UNIT 5
WIN8051 EMULATOR

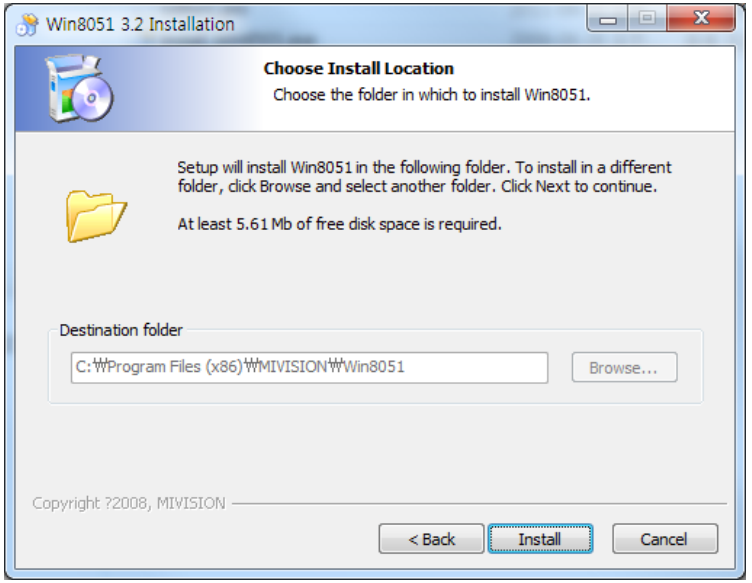
2012학년 2학기

마이크로 프로세서 실습

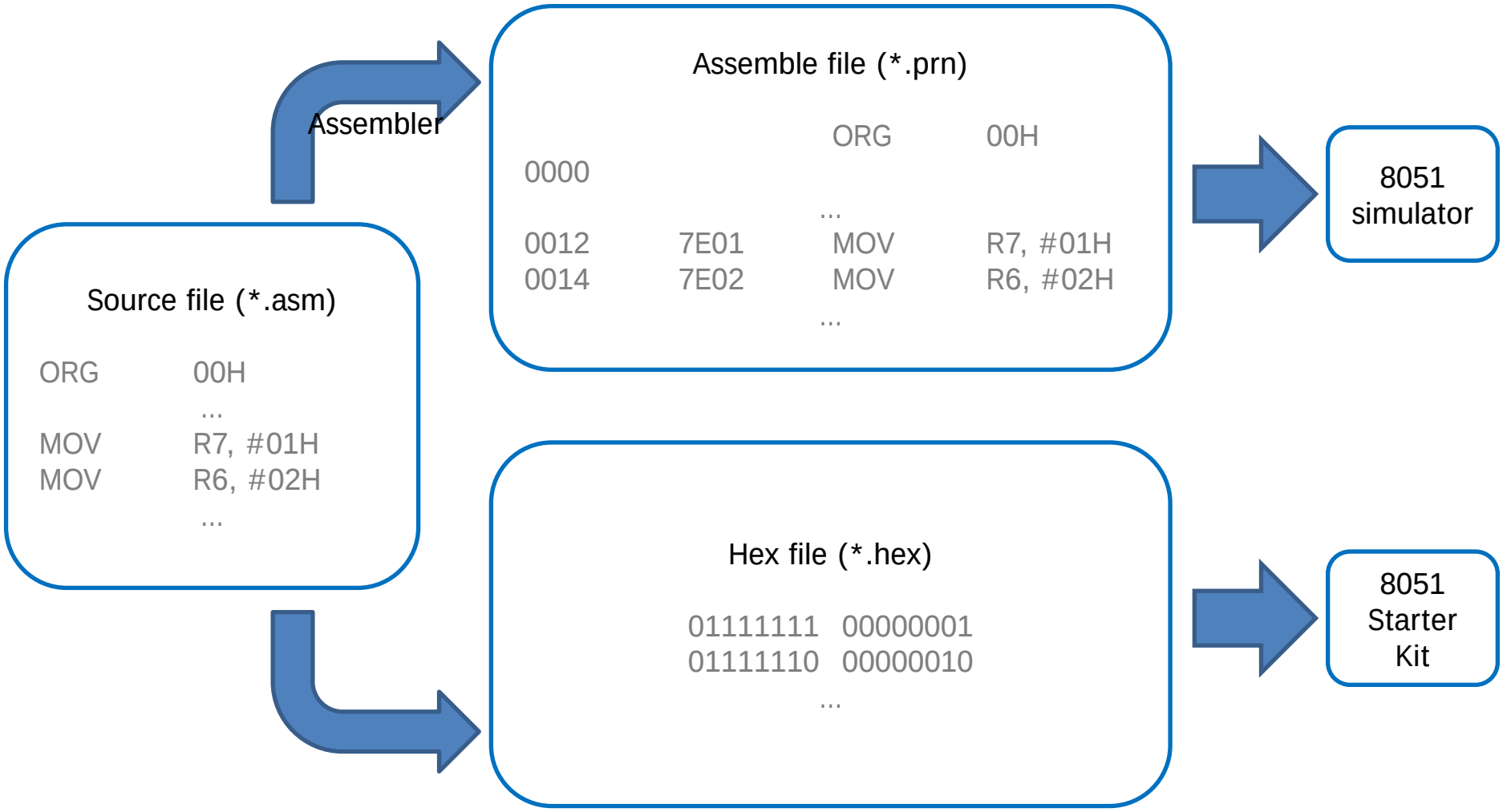
ENVIRONMENT SETUP

- 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



FLOWCHART

