



ATOM Family

Application Note #029

(AN029-V1.1)

ATOM

[ATOM 1.0] In Application Programming

V1.1

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1. Write in EEPROM (if don't use Watchdog)

```

EEPO_TEST:
  mov l, #11          ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l

  mov l, #0          ; Address Setting
  mov h, #0

  mov a, #0x8        ; Data Buffer Setting
  mov GDH, a
  mov a, #0xa
  mov GDL, a

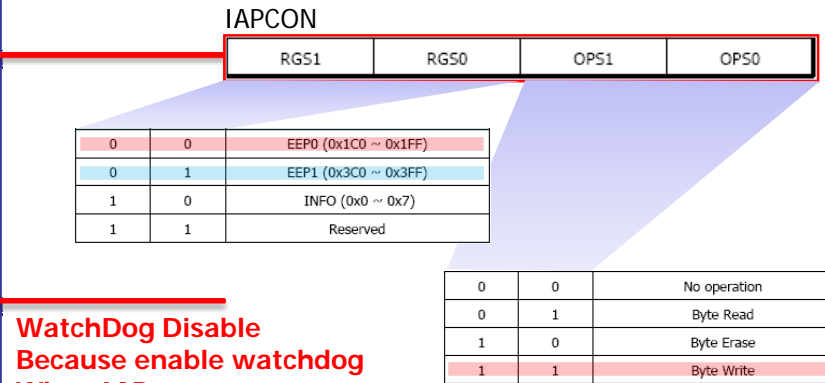
  mov a, #0x3        ; EEPO Byte Write
  mov IAPCON, a
  nop
  nop

  mov l, #11         ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l
  mov l, #13         ; IFF[13] : WDT Disable
  clr @l
  mov l, #11         ; IFF[11] : MAP1 Clear
  clr @l
  
```

Must set IFF[11] and clear IFF[10] before IAP

Set address 0x00 is Flash address 0x1C0(3C0)

Setting Data



WatchDog Disable Because enable watchdog When IAP

2. Erase in EEPROM (if don't use Watchdog)

```

EEP0_TEST:
  mov l, #11      ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l
  ; IFF[10] : MAP1 Clear Bit (IAP or WDTE/R)

  mov l, #0      ; Address Setting
  mov h, #0

  mov a, #0x2    ; EEPO Byte Erase
  mov IAPCON, a
  nop
  nop

  mov l, #11     ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l
  mov l, #13     ; IFF[13] : WDT Disable
  clr @l
  mov l, #11     ; IFF[11] : MAP1 Clear
  clr @l
  
```

Must set IFF[11] and clear IFF[10] before IAP

Set address 0x00 is Flash address 0x1C0(3C0)

IAPCON

RG51	RG50	OPS1	OP50
------	------	------	------

0	0	EEP0 (0x1C0 ~ 0x1FF)
0	1	EEP1 (0x3C0 ~ 0x3FF)
1	0	INFO (0x0 ~ 0x7)
1	1	Reserved

WatchDog Disable Because enable watchdog When IAP

0	0	No operation
0	1	Byte Read
1	0	Byte Erase
1	1	Byte Write

3. Read in EEPROM (if don't use Watchdog)

```

EEPO_TEST:
  mov l, #11      ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l
  ; IFF[10] : MAP1 Set Bit (IAP or WDTE/R)

  mov l, #0
  mov h, #0      ; Address Setting
  ; IFF[10] : MAP1 Set Bit (IAP or WDTE/R)

  clr a
  mov GDH, a
  mov GDL, a    ; Data Buffer Setting
  ; IFF[10] : MAP1 Set Bit (IAP or WDTE/R)

  mov a, #0x1
  mov IAPCON, a
  nop
  nop           ; EEPO Byte Read
  ; IFF[10] : MAP1 Set Bit (IAP or WDTE/R)

  mov l, #11
  setb @l      ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)

  mov l, #13
  clr @l       ; IFF[13] : WDT Disable

  mov l, #11
  clr @l       ; IFF[11] : MAP1 Clear
  ; IFF[10] : MAP1 Set Bit (IAP or WDTE/R)
  
```

Must set IFF[11] and clear IFF[10] before IAP

Set address 0x00 is Flash address 0x1C0(3C0)

Clear data buffer

WatchDog Disable Because enable watchdog When IAP

Memory map showing EEPROM1 (0x3C0 ~ 0x3FF) and EEPROM0 (0x1C0 ~ 0x1FF). Setting addresses are 0x00 and 0x3F.

