

UNIT 5

WIN8051 EMULATOR

2012학년 2학기

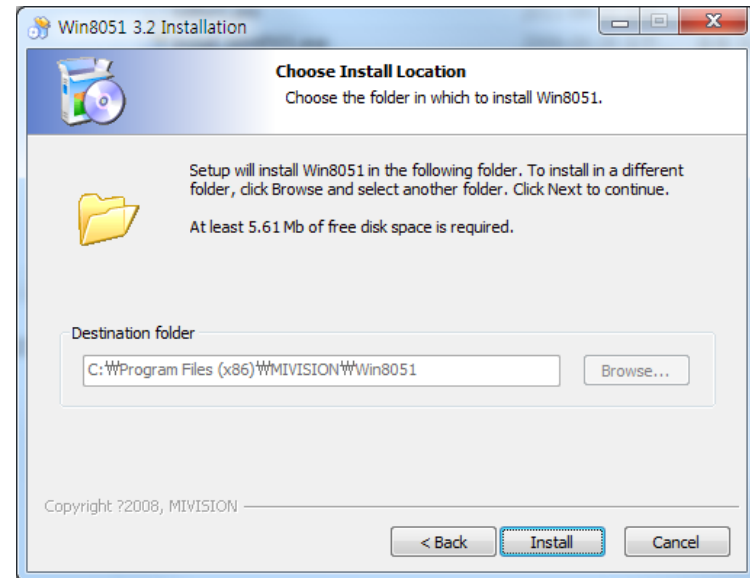
마이크로 프로세서 실습

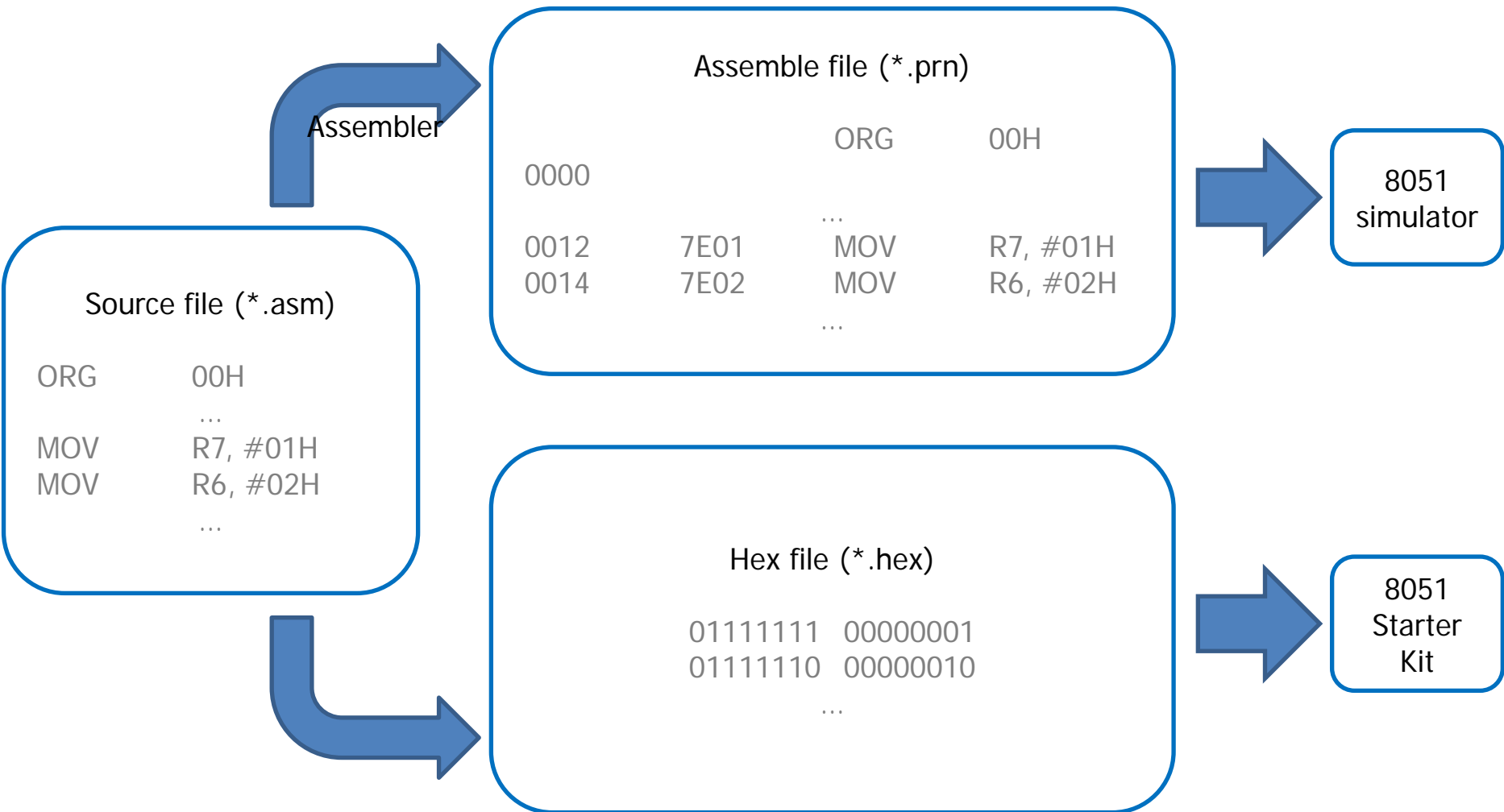
■ Software requirements

- + OS: Window 7 or Window XP
- + Install_Win8051.exe
 - Download: <http://cafe.naver.com/hyump2012> -> 실습자료 -> [실습] Win8051

