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EXAR'S XR68C681 COMPARED WITH PHILIP'S SCC68692

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1.0 INTRODUCTION

This application note describes the major difference between Exar's XR68C681 with Philips's SCC68692. These devices are very similar, with a few hardware, firmware-related and bus timing differences.

1.1 HARDWARE

• The Philips SCC68692 and Exar XR68C681 are both available in three footprints: 44-pin PLCC, 40-pin PDIP and 40-pin CDIP. The XR68C681 is pin-to-pin compatible with the SCC68692 in all three footprints.

1.2 FIRMWARE DIFFERENCES

All the internal registers in the SCC68692 and XR68C681 are identical with only a few exceptions:

• At the address offset of 0x2 and 0xA, the SCC68692 has a read-only BRG Test Register and 1X/16X Test Register, respectively, while these offsets are reserved for the XR68C681.

• The XR68C681 has Miscellaneous Commands in the CRA and CRB register bits 7-4 that has different functions than the SCC68692. See the table below.

TABLE 1: MISCELLANEOUS COMMAND DIFFERENCES IN COMMAND REGISTER A/B

CR A/B BIT-7	CR A/B BIT-6	CR A/B BIT-5	CR A/B BIT-4	XR68C681	SCC68692
1	0	0	0	Set RX BRG Select Extend Bit	Assert RTSN
1	0	0	1	Clear RX BRG Select Extend Bit	Negate RTSN
1	0	1	0	Set TX BRG Select Extend Bit	Set Timeout Mode On
1	0	1	1	Clear TX BRG Select Extend Bit	Not Used
1	1	0	0	Channel A: Set Standby (Low Power) Mode	Disable Timeout Mode
1	1	0	1	Channel A: Set Active (Normal Power) Mode	Not Used
1	1	1	0	Reserved	Set Standby (Low Power) Mode (CRA Only)
1	1	1	1	Reserved	Set Active (Normal Power Mode (CRA Only)

1.3 SUMMARY OF DIFFERENCES

In the table below, some differences between the XR68C681 and SCC68692 are summarized.

TABLE 2: DIFFERENCES BETWEEN EXAR'S XR68C681 WITH PHILIPS'S SCC68692

DIFFERENCES	XR68C681	SCC68692
Data Bus Standard	Motorola	Motorola
Power Supply Operation	5 V only	5 V only
Max Operating Current	15 mA @ 5 V	**10 mA @ 5 V**
Max Frequency on XTAL1	**7.372 MHz**	4 MHz
Max Data Rate	**250 Kbps**	125 Kbps
Operating Temperature Range	Commercial and Industrial	Commercial and Industrial
Package	44-PLCC, 40-PDIP, 40-CDIP	44-PLCC, 40-PDIP, 40-CDIP
TX FIFO Size	1	1
RX FIFO Size	3	3
TX FIFO Trigger Levels	1	1
RX FIFO Trigger Levels	1, 3	1, 3

1.4 REPLACING THE SCC68692 WITH THE XR68C681

You can directly replace the Philips SCC68692 with Exar's XR68C681 without any hardware changes.

The only hardware-related difference is that the XR68C681 can accept up to a 7.372 MHz frequency on XTAL1 and is capable of operating up to a data rate 250 Kbps whereas the SCC68692 can only accept up to a 4 MHz frequency on XTAL1 and only operating up to a data rate of 125 Kbps.

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