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LXT9880AGE

Frequently Asked Questions

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Application Note

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Contents

1.0   Questions and Answers

1.1   Introduction

This document is a composite of the most frequently asked questions (FAQs) and corresponding answers for the LXT9880AGE, Intel's low-power, high-performance 10/100 Mbps repeater.

1.2   Key Features

Q1.   What are the LXT9880AGE key features?

- Low power, 3.3V operation.
- 10BASE-T and 100BASE-TX over UTP cabling.
- Supports both auto-negotiation and legacy link partners that do not have auto-negotiation capability.
- High-speed Management Interface (SMI) for configuration and control.
- Two MII ports capable of either 10 Mbps or 100 Mbps operation.
- Inter-repeater backplane enables high-density designs for up to 192 twisted-pair ports.
- Hardware assist for RMON and SNMP.
- Available in 208-pin PQFP package.
- Designed for superior EMI performance and CDE protection.
- Extended temperature support. (-40°C to +85°C)

1.3   Interface Modes

Q2.   What is the Media Independent Interface (MII)?

The LXT9880AGE provides two Media Independent Interfaces for passing received data to MAC devices. Each MII port is configurable for either 10 Mbps or 100 Mbps operation. The MII is fully compliant with the IEEE 802.3, clause 22 standard. The Media Independent Interface consists of 16 signals (TXER, TXD<3:0>, TXEN, TXCLK, COL, CRS, RXDV, RXER, RXD<3:0>, and RXCLK).

1.4   General Information

Q3.   What are the LXT9880AGE magnetic requirements?

The LXT9880AGE requires a 1:1 ratio transformer for both the receive and transmit transformer twisted-pairs. The device uses a current-driven driver (to save power) and requires both magnetic center taps to be connected together to analog VCC. *See LXT9880AGE Design and Layout Guide for more information on design and recommended transformers.*

Q4.   Why is termination not required for the LXT9880AGE?

The load termination resistors for the LXT9880AGE TX pairs are integrated into the device, helping reduce the analog power of the PHY and reduces total system cost by eliminating 8 resistors per device.

Q5.   What are the LXT9880AGE key applications?

The LXT9880AGE is appropriate in many designs; however, it is designed especially for industrial temperature and Ethernet backplane applications.

Q6.   Are LXT9880AGE IBIS model files available?

LXT9880AGE I/O Buffer Information Specification (IBIS) models are available through your local Intel sales representative.

Q7.   What collateral is available for the LXT9880AGE?

The following collateral for the LXT9880AGE listed below may be found on the Intel website. Note web address below.

- LXT9880AGE Data Sheet
- LXT9880AGE Product Brief
- LXT988x and LXT986x Design and Layout Guide
- LXT988x and LXT986x Migration Guide
- Magnetics Ethernet Application Note
- LXD9880 DV Applications Development Kit Manual

Q8.   What LXT9880AGE temperature options are available?

The LXT9880AGE is available in extended temperature range (-40°C to +85°C)

Q9.   Are sample and production quantities now available?

Samples of the LXT9880AGE are now available and production is in progress. The lead-time for production quantities is dependent on volume ordered.

Q10.   What is the difference between the LXT9880AGE and other LXT 98xx products?

The LXT98xx represents the next-generation 10/100 repeater products.

- LXT9863HC: A 6-port, unmanaged, dual-speed repeater specified for the commercial temperature range (0°C to +70°C)
- LXT9860HC: A 6-port, managed, dual-speed repeater specified for the commercial temperature range (0°C to +70°C)
- LXT9883HC: An 8-port, unmanaged, dual-speed repeater specified for the commercial temperature range (0°C to +70°C)
- LXT9880HC: An 8-port, managed, dual-speed repeater specified for the commercial temperature range (0°C to +70°C)
- LXT9880AGE: An 8-port, managed, dual-speed repeater specified for the commercial temperature range (-45°C to +85°C)

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Q11. **Will other LXT98xx devices be offered in extended temperature?**

Currently, only the 8-port managed repeater is offered in industrial temperature. Intel offers a wide variety of commercial temperature repeater products.

Q12. **How do I terminate twisted pair ports?**

The outputs should be connected together and left floating,; the inputs should be connected with a 100Ω resistor and left floating.

Q13. **How do I terminate an unused MII port?**

Tie the TXER and TXEN pins low. For EMI reasons a designer might want to tie the SPD pin Low to select 10 Mbps operation for slower clock outputs.

Q14. **Why do the IRCFS and IRCFSP signals require 1% pull up resistors?**

The IRCFS and ICFSBP signals are tri-level analog signals. The outputs draw current across the pull-up resistor to set the voltage level. To allow for stacking and cascading multiple devices, the tolerances on the resistance seen by the repeater should be as controlled as possible.

Q15. **How are the data packets transmitted between the 10 Mbps and 100 Mbps repeaters?**

The 10 Mbps and the 100 Mbps repeater blocks are independent, requiring an external bridge similar to the Marvell GT-48006. A single repeater device can be used to provide the two MII ports needed for connection to the bridge. One MII port is configured to 10 Mbps mode and the other should be selected for the 100 Mbps mode.

Q16. **If multiple repeaters are connected via the IRB, is it necessary to gather segment statistics for all the devices?**

No, any one of the devices can gather the segment statistics. The segment statistics are gathered off the IRB operation; therefore, all the devices are connected to the same IRB have the same segment statistics.

Note: Intel website: http://developer.intel.com/design/network/

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