Installation

- + Install_Win8051.exe 실행





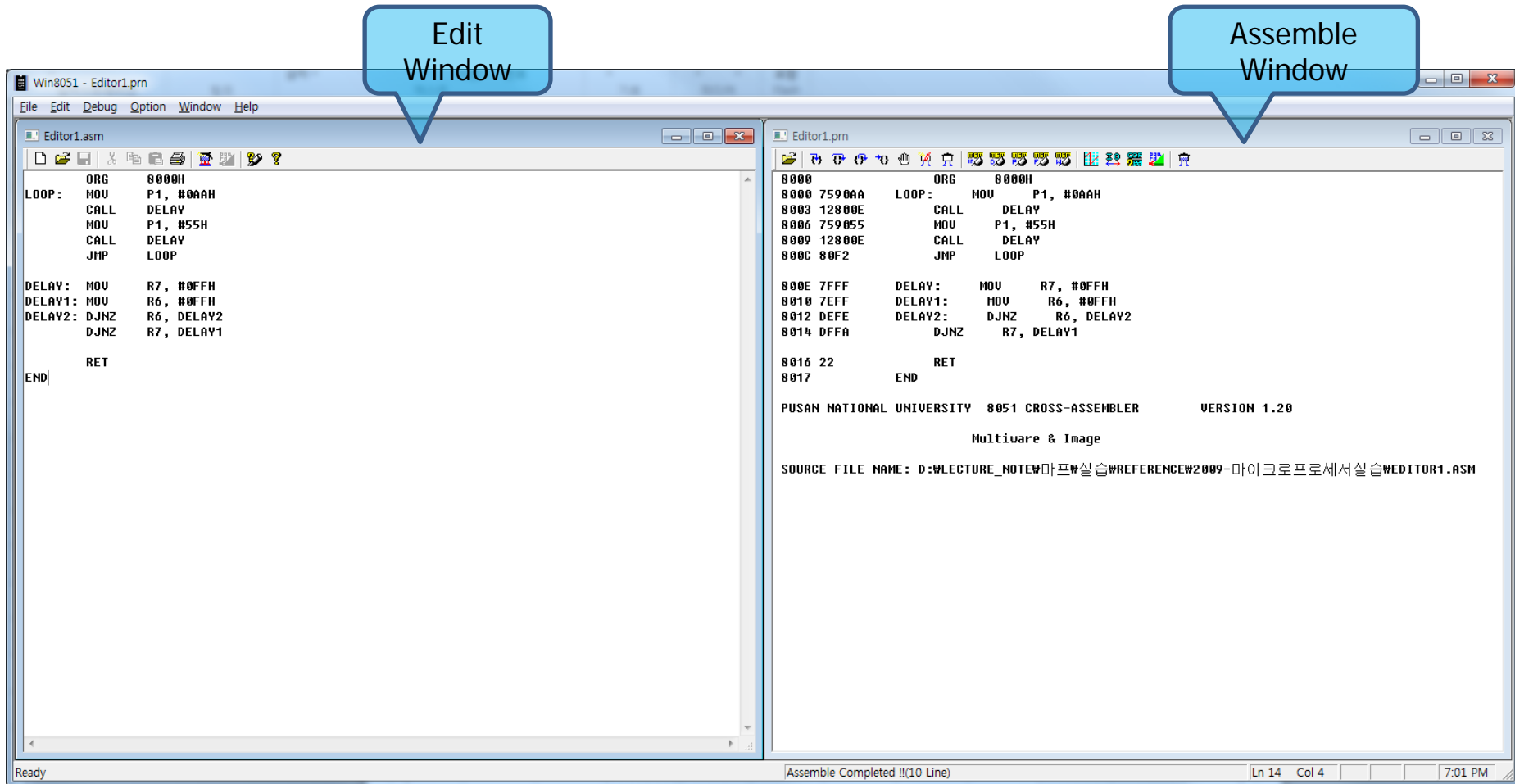
■ 8051 Simulator

- + 8051 실험을 하기 위해서 필요한 장치들 즉, 8051보드, 어셈블러, 프로그램 편집기, 오실로스코프(Oscilloscope), 함수 발생기 등을 통합해서 가상으로 실험을 할 수 있도록 만든 프로그램

기능

- + 메모리 내부의 데이터 값 확인 가능
- + Address, PC(Program Counter), register 변화 확인 가능

MAIN WINDOW



SIMULATION WINDOW

The screenshot shows the Win8051 simulation environment with several windows and components labeled with callouts:

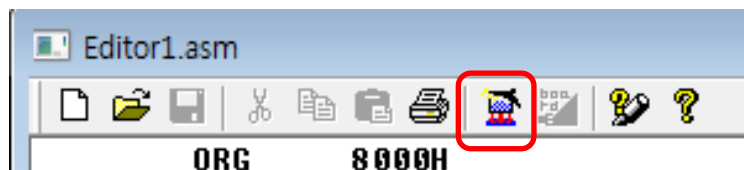
- Port Diode:** A window showing six diode symbols.
- Diode:** A callout pointing to one of the diode symbols in the Port Diode window.
- KEYPAD:** A window showing a numeric keypad and function keys. A callout labeled **Keypad** points to the numeric keypad.
- 7_segment:** A callout pointing to a 7-segment display icon.
- LED:** A window showing four LED symbols. A callout labeled **LED** points to one of the LEDs.
- Dot:** A callout pointing to a grid of dots in the DOT MATRIX window.
- Register:** A window showing the current register values (PC, SP, PSW, R0-R7, CYCLE, TIME).