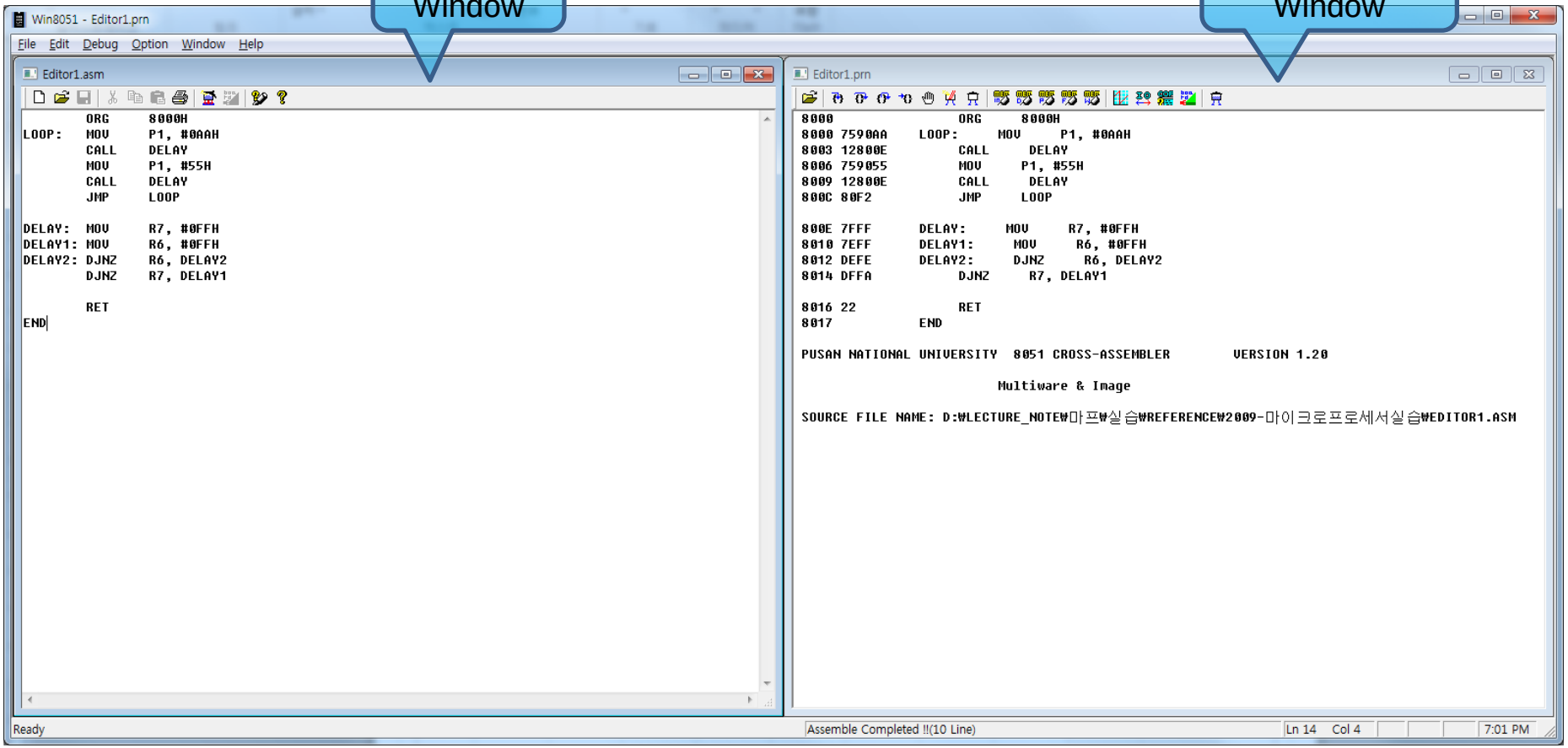

Assembler
Source file (*.asm)
ORG 00H
...
MOV R7, #01H
MOV R6, #02H
...
Assemble file (*.prn)
ORG 00H
0000
...
0012 7E01 MOV R7, #01H
0014 7E02 MOV R6, #02H
...
8051 simulator
Hex file (*.hex)
01111111 00000001
