



As a part of IDT's dedicated application support for telecommunication products, IDT offers advanced hardware development tools including evaluation boards for IDT's industry leading T1/J1/E1 Transceivers, Line Interface Units (LIU), High-Density LIUs and Analog Front End (AFE) devices.

The following sections will provide an overview of IDT's evaluation boards for all these product families.

1 IDT T1/J1/E1 TRANSCEIVER, LIU, HIGH-DENSITY LIU AND AFE PRODUCTS OVERVIEW

IDT offers a wide range of product solutions for T1/J1/E1 termination and framing functions.

The SuperJET™ T1/J1/E1 Transceiver family offers the industry's first Octal and Dual Transceiver options in a complete family of 8/4/2 and 1 channel products.

IDT also offers a family of High-Density T1/J1/E1 short haul LIUs which consist of 28, 21 and 16 channels, including an 8 channel option. In addition to this, IDT provides a complete line of T1/J1/E1 Line Interface Units with 8/4/2 and 1 channel options for long haul, short haul, T1/J1/E1 or E1 only applications.

Analog Front End (AFE) devices are also available. These devices support T1/E1 modes and only perform the data slicing of the incoming line signal. An encoded dual rail RZ signal is output on the system side for external clock and data recovery.

Besides many other advanced features, the SuperJET™ Transceivers and most of the Line Interface Units offer software selectable internal impedance. This allows the use of a common external termination for T1, J1 or E1 applications and to address all international markets with a single Bill of Materials (BOM).

Hitless Protection Switching (HPS) for 1:1 and 1+1 redundancy schemes are also supported for all devices.

2 EVALUATION BOARD SUMMARY

The available evaluation boards are advanced hardware development tools to evaluate IDT's industry leading T1/J1/E1 Transceivers, LIUs and High-Density LIUs. The devices can be evaluated in multiple modes such as T1/E1/J1 and long/short haul (where applicable).

The typical evaluation kit is a complete solution and includes:

1. Evaluation board with all needed components
2. Universal 100-240 V AC/DC power adapter with international plugs
3. Serial port cable
4. CD-ROM containing
 - *User's Guide*
 - *Evaluation Software (GUI)*
 - *Software Drivers*
 - *Schematics*

The evaluation boards are not just an engineering hardware development tool. The advanced GUI provides users with a hierarchal view of the Software, a visual presentation of functional blocks in the device and associative menus with easy register access. For most of the products, no actual hardware is needed to use the evaluation board GUI. This allows users to easily pre-evaluate the device options, functions and features of the device. Refer to tables on the next page for a listing of available evaluation boards.

For more information please contact your local sales representative. Please visit <http://www.idt.com/tools/sales/welcome.html> for a detailed listing of IDT sales offices, distributors and sales representatives.

Table-1 T1/J1/E1 SuperJET™ Transceiver Evaluation Boards

IDT SuperJET™ Transceiver Part Number	Description	Evaluation Board Part Number
82P2288	8 Channel T1/J1/E1 Short/Long Haul Transceiver	82EBP2288
82P2284	4 Channel T1/J1/E1 Short/Long Haul Transceiver	82EBP2284
82P2282	2 Channel T1/J1/E1 Short/Long Haul Transceiver	82EBP2282
82P2281	1 Channel T1/J1/E1 Short/Long Haul Transceiver	82EBP2281

Table-2 T1/J1/E1 High-Density Line Interface Unit Evaluation Boards

IDT High-Density LIU Part Number	Description	Evaluation Board Part Number
82P2828	28 Channel T1/J1/E1 Short Haul LIU	82EBP2828
82P2821	21 Channel T1/J1/E1 Short Haul LIU	82EBP2821
82P2521	21 Channel E1 Short Haul LIU	82EBP2521
82P2816	16 Channel T1/J1/E1 Short Haul LIU	82EBP2816
82P2808	8 Channel T1/J1/E1 Short Haul LIU	82EBP2808

