



MiDAS Family

Application Note #010

(AN010-V1.2)

[MiDAS1.0/1.1/2.0] Power Management : 3 Modes

Active / Idle / Stop (Power Down)

V1.2

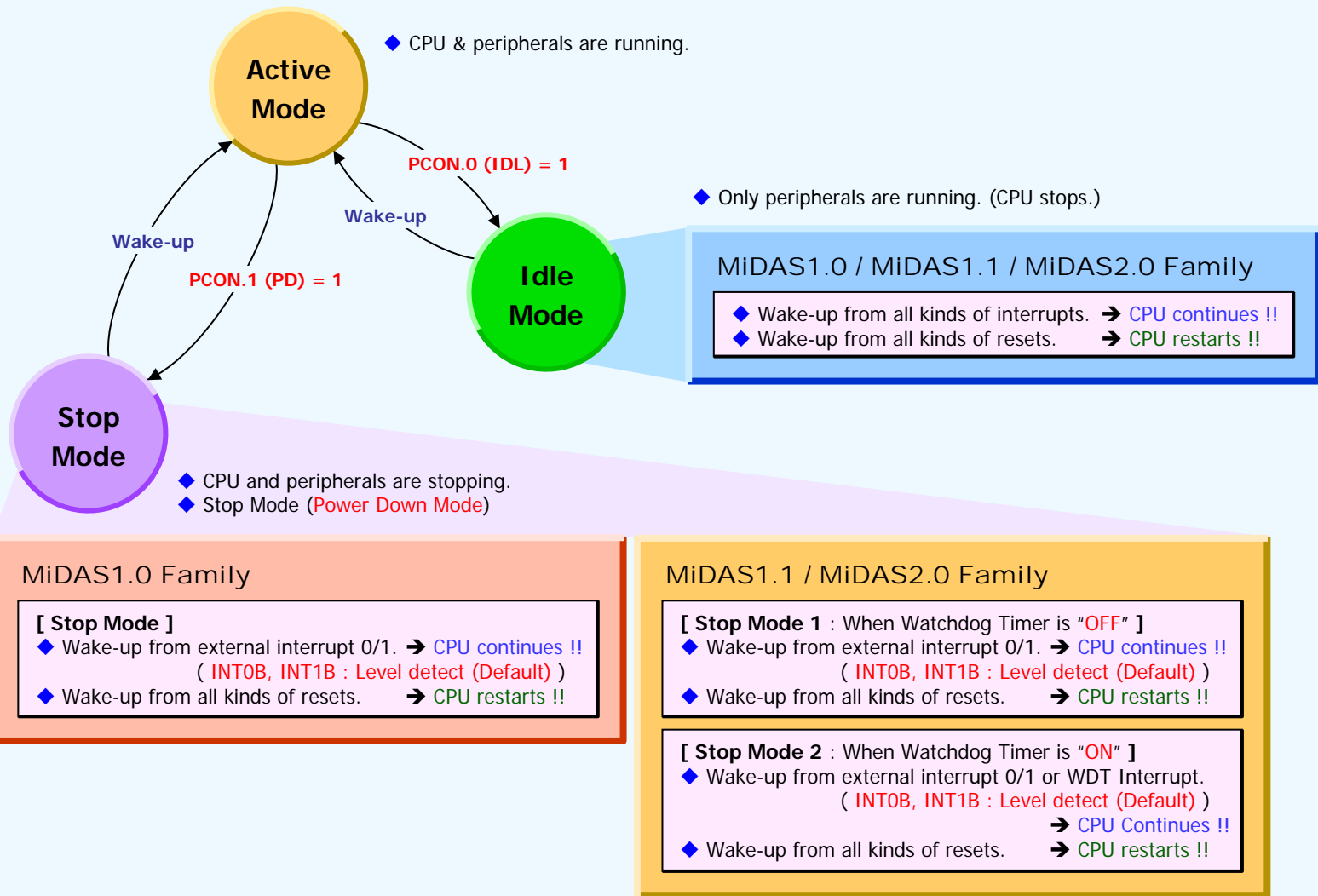
August 2005

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1. Flow Chart : Power Management (3 Modes)



2. Power Management (3 Modes)

◆ Active Mode

- ✓ CPU & peripherals are running.

◆ Idle Mode

- ✓ Only peripherals are running.
- ✓ PCON.0 (IDL) is set. → Idle mode.

◆ Stop Mode

- ✓ MiDAS1.0 Family supports the stop mode (Stop Mode 1). (not supports the stop mode using WDT interrupt.)
- ✓ MiDAS1.1 and MiDAS2.0 Families support the two stop mode (Stop Mode 1 and 2).

