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MIGRATING FROM THE XR16C2852 TO THE XR16L2752

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1.0 INTRODUCTION

This application note describes the changes necessary and what to consider when migrating from the XR16C2852 to the XR16L2752.

1.1 HARDWARE DIFFERENCES

- The XR16C2852 and XR16L2752 are both available in the 44-pin PLCC TQFP package.
- The XR16C2852 can operate at 3.3 or 5 V only. The XR16L2752 can operate at 2.25 V up to 5.5 V. Also, the XR16L2752 has 5 V tolerant inputs while operating at 3.3 V whereas the XR16C2852 does not have 5 V tolerant inputs.
- The maximum crystal oscillator frequency for the XR16C2852 is 8 MHz at 3.3 V while it is a maximum of 20 MHz for the XR16L2752. The crystal oscillator frequency at 5 V and external clock frequencies are the same.
- In the 44-pin PLCC package, the XR16C2852 and XR16L2752 have identical pinouts so they are fully pin-to-pin compatible.

1.2 FIRMWARE DIFFERENCES

The internal registers of the XR16C2852 and XR16L2752 are identical except for a few registers:

- FIFO Control Register (FCR)
  - Bit-0 enables the FIFO for both the XR16C2852 and XR16L2752, but the FIFO sizes are different. The TX and RX FIFOs are 128 bytes deep for the XR16C2852 and are 64 bytes deep for the XR16L2752.
- Enhanced Mode Select Register (EMSR)
  - Bit-7 is not used in the XR16C2852 but it is used in the XR16L2752 to select the 16X or 8X sampling rate. Bit-7 is asserted for 16X sampling (default) and de-asserted for 8X sampling.
  - Bit-6 is not used in the XR16C2852 but it is used in the XR16L2752 to select whether the LSR Interrupt is generated immediately when there is a data error in the FIFO or delayed until the data byte with an error is being read out of the FIFO.
  - Bit-3 is not used in the XR16C2852 but it is used in the XR16L2752 to invert the polarity of the RS485 half-duplex direction control output signal (RTS#) if necessary.
- Device Identification (DVID) register has a value of 0x12 for the XR16C2852 and 0x0A for the XR16L2752.

1.3 REPLACING THE XR16C2852 WITH THE XR16L2752

You can directly replace the XR16C2852 with the XR16L2752 since it is fully pin-to-pin compatible and software compatible. Also, software changes may be necessary to take advantage of some of the enhanced features of the XR16L2752 such as 8X sampling, selecting the LSR interrupt mode and inverting the RS485 polarity.

In a nutshell, the XR16C2852 and XR16L2752 are very similar devices but with different FIFO sizes and there are a few additional features in the XR16L2752.