- LCD:** A window showing a 16x2 LCD display.
- Editor1.asm:** The main assembly code editor window showing the following code:

```
0000 028000 LJMP 08000H ; 028000
0003 029F03 LJMP 09F03H ; 029F03
0006 00 NOP ; 00
0007 00 NOP ; 00
0008 00 NOP ; 00
0009 00 NOP ; 00
000A 00 NOP ; 00
000B 029F0B LJMP 09F0BH ; 029F0B
000E 00 NOP ; 00
000F 00 NOP ; 00
0010 00 NOP ; 00
0011 00 NOP ; 00
0012 00 NOP ; 00
0013 029F13 LJMP 09F13H ; 029F13
0016 00 NOP ; 00
0017 00 NOP ; 00
0018 00 NOP ; 00
0019 00 NOP ; 00
001A 00 NOP ; 00
001B 029F1B LJMP 09F1BH ; 029F1B
001E 00 NOP ; 00
001F 00 NOP ; 00
0020 00 NOP ; 00
0021 00 NOP ; 00
0022 00 NOP ; 00
0023 029F23 LJMP 09F23H ; 029F23
0026 00 NOP ; 00
0027 00 NOP ; 00
0028 00 NOP ; 00
0029 00 NOP ; 00
002A 00 NOP ; 00
002B 2508 ADD A, 008H ; 2508
002D 6140 AJMP 00340H ;(00:3:040H) ; 6140
002F 14 DEC A ; 14
0030 013B ACALL 0053BH ;(00:5:03BH) ; 013B
0032 6A XRL A, R2 ; 6A
0033 A5 DB 0A5H ;Reserved Code ; A5
0034 1128 ACALL 00028H ;(00:0:028H) ; 1128
```