01111110 00000010
...
8051 Starter Kit

OVERVIEW

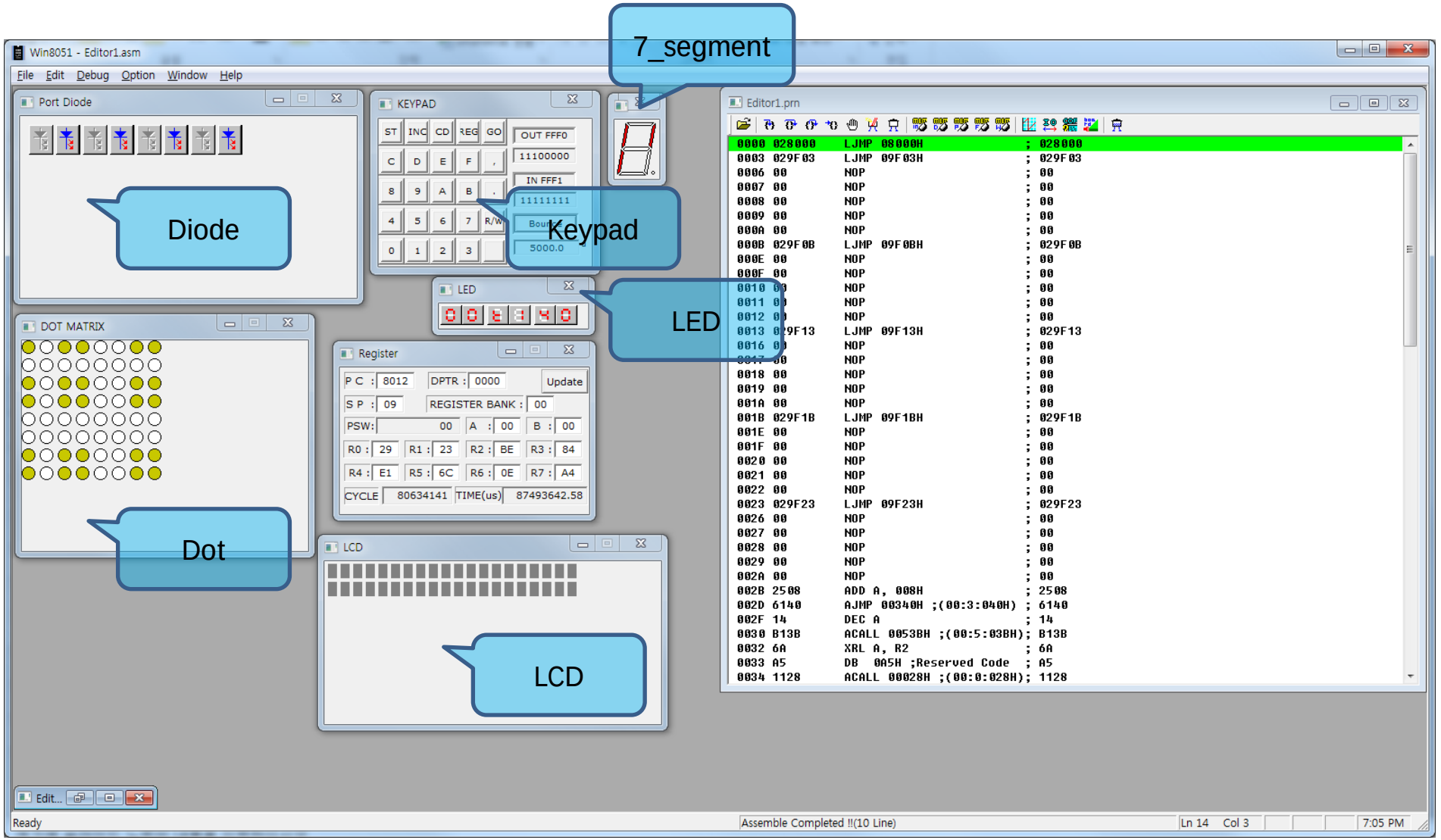
- 8051 Simulator
  - 8051 실험을 하기 위해서 필요한 장치들 즉, 8051보드, 어셈블러, 프로그램 편집기, 오실로스코프(Oscilloscope), 함수 발생기 등을 통합해서 가상으로 실험을 할 수 있도록 만든 프로그램

