

LXT30x Integrated Short-Haul Transceiver Crystal Layout Guidelines

Application Note

January 2001

Order Number: 249158-001



Information in this document is provided in connection with Intel[®] products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications.

Intel may make changes to specifications and product descriptions at any time, without notice.

Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them.

The LXT30x Integrated Short-Haul Transceiver may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature may be obtained by calling 1-800-548-4725 or by visiting Intel's website at http://www.intel.com.

Copyright © Intel Corporation, 2001

*Third-party brands and names are the property of their respective owners.





1.0	Genera	Il Description	5
Figures			
	1	Crystal Layout for LXT30x Transceivers	6

Application Note 3



1.0 General Description

Intel transceivers are designed for robust operation. Good PCB design practices also contribute to overall application reliability. This application note reminds design engineers of PCB layout considerations that will make LXT30x (LXT300Z, LXT304A, and LXT305A) transceiver applications even more effective.

The PCB designs should lay out the crystal input to any of these transceivers to minimize coupling of other digital and analog signals into XTALOUT and XTALIN. See the figure below. These inputs (pins 9 and 10 for all products included in this note) are high impedance nodes which can pick up interference from adjacent PCB traces and other components on the board. Adhering to these considerations will help ensure proper operation.

Before beginning a PCB design for any of the LXT300-series family transceivers, consider the following points:

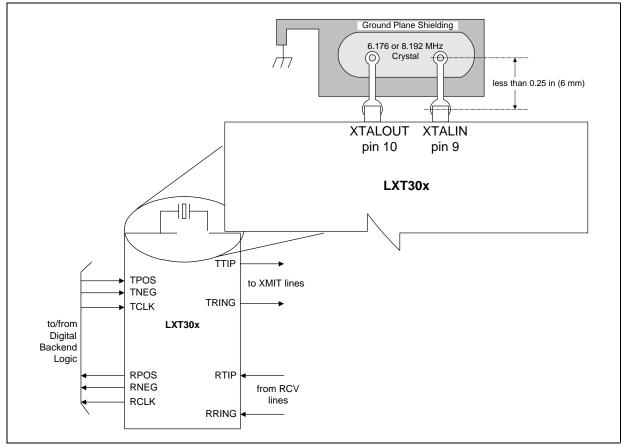
- Use a crystal that meets the recommended crystal specifications (see the appropriate Data Sheet)
- Minimize the trace lengths between the transceiver and the 6.176 or 8.192 MHz crystal (typically less than 0.25 in or 6 mm)
- Shield these connections and the area around the crystal with ground planes
- Keep other high speed system clocks away from crystal leads and traces
- Locate all magnetic components well away from the crystal, its leads and traces

Keep all high energy signals away from crystal leads and traces connected to pins 9 and 10.

Application Note 5



Figure 1. Crystal Layout for LXT30x Transceivers



6 Application Note