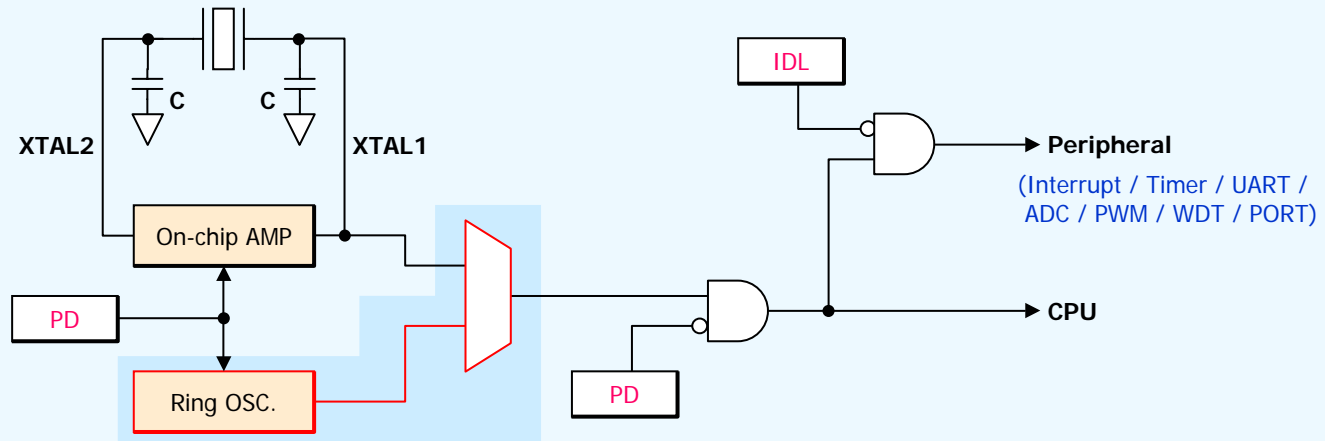
◆ Power Management SFR

- ✓ PCON : Power Control Register (Below : MiDAS1.1 SFR)

■ PCON (87h) : Power Control Register

SMOD1	-	-	POF	GF1	GF0	PD	IDL
R/W(0)			R/W(1)	R/W(0)	R/W(0)	R/W(0)	R/W(0)

- ◆ PD : Power-down (Stop) mode enable.
- ◆ IDL : IDL mode enable.



- ◆ MiDAS1.0 Family doesn't support the Ring Oscillator.

3. Example : Stop Mode 1

Initialization

- ◆ The initialization of variables
- ◆ The SFR Setting

```

;Initialization
IE0 = 0;           ;INT0B Flag Clear
IT0 = 0;           ;INT0B Level Trigger (Default = 0)
EX0 = 1;           ;INT0B Enable
EA = 1;           ;All Interrupts Enable
    
```

Stop Mode 1 (Power Down)

Power Down Enable

Ready Time for Stable Clock Oscillation

```

PCON |= PD_;           ;Power Down Mode Enable (PCON.0)

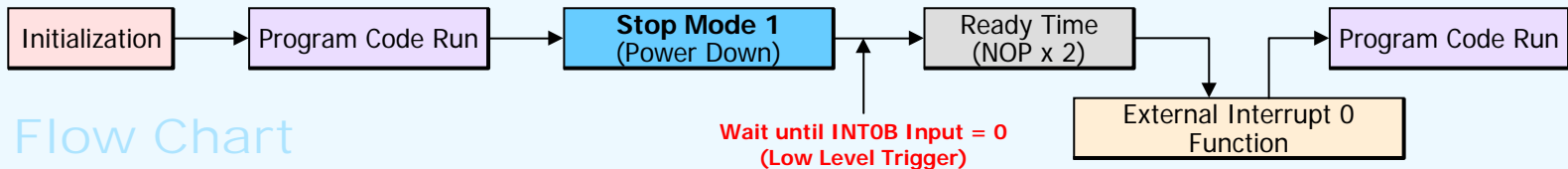
;Ready Time for Stable Clock Oscillation.
_asm                   ;In-line Assembly
    NOP                ; No Operation
    NOP                ; 1 Machine Cycle = 4/Fosc [sec]
_endasm;              ;Don't forget ";".
    
```

External Interrupt 0 Function

INT0B Flag Clear

```

void int0_isr(void) interrupt IE0_VECTOR using 1 {
    ;User can insert code here.
    ;
    IE0 = 0;           ;INT0 Flag Clear
}
    
```



Flow Chart

4. Notice

◆ Disable On-chip AMP

- ✓ For minimum power consumption in power down mode, you have better disable On-chip AMP.
 - Change system clock from external clock to Ring OSC.
 - Clear PMR register (C4h) to disable On-chip AMP.