

AN10417

SC16IS760/762 Fast IrDA mode

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Application note

Document information

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Keywords	IrDA, Fast IrDA, 1.152 Mbit/s, SC16C760/762, MIR, SIR
Abstract	This application note details the operation of the 1.152 Mbit/s IrDA mode supported by Philips Semiconductors' SC16IS760 and SC16IS762. It also describes the differences between this mode and the MIR mode specified by the IrDA version 1.1.

Revision history

Rev	Date	Description
01	20060608	application note; initial version

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1. Introduction

This application note details the operation of the 1.152 Mbit/s IrDA mode supported by Philips Semiconductors' SC16IS760 and SC16IS762, and it also describes the differences between this mode and the MIR mode specified by the IrDA version 1.1.

2. IrDA SIR and MIR standards

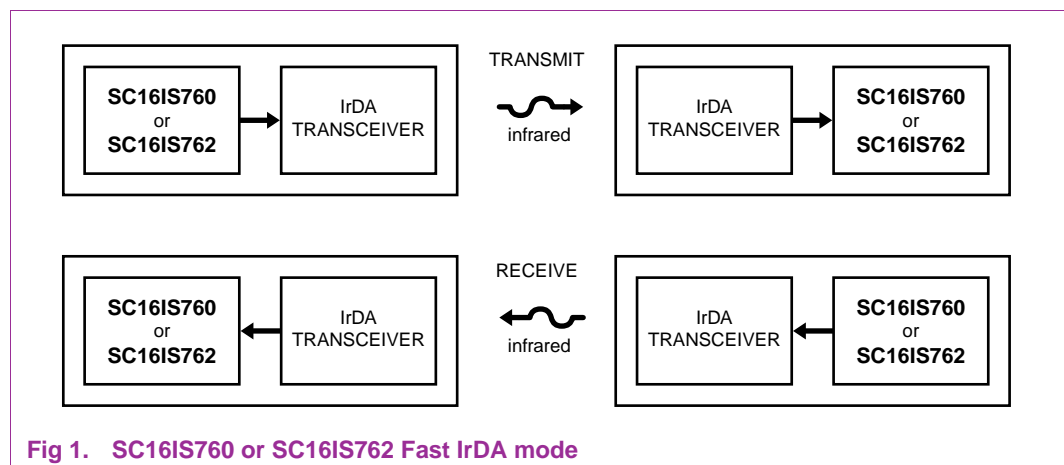
The *IrDA Physical Layer Specification* sets a standard for the IR transceiver, the modulation or encoding/decoding method, as well as other physical parameters. For transfer rate of 9.6 kbit/s, 19.2 kbit/s, 38.4 kbit/s, 57.6 kbit/s or 115.2 kbit/s operations (SIR standard) a start bit (0) and a stop bit (1) is added before and after each byte of data. This is the same format as used in a traditional UART. However, instead of NRZ, a method similar to RZ is used, where a 0 is encoded as a single pulse of $\frac{3}{16}$ of a bit cell, and a 1 is encoded as the absence of such a pulse.

For transfer rate of 0.576 Mbit/s or 1.152 Mbit/s operation (MIR standard), no start or stop bits are used and the same synchronous format as HDLC is used. Again, a 0 is encoded as a single pulse ($\frac{1}{4}$ the bit cell), whereas a 1 is encoded as the absence of such a pulse. In order to ensure clock recovery, bit stuffing is used (same as in HDLC).

3. SC16IS760/762 Fast IrDA mode

The 0.576 Mbit/s and the 1.152 Mbit/s IrDA speeds supported by Philips Semiconductors' SC16IS760 and SC16IS762 are not compatible with the industrial MIR IrDA standard. They are implemented based on the SIR standard—a start and a stop bit are added to each byte, and a 0 is encoded as a single pulse of $\frac{1}{4}$ of the bit cell, a 1 is encoded as the absence of such a pulse. The IrDA blocks of SC16IS760 and SC16IS762 (when programmed as either 0.576 Mbit/s or 1.152 Mbit/s) do not have clock recovery circuitry or bit stuffing function as required by the industry MIR standard.

The Fast IrDA mode (speed greater than 115.2 kbit/s) of the SC16IS760 and SC16IS762 can be used to transmit and receive data between two Philips devices. This IrDA mode allows the SC16IS760 and the SC16IS762 devices to communicate with each other through an IrDA link at a higher speed than those specified by the SIR standard.



4. Abbreviations

Table 1. Abbreviations

Acronym	Description
HDLC	High-level Data Link Control
IrDA	Infrared Data Association
IR	InfraRed
MIR	Medium-speed InfraRed
NRZ	Non-Return to Zero
RZ	Return to Zero
SIR	Standard InfraRed
UART	Universal Asynchronous Receiver/Transmitter

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