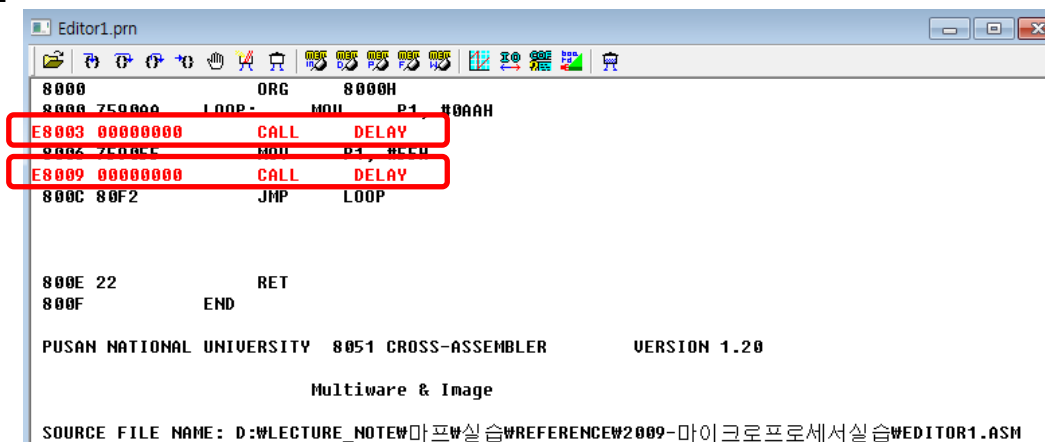
The status bar at the bottom indicates: Ready, Assemble Completed !!(10 Line), Ln 14 Col 3, 7:05 PM.

Steps

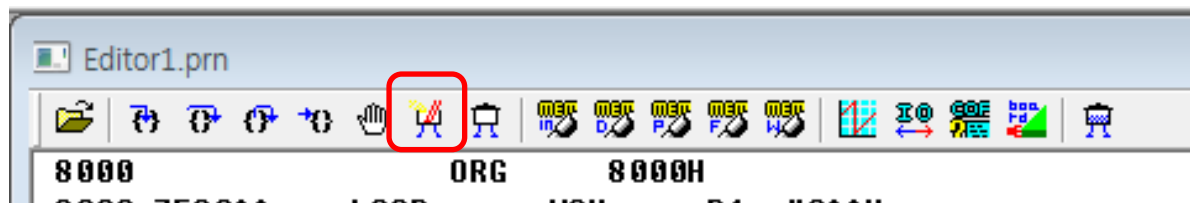
1. Assemble Code 작성
2. Assemble [F6]