IAPCON			
RGS1	RGS0	OPS1	OPS0
0	0	EEPO (0x1C0 ~ 0x1FF)	
0	1	EEP1 (0x3C0 ~ 0x3FF)	
1	0	INFO (0x0 ~ 0x7)	
1	1	Reserved	

0	0	EEPO (0x1C0 ~ 0x1FF)
0	1	EEP1 (0x3C0 ~ 0x3FF)
1	0	INFO (0x0 ~ 0x7)
1	1	Reserved

0	0	No operation
0	1	Byte Read
1	0	Byte Erase
1	1	Byte Write

4. Write in EEPROM (if use Watchdog)

```

EEPO_TEST:
  mov l, #11          ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l

  mov l, #0          ; Address Setting
  mov h, #0

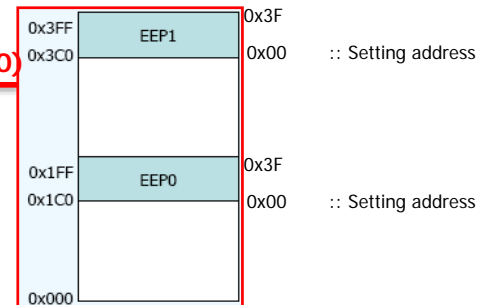
  mov a, #0x8       ; Data Buffer Setting
  mov GDH, a
  mov a, #0xa
  mov GDL, a

  mov a, #0x3       ; EEPO Byte Write
  mov IAPCON, a
  nop
  nop
  
```

Must set IFF[11] and clear IFF[10] before IAP

Set address 0x00 is Flash address 0x1C0(3C0)

Setting Data



IAPCON



0	0	EEP0 (0x1C0 ~ 0x1FF)
0	1	EEP1 (0x3C0 ~ 0x3FF)
1	0	INFO (0x0 ~ 0x7)
1	1	Reserved

0	0	No operation
0	1	Byte Read
1	0	Byte Erase
1	1	Byte Write

5. Erase in EEPROM (if use Watchdog)

```

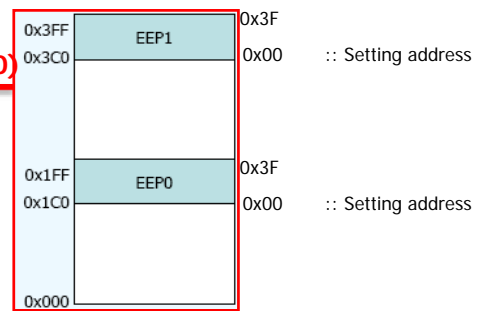
EEPO_TEST:
  mov l, #11      ; IFF[11] : MAP1 Set Bit (IAP or WDTE/R)
  setb @l

  mov l, #0
  mov h, #0      ; Address Setting

  mov a, #0x2    ; EEPO Byte Erase
  mov IAPCON, a
  nop
  nop
  
```

Must set IFF[11] and clear IFF[10] before IAP

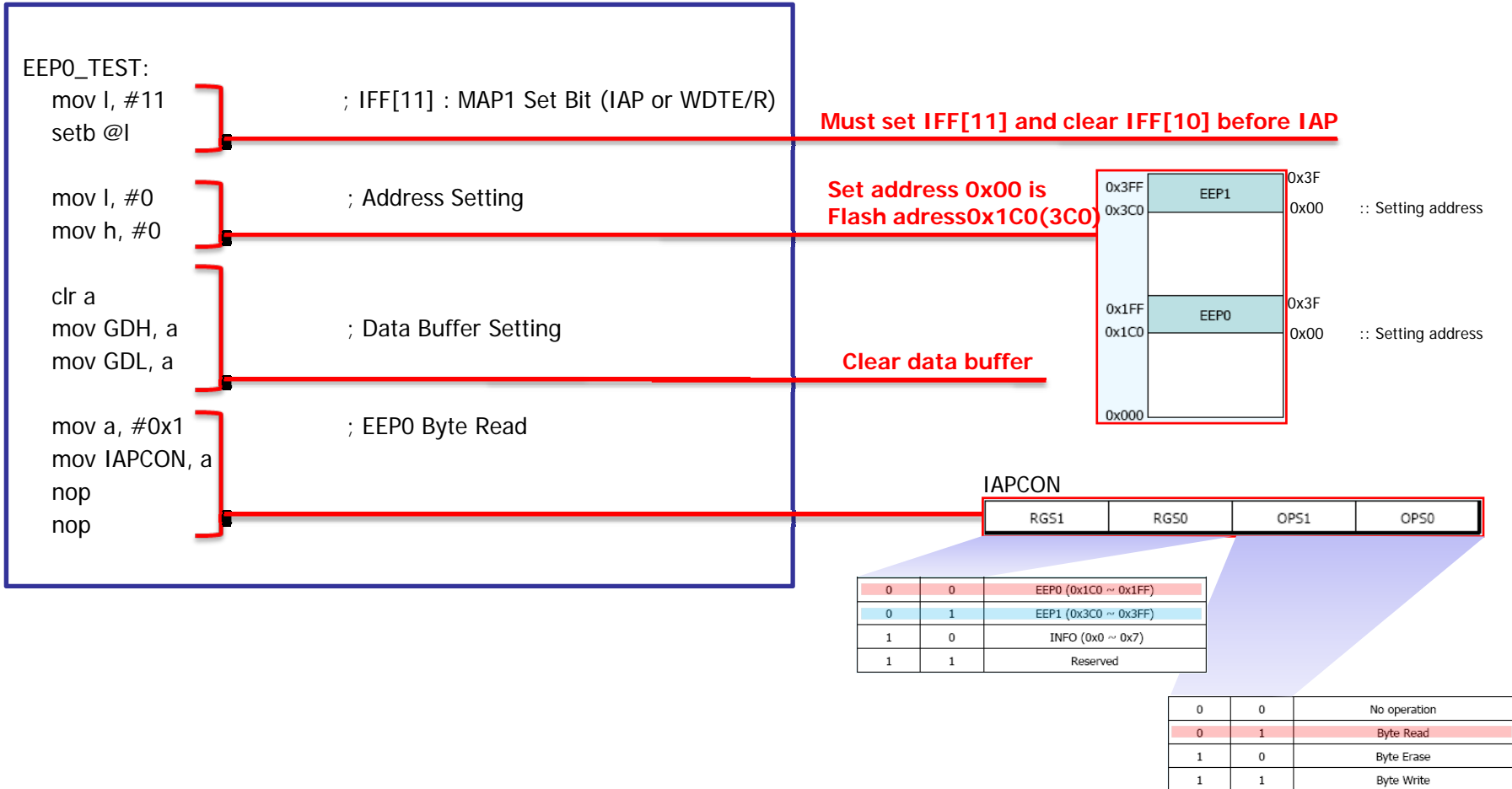
Set address 0x00 is Flash address 0x1C0(3C0)



