Using the Intel® LXT3108 GUI for Intel® LXT3104 Development

Application Note

June 2002

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Contents

Revision History

Date	Revision	Description
June 2002	001	Initial Release

1.0 Overview

The Intel® LXT3108 (LXT3108) is an eight-port T1/E1/J1, short haul/long haul Line Interface Unit (LIU). The Intel® LXT3104 (LXT3104) is the four-port version of the LXT3108. From a functional standpoint, the LXT3108 and LXT3104 are identical. The only difference between the two devices are the number of ports available.

The Intel® IXF3208D is an eight-port LIU/Framer evaluation board, which contains an LXT3108. The LXT3108 GUI is a part of the evaluation package. The LXT3108 GUI is used to set the configuration(s) for the LXT3108 device on the evaluation system.

This document outlines the required changes to those configurations to make them appropriate for an LXT3104 device.

2.0 Using the Intel® LXT3108 GUI for Intel® LXT3104 Software Development

The LXT3108 Graphical User Interfce (GUI) can be used to assist in the software development process for both the LXT3108 and LXT3104. The GUI can be used to configure the device into particular modes of operation. These configurations can be captured to a file in the form of LXT3108 API function calls. LXT3104 software development requires a few modifications to the LXT3108 GUI-generated output to ensure LXT3104 device suitability.

The LXT3108 GUI may be used to set specific configurations and then output those configurations using the ***Save Configuration*** feature (from the GUI go to File -> Save Configuration). The output of the ***Save Configuration*** feature can then be modified for use with the LXT3104 API library. See the following sections for more details. When performing configurations in the LXT3108 GUI, be sure to use ports 0 through 3 only. These are the valid ports in the LXT3104 API.

2.1 Saving Configurations

The ***Save Configuration*** feature of the LXT3108 GUI provides the ability to save configuration information in the form of LXT3108 API commands. This feature can be used to capture all of the API commands needed to place the device into a particular configuration. These API commands can then be integrated into a custom application.

There is a distinct difference between the LXT3108 API library and the LXT3104 API library. ***The LXT3104 API library must be used to configure/monitor a LXT3104 device.*** Therefore, the output of the ***LXT3108 GUI Save Configuration*** feature can not be directly used in a LXT3104 application.

Using the output of the ***Save Configuration*** feature on the LXT3104 requires a few minor modifications prior to integrating the API commands into a custom application. Two basic modifications are required. All of these modifications can be made using the search and replace features of any text editor.

1. Replace all references to ***LXT3108*** with ***LXT3104***.

   The LXT3108 GUI generates LXT3108 API commands. All LXT3108 API function names begin with LXT3108. Additionally, some #defines in the LXT3108 API begin with LXT3108_.

The LXT3108 API functions and #defines map directly to the LXT3104 API function names and #defines. So a global search and replace will provide the appropriate LXT3104 API function names and #defines for an application that will use the LXT3104 API.

2. Remove all API commands that use TE_PORT4, TE_PORT5, TE_PORT6, or TE_PORT7.

   The LXT3104 API references the four active ports on the LXT3104 as TE_PORT0 through TE_PORT3.

3.0 An Example

The following is a sample output (LIU functions only) from the LXT3108 GUI that places the LXT3108 into T1, Short Haul, B8ZS mode.

```
//#############################################################
// LIU Functions

LXT3108SetLIUPortMode(handle,TE_PORT0,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT0,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT0, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT0,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT0,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT0,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT0,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT0,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT0,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT0,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT0,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT0,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT0,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT1,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT1,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT1, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT1,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT1,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT1,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT1,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT1,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT1,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT1,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT1,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT1,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT1,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT2,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT2,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT2, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT2,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT2,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT2,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT2,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT2,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT2,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT2,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT2,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT2,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT2,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT3,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT3,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT3, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT3,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT3,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT3,TE_TX,TE_DISABLE)
```

```
LXT3108SetLineCodingEnable(handle,TE_PORT3,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT3,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT3,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT3,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT3,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT3,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT3,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT4,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT4,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT4, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT4,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT4,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT4,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT4,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT4,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT4,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT4,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT4,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT4,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT4,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT5,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT5,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT5, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT5,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT5,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT5,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT5,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT5,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT5,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT5,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT5,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT5,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT5,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT6,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT6,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT6, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT6,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT6,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT6,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT6,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT6,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT6,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT6,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT6,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT6,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT6,TE_RX,TE_DISABLE)
LXT3108SetLIUPortMode(handle,TE_PORT7,TE_T1)
LXT3108SetLIURxControl(handle,TE_PORT7,TE_SHORT,0)
LXT3108SetLIUEnable(handle,TE_PORT7, TE_DISABLE)
LXT3108SetLIUTxClkDetection(handle,TE_PORT7,TE_DISABLE)
LXT3108SetLIUTxHiZ(handle,TE_PORT7,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT7,TE_TX,TE_DISABLE)
LXT3108SetLineCodingEnable(handle,TE_PORT7,TE_RX,TE_DISABLE)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT7,TE_TX,TE_BIPOLAR)
LXT3108SetDigitalInterfacePolarity(handle,TE_PORT7,TE_RX,TE_BIPOLAR)
LXT3108SetDigitalInterfaceInvertRCLK(handle,TE_PORT7,TE_DISABLE)
LXT3108SetLIUTxAllOnes(handle,TE_PORT7,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT7,TE_TX,TE_DISABLE)
LXT3108SetLIUPowerDown(handle,TE_PORT7,TE_RX,TE_DISABLE)
```