Table-3 T1/J1/E1 Line Interface Units (LIU) Evaluation Boards

IDT LIU Part Number	Description	Evaluation Board Part Number
82V2041E	1 Channel T1/J1/E1 Short Haul LIU	82EBV2081
82V2042E	2 Channel T1/J1/E1 Short Haul LIU	82EBV2082
82V2044	4 Channel T1/E1 Short Haul LIU	82EBV2048
82V2044E	4 Channel T1/J1/E1 Short Haul LIU	82EBV2084
82V2048	8 Channel T1/E1 Short Haul LIU	82EBV2048
82V2048E	8 Channel T1/J1/E1 Short Haul LIU	82EBV2088
82V2048L	8 Channel T1/E1 Short Haul Analog Front End	82EBV2048
82V2051E	1 Channel E1 Short Haul LIU	82EBV2081
85V2052E	2 Channel E1 Short Haul LIU	82EBV2082
82V2054	4 Channel E1 Short Haul LIU	82EBV2058
82V2058	8 Channel E1 Short Haul LIU	82EBV2058
82V2058L	8 Channel E1 Short Haul Analog Front End	82EBV2058
82V2081	1 Channel T1/J1/E1 Short/Long Haul LIU	82EBV2081
82V2082	2 Channel T1/J1/E1 Short/Long Haul LIU	82EBV2082
82V2084	4 Channel T1/J1/E1 Short/Long Haul LIU	82EBV2084
82V2088	8 Channel T1/J1/E1 Short/Long Haul LIU	82EBV2088

3 EVALUATION BOARD DETAILS

3.1 T1/J1/E1 HIGH-DENSITY LIU

In the following paragraphs, the High-Density LIU IDT82EBP2828/21/16/8 and 82P2521 evaluation boards and software are described in more details. The evaluation boards of all other T1/J1/E1 products are very similar.

The purpose of the evaluation board is to demonstrate the capabilities of IDT T1/J1/E1 High-Density LIUs. Each evaluation board kit comes with a Hardware and a Graphical User Interface (GUI) Software to configure the evaluation board and the device. Figure-1 shows the evaluation board Hardware. Figure-2 shows the main screen of the evaluation board Software.