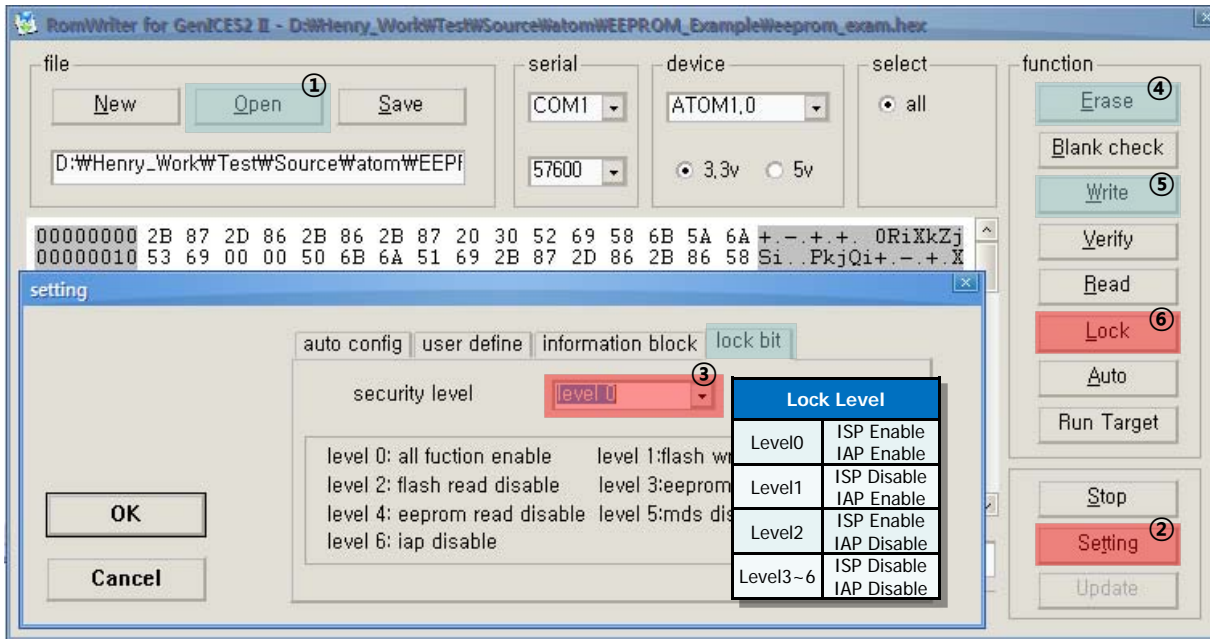
0	0	EEP0 (0x1C0 ~ 0x1FF)
0	1	EEP1 (0x3C0 ~ 0x3FF)
1	0	INFO (0x0 ~ 0x7)
1	1	Reserved

0	0	No operation
0	1	Byte Read
1	0	Byte Erase
1	1	Byte Write

6. Read in EEPROM (if use Watchdog)



7. Program write for IAP



- ① Open file : apply IAP
- ② Goto Setting
- ③ **Must setting level0 or level1**
- ④ Execute erase
- ⑤ Execute write
- ⑥ **Must execute Lock**
- * Must program running, IAP operation**

Attention to condition in table

Parameter	Symbol	MIN	TYP	MAX	Unit
Power Supply Voltage	V_{DD}	2.7	-	5.5	V
System Clock Frequency	F_{SYS}	5	8	11	MHz
Write /Erase Time	T_p	1.5	2.0	3.3	ms