFLG1 | EQU | $4E | TFLG1 = $4E | D | N/A | N/A | Equates the label TFLG1 to $4E |
| | ORG | $3,800 | | D | N/A | N/A | Tells Assembler where to place following code (RAM) |
| | ORG | $4,000 | | D | N/A | N/A | Tells Assembler where to place following code (EEPROM) |
| START | LDS | #$3FCE | START = This Line | OC | 2 | Immediate | Loads the stack pointer into the given location |
| | SEI | | | OC | 1 | Immediate | Set Interrupt Mask: Ignore Hardware Interrupts |
| | MOVB | #$00, INITRG | INITRG → $11 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | MOVB | #$39, INITRM | INITRM → $10 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | BCLR | CLKSEL,$80 | CLKSEL → $39 | OC | 4 | Direct | Clears the most significant bit of the least significant byte at the memory location |
| | BSET | PLLCTL,$40 | PLLCTL → $3A | OC | 4 | Direct | Sets the second most significant bit of the least significant byte at the memory location |
| | MOVB | #$2,SYNR | SYNR → $34 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | MOVB | #$0,REFDV | REFDV → $35 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | NOP | | | OC | 1 | Inherent | No Operation - Increment PC |
| | NOP | | | OC | 1 | Inherent | No Operation - Increment PC |
| PLP | BRCLR | CRGFLG,$08,PLP | PLP = This Line<br>CRGFLG → $37 | OC | 4 | Direct | Branches to PLP if the most significant bit of the least significant byte is 0 |
| | BSET | CLKSEL,$80 | CLKSEL → $39 | OC | 4 | Direct | Sets the second most significant bit of the least significant byte at the memory location |
| | CLI | | | OC | 1 | Immediate | Clear Interrupt Mask: Use Hardware Interrupts |
| | LDAA | #$FF | | OC | 1 | Immediate | Loads Accumulator A's content with the data of the memory location |
| | STAA | DDRT | DDRT → $0242 | OC | 3 | Extended | Stores Accumulator A's content at the memory location |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | LDAA | #$00 | | OC | 1 | Immediate | Loads Accumulator A's content with the data of the memory location |
| AG: | STAA | PortT | AG = This Line<br>PortT → $0240 | OC | 3 | Extended | Stores Accumulator A's content at the memory location |
| | JSR | DELAY | DELAY → Line Location | OC | 4 | Extended | Jumps to subroutine |
| | INCA | | | OC | 1 | Inherent | Increments Accumulator A |
| | BNE | AG | AG → Line Location | OC | 3/1 | Relative | Branches if Z status bit is 0; If Branch, then 3 Cycles, else, 1 |
| | STAA | PortT | PortT → $0240 | OC | 3 | Extended | Stores Accumulator A's content at the memory location |
| | BRA | * | | OC | 3 | Relative | Branches to location. * will equate to current line |
| DELAY | PSHA | | | OC | 2 | Inherent | Pushes Accumulator A's content to stack |
| | LDY | #10 | | OC | 2 | Immediate | Loads the data at the memory location into Index Y |
| | MOVB | #$90,TSCR1 | TSCR1 → $46 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | MOVB | #$06,TSCR2 | TSCR2 → $4D | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | MOVB | #$01,TIOS | TIOS →$40 | OC | 4 | Immediate/Extended | Moves data from first memory location to the second location |
| | LDD | TCNT | TCNT → $44 | OC | 3 | Direct | Loads data from the memory location to Register D |
| AGAIN | ADDD | #37500 | AGAIN = This Line | OC | 2 | Immediate | Adds the value to Register D |
| | STD | TC0 | TC0 → $50 | OC | 2 | Direct | Stores Register D's content at the memory location |
| WAIT | BRCLR | TFLG1,$01,WAIT | WAIT = This Line<br>TFLG1 →$4E | OC | 4 | Direct | Branches if the least significant bit of the least significant byte is cleared |
| | LDD | TC0 | TC0 → $50 | OC | 3 | Direct | Loads data from the memory location to Register D |
| | DBNE | Y,AGAIN | | OC | 3 | Relative | Decrements Y and Branches if not equal to zero |
| | PULA | | | OC | 3 | Inherent | Loads Accumulator A with content from stack |
| | RTS | | | OC | 5 | Inherent | Returns from subroutine |
| | ORG | $FFFE | | D | N/A | N/A | Tells Assembler where to place following code (Power-On/Reset Intercept Vector) |
| | FDB | START | | D | N/A | N/A | Places code that points to the START label |
| | END | | | D | N/A | N/A | Tells the Assembler that there is no more code |