3. Error 확인



4. Error check 후, Run [F10]



■ LED 점등 회로

- + 전원, 저항, LED 로 구성
- + 0.1mA의 전류가 흐를 때 빛의 밝기 최대
- + 간단한 회로구성

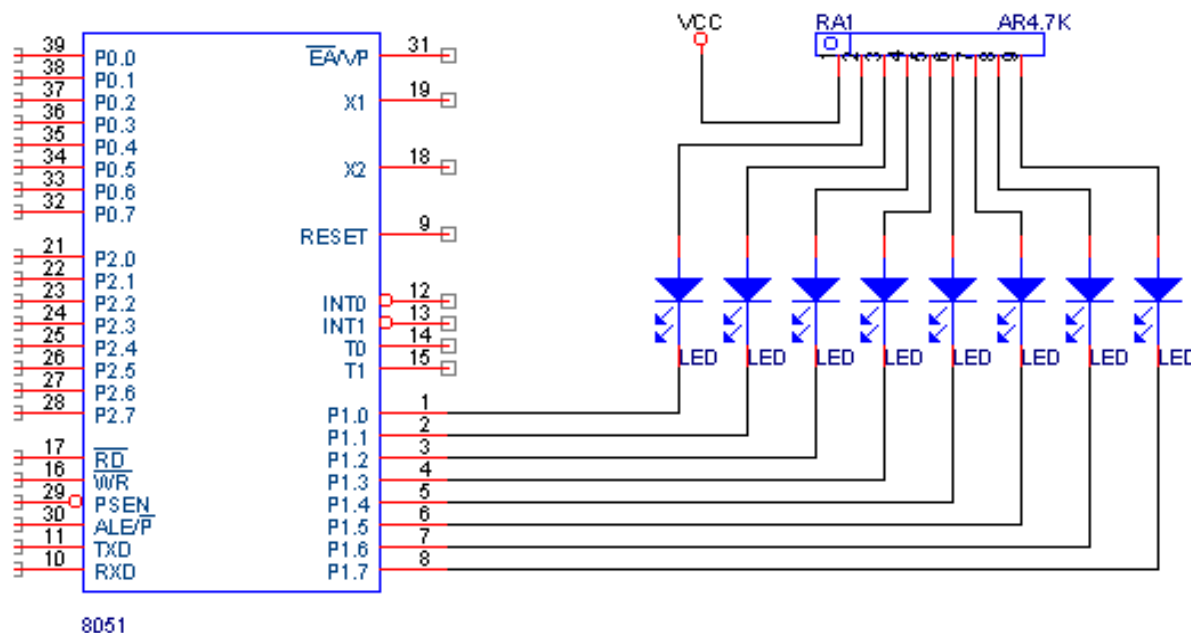
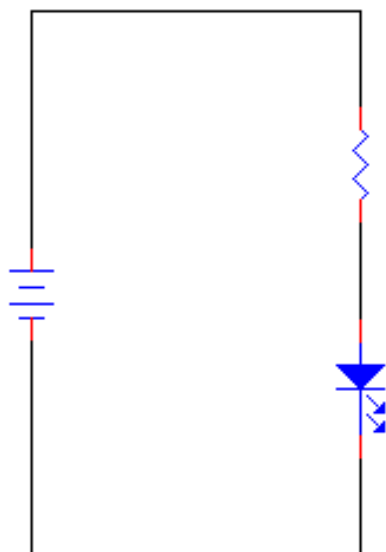


Figure. LED Circuit diagram

Figure. Schematic

■ Assemble code

```
      ORG      8000H
LOOP: MOV      A, #11111110B
      MOV      P1, A
      RL       A
      CALL     DELAY
      JMP      LOOP

DELAY: MOV      R0, #0FFH
DELAY1: MOV     R1, #0FFH
DELAY2: MOV     R2, #0FFH

DELAY3: DJNZ    R1, DELAY2
      DJNZ    R0, DELAY1

      RET

END
```

```
      ORG      8000H
      MOV      A, #11111110B
LOOP: MOV      P1, A
      RL       A
      CALL     DELAY
      JMP      LOOP

DELAY: MOV      R0, #0FFH
DELAY1: MOV     R1, #0FFH
DELAY2: MOV     R2, #0FFH
DELAY3: MOV     R3, #0FFH

DELAY4: DJNZ    R2, DELAY3
      DJNZ    R1, DELAY2
      DJNZ    R0, DELAY1

      RET

END
```

THANK YOU