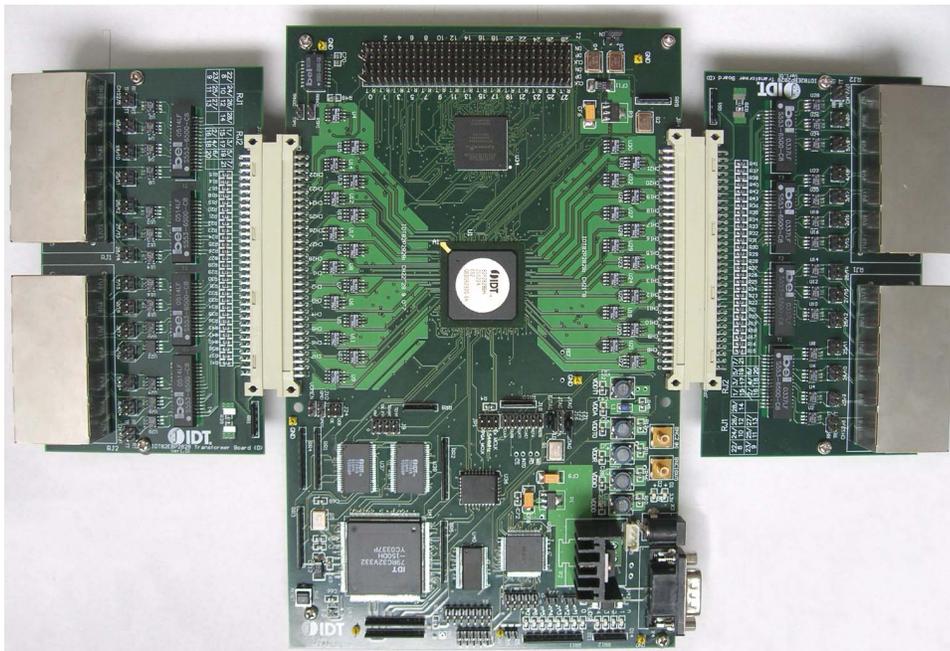


Figure-1 IDT82P2828 Evaluation Hardware

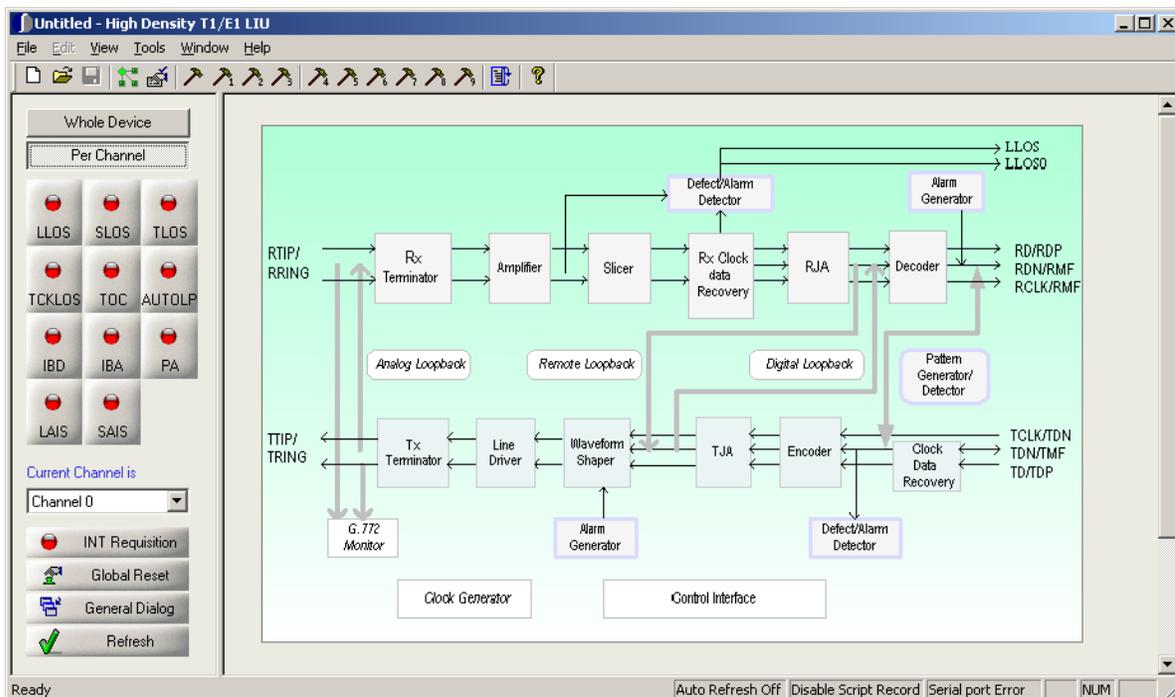


Figure-2 IDT82P2828/21/16/8 and 82P2521 Evaluation Software, Main Screen

3.2 EVALUATION KIT CONTENT

The evaluation board kit for the High-Density LIU will include ¹:

- One IDT82P2828/21/16/8/82P2521 Evaluation Board with all needed components
- Two IDT82P2828/21/16/8/82P2521 Evaluation Interface Boards
- One Evaluation GUI to control board functions
- One RS232C DB9 female cable
- One IDT82P2828/21/16/8/82P2521 Evaluation Board user's guide
- 29/22/17/9-link T1/E1/J1 short haul interface
- External power socket for AC->DC conversion (with on board voltage regulator)
- Microcontroller of sufficient performance to control IDT82P2828/21/16/8/82P2521

3.3 GUI FUNCTION SUMMARY

With the GUI, all main items of the device and the board can be configured. On some evaluation boards, hardware configuration options (jumper settings) are also available to set up the evaluation board based on specific application requirements.

¹. This information is subject to change without notice.

To provide easy setup of the evaluation board and portability from the validation platform to the application, register settings can be recorded and saved as a script file. A script file can also be loaded onto the GUI software to set up the evaluation board. Also the following functions can be fulfilled in the evaluation GUI:

- Serial port setting
- FPGA on board configuration
- Device general configuration
- Mode and Jitter Attenuator (JA) configuration
- Receive path configuration
- Transmit path configuration
- Device diagnostic dialog
- Interrupt configuration & status
- JA measurement
- Pattern configuration
- Loopback configuration
- Arbitrary waveform
- Access all registers

Refer to Figure-3 to Figure-6 for some software screen examples.