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

MAIN WINDOW


Edit Window
Assemble Window
Win8051 - Editor1.prn
File Edit Debug Option Window Help
Editor1.asm
ORG 8000H
LOOP: MOV P1, #0AAH
CALL DELAY
MOV P1, #55H
CALL DELAY
JMP LOOP
DELAY: MOV R7, #0FFH
DELAY1: MOV R6, #0FFH
DELAY2: DJNZ R6, DELAY2
DJNZ R7, DELAY1
RET
END
Editor1.prn
8000 ORG 8000H
8000 7590AA LOOP: MOV P1, #0AAH
8003 12800E CALL DELAY
8006 759055 MOV P1, #55H
8009 12800E CALL DELAY
800C 80F2 JMP LOOP
800E 7FFF DELAY: MOV R7, #0FFH
8010 7EFF DELAY1: MOV R6, #0FFH
8012 DEFE DELAY2: DJNZ R6, DELAY2
8014 DFFA DJNZ R7, DELAY1
8016 22 RET
8017 END
PUSAN NATIONAL UNIVERSITY 8051 CROSS-ASSEMBLER VERSION 1.20
Multiware & Image
SOURCE FILE NAME: D:₩LECTURE_NOTE₩마프₩실습₩REFERENCE₩2009-마이크로프로세서실습₩EDITOR1.ASM
Ready
Assemble Completed !!(10 Line)
Ln 14 Col 4
7:01 PM

