
Daisy Chaining of Atmel ATA6836C/ATA6838C

ATA6836C/ATA6838C

Scope

This application note describes the daisy-chaining procedure using Atmel® ATA6836C and ATA6838C.

Daisy-chaining Procedure Using Atmel ATA6836C

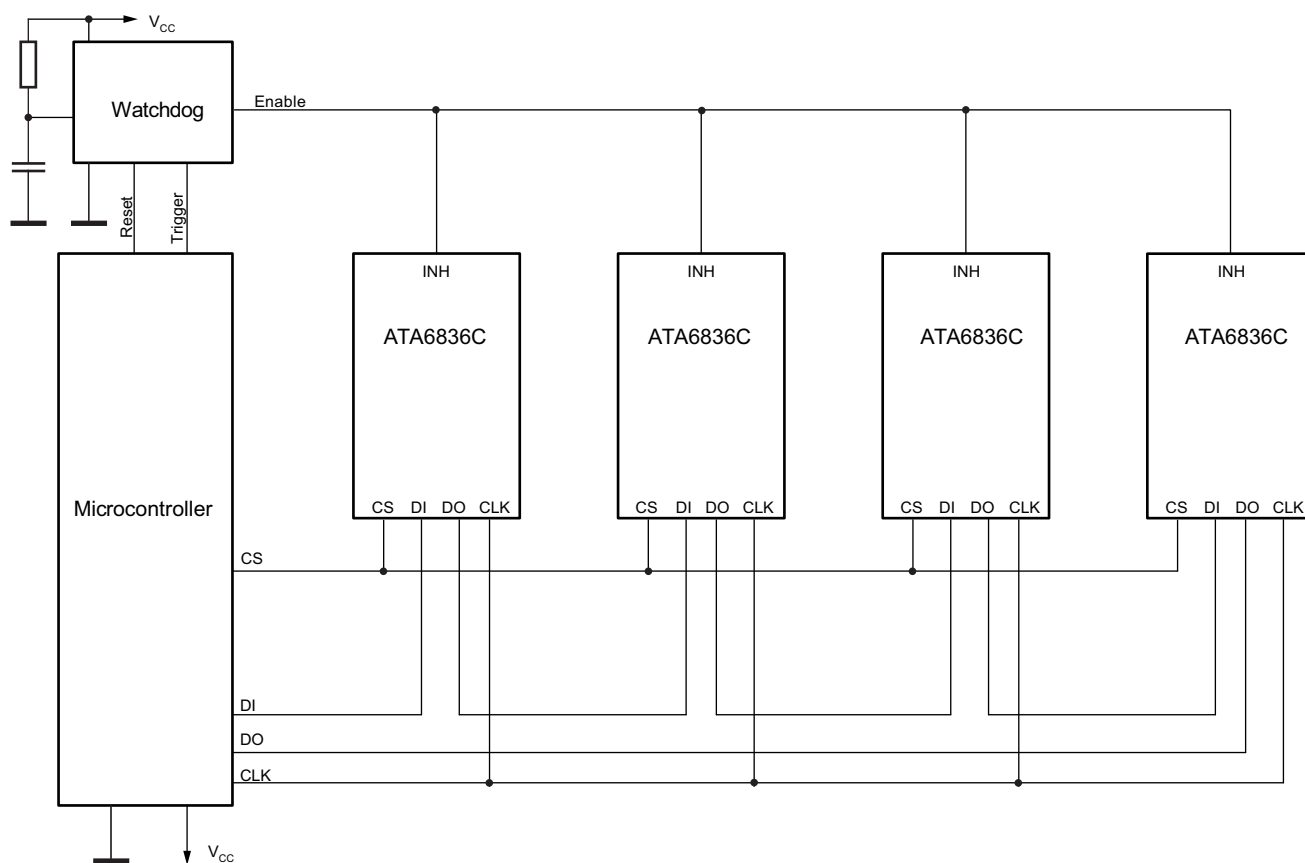
Daisy chaining is a common method to connect several SPI slaves to a single microcontroller SPI port. A single microcontroller SPI port can be shared by utilizing daisy chaining.

All Atmel intelligent load drivers with SPI interface support this method. The Atmel ATA6836C/ATA6838C's daisy-chaining behavior, however, differs from the standard daisy-chaining procedure. In this application note the ATA6836C represents the two Atmel driver devices ATA6836C and ATA6838C.

The daisy-chain arrangement requires only one of each SPI line: Chip select (CS), data in (DI), data out (DO) and clock (CLK), see [Figure 1 on page 2](#). The data signal is handed over from one Atmel ATA6836C to the next one stepwise as long as the CS signal remains low. This causes, however, longer reaction times since several programming cycles are needed to load the designated setting into each Atmel ATA6836C.

The DI pin of the first IC acts as input for all ICs while the DO pin of the last IC serves as output for the entire chain. The data word for the last IC has to be sent first, followed by the data word for the second-to-last IC, and so on.

Figure 1. Daisy-chain Operation with Microcontroller and Watchdog



1. Basic Daisy-chaining Principle

Table 1-1 shows the basic principle of how data words are shifted through daisy-chained ATA6836C ICs. Unlike with other Atmel driver family members, (nx2)-1 shifts are needed for writing a command into the n. Atmel® ATA6836C IC.

Table 1-1. Basic Method of Shifting Data Words through Daisy-chained Atmel ATA6836C ICs

I/O Cycle	1				2				3				4				5				6				7			
IC Number	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DI	A	x	x	x	B	x	x	x	C	A	x	x	D	B	x	x	E	C	A	x	F	D	B	x	G	E	C	A
DO	x	x	x	x	x	x	x	x	A	x	x	x	B	x	x	x	C	A	x	x	D	B	X	x	E	C	A	x

2. Revision History

Please note that the following page numbers referred to in this section refer to the specific revision mentioned, not to this document.

Revision No.	History
9246C-AUTO-03/15	Put document in the latest template