Here are those same functions, modified for use in the LXT3104:

```
LXT3104SetLIUPortMode(handle,TE_PORT0,TE_T1)
LXT3104SetLIURxControl(handle,TE_PORT0,TE_SHORT,0)
LXT3104SetLIUEnable(handle,TE_PORT0, TE_DISABLE)
LXT3104SetLIUTxClkDetection(handle,TE_PORT0,TE_DISABLE)
LXT3104SetLIUTxHiZ(handle,TE_PORT0,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT0,TE_TX,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT0,TE_RX,TE_DISABLE)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT0,TE_TX,TE_BIPOLAR)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT0,TE_RX,TE_BIPOLAR)
LXT3104SetDigitalInterfaceInvertRCLK(handle,TE_PORT0,TE_DISABLE)
LXT3104SetLIUTxAllOnes(handle,TE_PORT0,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT0,TE_TX,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT0,TE_RX,TE_DISABLE)
LXT3104SetLIUPortMode(handle,TE_PORT1,TE_T1)
LXT3104SetLIURxControl(handle,TE_PORT1,TE_SHORT,0)
LXT3104SetLIUEnable(handle,TE_PORT1, TE_DISABLE)
LXT3104SetLIUTxClkDetection(handle,TE_PORT1,TE_DISABLE)
LXT3104SetLIUTxHiZ(handle,TE_PORT1,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT1,TE_TX,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT1,TE_RX,TE_DISABLE)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT1,TE_TX,TE_BIPOLAR)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT1,TE_RX,TE_BIPOLAR)
LXT3104SetDigitalInterfaceInvertRCLK(handle,TE_PORT1,TE_DISABLE)
LXT3104SetLIUTxAllOnes(handle,TE_PORT1,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT1,TE_TX,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT1,TE_RX,TE_DISABLE)
LXT3104SetLIUPortMode(handle,TE_PORT2,TE_T1)
LXT3104SetLIURxControl(handle,TE_PORT2,TE_SHORT,0)
LXT3104SetLIUEnable(handle,TE_PORT2, TE_DISABLE)
LXT3104SetLIUTxClkDetection(handle,TE_PORT2,TE_DISABLE)
LXT3104SetLIUTxHiZ(handle,TE_PORT2,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT2,TE_TX,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT2,TE_RX,TE_DISABLE)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT2,TE_TX,TE_BIPOLAR)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT2,TE_RX,TE_BIPOLAR)
LXT3104SetDigitalInterfaceInvertRCLK(handle,TE_PORT2,TE_DISABLE)
LXT3104SetLIUTxAllOnes(handle,TE_PORT2,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT2,TE_TX,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT2,TE_RX,TE_DISABLE)
LXT3104SetLIUPortMode(handle,TE_PORT3,TE_T1)
LXT3104SetLIURxControl(handle,TE_PORT3,TE_SHORT,0)
LXT3104SetLIUEnable(handle,TE_PORT3, TE_DISABLE)
LXT3104SetLIUTxClkDetection(handle,TE_PORT3,TE_DISABLE)
LXT3104SetLIUTxHiZ(handle,TE_PORT3,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT3,TE_TX,TE_DISABLE)
LXT3104SetLineCodingEnable(handle,TE_PORT3,TE_RX,TE_DISABLE)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT3,TE_TX,TE_BIPOLAR)
LXT3104SetDigitalInterfacePolarity(handle,TE_PORT3,TE_RX,TE_BIPOLAR)
LXT3104SetDigitalInterfaceInvertRCLK(handle,TE_PORT3,TE_DISABLE)
LXT3104SetLIUTxAllOnes(handle,TE_PORT3,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT3,TE_TX,TE_DISABLE)
LXT3104SetLIUPowerDown(handle,TE_PORT3,TE_RX,TE_DISABLE)
```