

Application Note of Using NY8L ICE

In single-step debugging using NY8L ICE, step through the instructions which will affect the C flag / V flag, and if the next instruction is CLC/SEC/CLV, the status of C flag / V flag displayed on NYIDE may be inconsistent with the execution result of that instruction. This is because when executing Single Step, NY8L ICE will prefetch the next instruction, and induces the change of Status Register. However, the final outcome will not be affected.

Ex 1: After line 435 is executed, C flag is supposed to be 1. However, due to clc instruction is followed right after, the C flag on NYIDE is 0. Status Register has been changed although the clc instruction has not been executed yet. But the ultimate outcome will still be the same.

NYIDE debug window:

The screenshot shows the NYIDE debug window. The top part is the 'System Register Window' with two columns: Name and Value. The registers and their values are:

Name	Value	Name	Value
A	0xFE	PC	0x822
X	0xFF	ADDR	0x821
Y	0x35	D	0x0
S	0xFF	I	0x1
N	0x1	Z	0x0
V	0x0	C	0x0
B	0x1		

Below the registers is the 'SFR.asm' code window. The code is as follows:

```

431 ;-----
432 ; STATUS REGISTER CHECK
433 ;-----
434   lda    #0xff
435   asl
436   ; nop
437   clc
438   sec
439   clc
  
```

The instruction at line 435, 'asl', is highlighted in red. The instruction at line 437, 'clc', is highlighted in yellow. The cursor is positioned at line 437.

If a nop instruction is inserted at line 436, the execution result of line 435 will be as expected. There is no need for user to worry about the execution of program.

The screenshot shows the NYIDE debug window. The top part is the 'System Register Window' with two columns: Name and Value. The registers and their values are:

Name	Value	Name	Value
A	0xFE	PC	0x822
X	0xFF	ADDR	0x821
Y	0x35	D	0x0
S	0xFF	I	0x1
N	0x1	Z	0x0
V	0x0	C	0x1
B	0x1		

Below the registers is the 'SFR.asm' code window. The code is as follows:

```

431 ;-----
432 ; STATUS REGISTER CHECK
433 ;-----
434   lda    #0xff
435   asl
436   nop
437   clc
438   sec
439   clc
  
```

The instruction at line 435, 'asl', is highlighted in red. The instruction at line 436, 'nop', is highlighted in yellow. The cursor is positioned at line 436.

Ex 2: After line 452 is executed, V flag is supposed to be 1. However, due to clv instruction is followed right after, the V flag on NYIDE is 0. Status Register has been changed although the clv instruction has not been executed yet. But the ultimate outcome will still be the same.

NYIDE debug window:

The screenshot shows the NYIDE debug window. The top section is the 'System Register Window' with two columns: Name and Value. The registers shown are A (0xFF), X (0xFF), Y (0x35), S (0xFF), N (0x1), V (0x0), and B (0x1). The right side of the window shows PC (0x832), ADDR (0x830), D (0x0), I (0x0), Z (0x0), and C (0x0). Below this is the 'SFR.asm' assembly code window. The code is as follows:

```

448
449     clv
450     lda    #0xff
451     sta    0xC0
452     bit    0xC0
453     ;nop
454     clv

```

The cursor is positioned at line 452, which is highlighted in yellow.

If a nop instruction is inserted at line 453, the execution result of line 452 will be as expected. There is no need for user to worry about the execution of program.

The screenshot shows the NYIDE debug window with the 'nop' instruction inserted at line 453. The 'System Register Window' shows the V flag is now 0x1. The 'SFR.asm' assembly code is as follows:

```

448
449     clv
450     lda    #0xff
451     sta    0xC0
452     bit    0xC0
453     nop
454     clv

```

The cursor is positioned at line 453, which is highlighted in yellow.