
AVR510: Migration between ATmega329/649 and ATmega3290/6490

Features

- General porting considerations
- Register and bit names
- LCD pins

1 Introduction

This application note summarizes the differences between ATmega329/649 and ATmega3290/6490. For detailed information on the devices please refer to the datasheets

This migration note can also cover a migration from ATmega329P/649P to ATmega3290P/6490P. Note that separate migrations notes exist for migration from ATmega329/649 to ATmega329P/649 and migration from ATmega3290/6490 to ATmega3290P/6490P.

The ATmega3290/6490 are designed to be functionality compatible with ATmega329/649, but with 4*40 Segment LCD driver instead of 4*25 segments. Because of the extra pins needed for the LCD control they are not pin compatible, and there will be need for modifications when porting code between the devices. This migration note describes the necessary modifications.



8-bit **AVR**[®]
Microcontrollers

Application Note

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2 General porting considerations

To make the porting process as easy as possible, we recommend to always refer to registers and bit positions using their defined names, as absolute addresses and values may change from device to device. When porting a design it is then often just necessary to include the correct definition file. Some examples are shown below.

```
PORTE |= (1<<PORTE5);          // Set pin 5 on port E high
DDR  &= ~(1<<PORTE5);          // Set pin 5 on port E as input
// Configure USI
USICR = (1<<USISIE)|(0<<USIOIE)|(1<<USIWM1)|(0<<USIWM0)|
        (1<<USICS1)|(0<<USICS0)|(0<<USICLK)|(0<<USITC);
```

To avoid conflicts with added features and register functionality, never access registers that are marked as reserved. Reserved bits should always be written to zero if accessed. This ensures forward compatibility, and that added features will stay in their default states if not used.

3 Register and bit names

In ATmega329/649 and ATmega3290/6490, some registers and register bits have been added, but none of the existing has been moved different locations.

4 LCD pins

ATmega3290/6490 have a 4*40 segment LCD controller instead of the 4*25 segment controller found in ATmega329/649. Because of this and the extra pins on the ATmega3290/6490 some of the LCD pins are on different pins. Table 4-1 lists the segments that have been moved.

Table 4-1. Segments on different pins in ATmega3290/6490 and ATmega329/649.

Segment	ATmega329/649	ATmega3290/6490
SEG7	PC5	PH3
SEG8	PC4	PH2
SEG9	PC3	PH1
SEG10	PC2	PH0
SEG11	PC1	PC5
SEG12	PC0	PC4
SEG13	PG1	PC3
SEG14	PG0	PC2
SEG15	PD7	PC1
SEG16	PD6	PC0
SEG17	PD5	PG1
SEG18	PD4	PG0
SEG19	PD3	PD7
SEG20	PD2	PD6
SEG21	PD1	PD5
SEG22	PD0	PD4



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