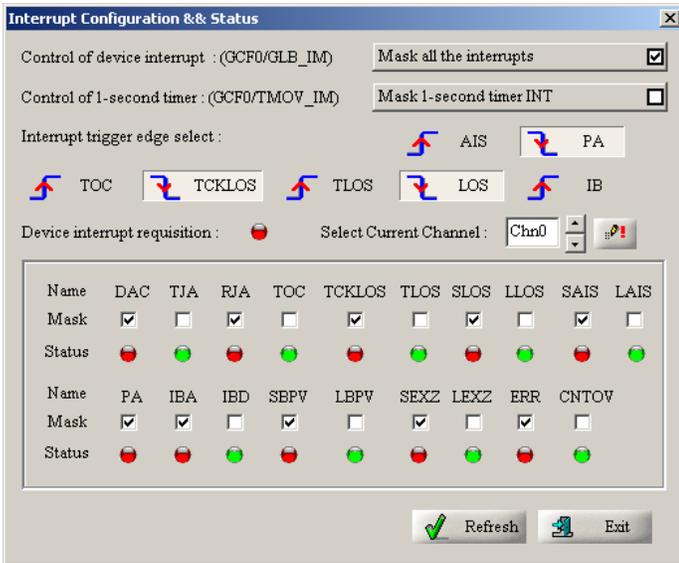


Figure-3 Interrupt Configuration and Status

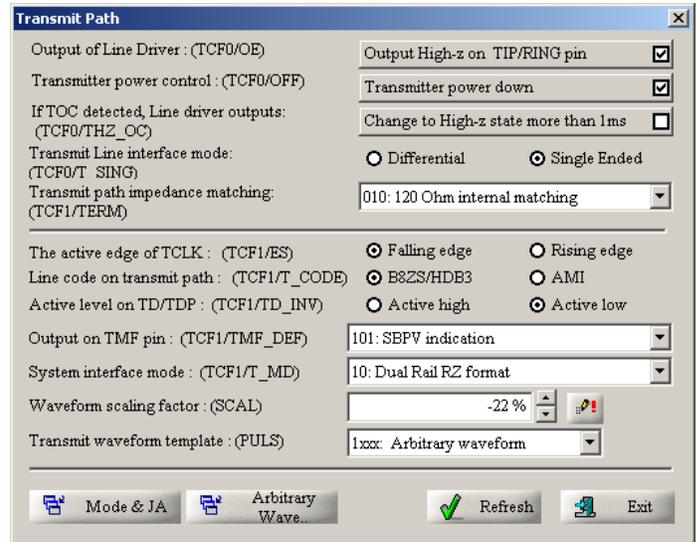


Figure-5 Transmit Path

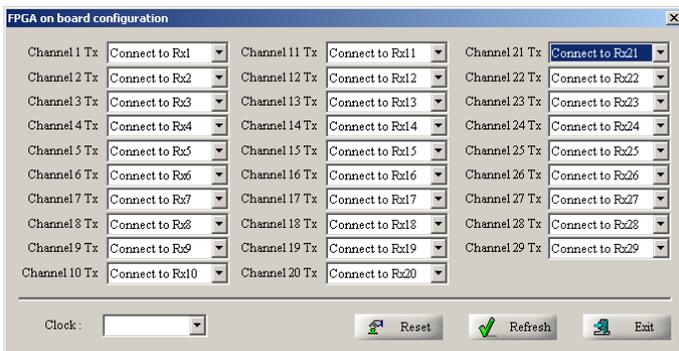


Figure-4 FPGA on Board Configuration

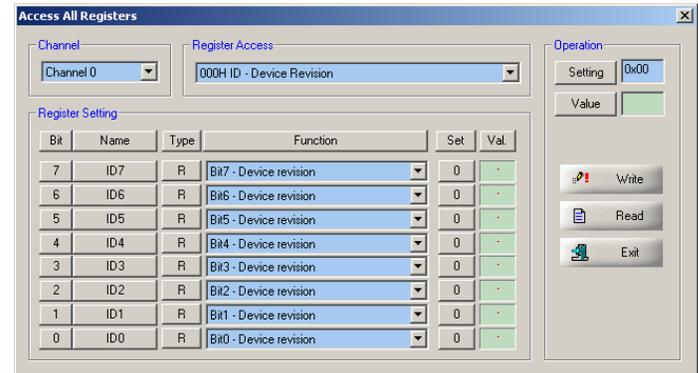


Figure-6 Access All Registers



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