

NCT5104D Application Note 3.0

Feature Brief

NCT5104D: LPC I/F + UART*4 + GPIOs + Watch Dog Timer

Subject

This application note is applicable to all version chips unless specified otherwise.

Description

1. Deal with unused input pins

Keep a fixed level on unused input pins to minimize the power consumption.

2. 14.7456MHZ_CLKIN (pin32)

NCT5104D UARTs have either internal or external clock source selections. For external clock source selection, pin32 is the 14.7456MHZ_CLKIN. This is not a must. Users could choose to use the internal clock source to save the cost of the external clock. However, in order to get better UART frequency accuracy, it could use an external clock input (14.7456MHZ_CLKIN – pin32). Please note pin32 default function is GP67, and BIOS could switch this pin to 14.7456MHZ_CLKIN function later.

3. Watch Dog Timer Application

Please be noted that the Watch Dog Timer function is enabled by default in NCT5104D. This is located at Logical Device 8, CR [30h], bit [0]. The unit of Watch Dog Timer counter can be selected at Logical Device 8, CR [F0h], bit [3]. The time-out value is set at Logical Device 8, CR [F1h], and the default is 4 sec. Writing a zero to this register disables the Watch Dog Timer function. Writing any non-zero value to this register causes the counter to load this value into the Watch Dog Timer counter and start counting down. It is reset by either LRESET# signal.

4. Recommend to set the following registers after the reset of NCT5104D

The following registers are reserved in NCT5104D.

Logical Device Number	Address	Default Value	Recommended Setting
Logical Device 0	CR30h	01h	00h
Logical Device 1	CR30h	01h	00h
Logical Device 5	CR30h	00h	00h

5. Watch Dog Timer Accuracy

When the Watch Dog Timer setting is less than 15 sec, it is suggested that BIOS compensate 1~2 sec for more accuracy. For example, if the target Watch Dog Timer is 10 sec, BIOS needs to set it as 8 sec to compensate for the accuracy.

6. UART RS485 Auto Flow Control

[For rev. B]

NCT5104D supports RS485 auto flow control function for UARTA ~ UARTD. When enabling the RS485 auto control function, it will automatically drive RTS# pin to logic high or low for flow control.

To make this RS485 auto flow control function work, please be noted that the parity and stop-bit setting has to be one of the following three settings:

- (1) 8 data bits + 1 parity bit + 1 stop bit
- (2) 8 data bits + 1 parity bit + 2 stop bits
- (3) 8 data bits + 2 stop bits

[For rev. C]

To make this RS485 auto flow control function work, please set either

8 data bits + 1 stop bit

Or one of the following three settings:

- (1) 8 data bits + 1 parity bit + 1 stop bit
- (2) 8 data bits + 1 parity bit + 2 stop bits
- (3) 8 data bits + 2 stop bits

NCT5104D Application Note

DATE	DOCUMENT	REVISION	REMARK
08/28/2012	APN1	1.0	First release.
06/17/2013	APN2	1.0	Add Watch Dog Timer Accuracy and UART Auto Flow Control
11/10/2014	APN3	1.0	Update item #6, UART Auto Flow Control application for both rev. B and rev. C