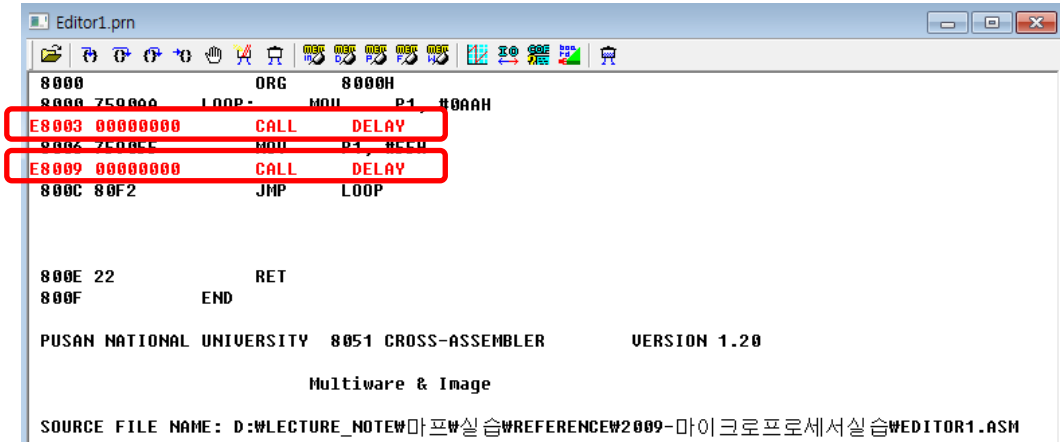
SIMULATION WINDOW



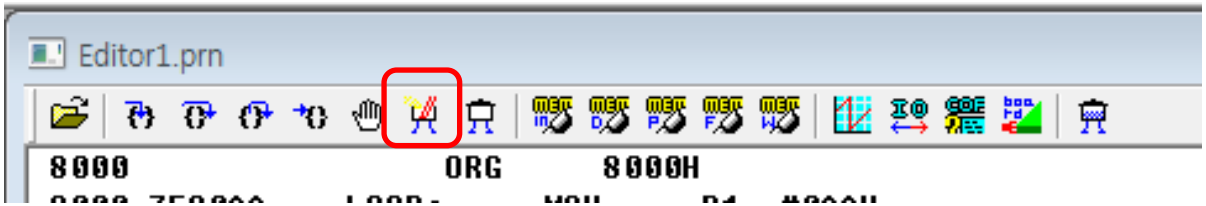
EXECUTION

- Steps
  1. Assemble Code 작성
  2. Assemble [F6]

  3. Error 확인



  4. Error check 후, Run [F10]



EXAMPLE – LED [1 OF 2]

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

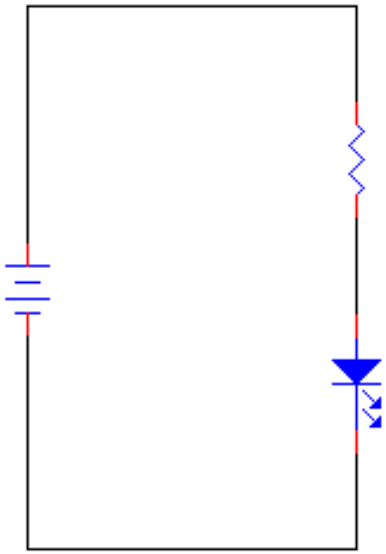


Figure. LED Circuit diagram

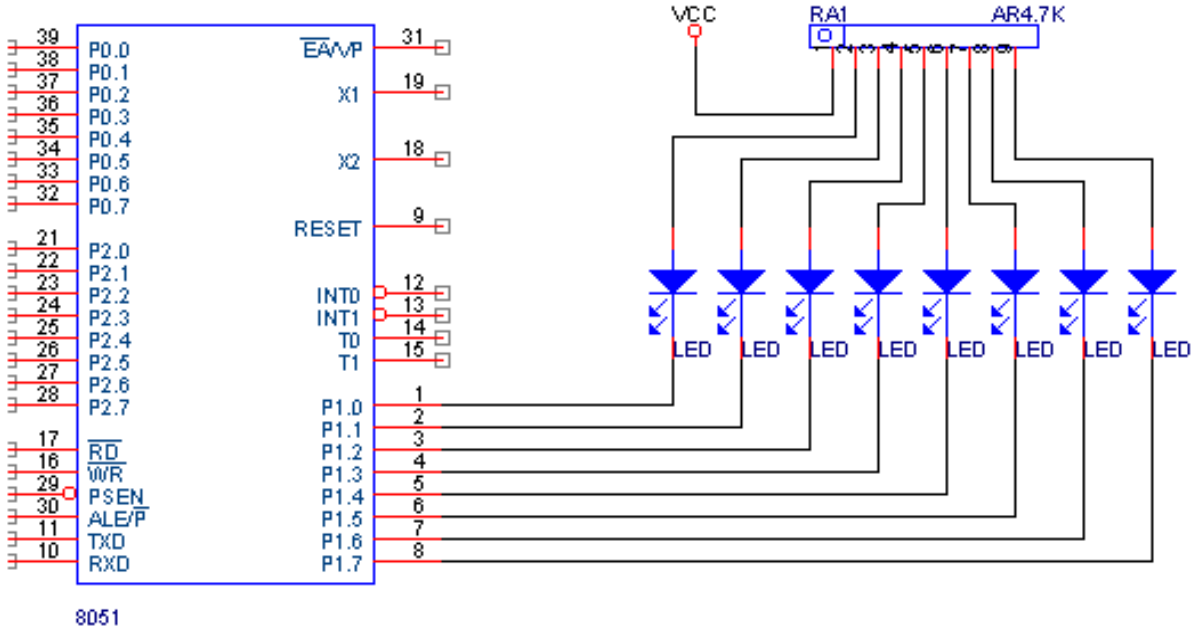


Figure. Schematic

EXAMPLE – LED [2 OF 2]

- Assemble code

```
        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: 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