PO8e Streaming Interface for the RZ

Hardware Reference

TDT

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Notices

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PO8e Overview

The RZ PO8e interface is an optional interface for RZ processor devices and is designed to transfer high channel-count data to a PCI Express card interface (PO8e) for real-time processing in custom applications. The PO8e card can be in the same computer as the TDT system, or in a dedicated computer.

The RZ connects to the PO8e card via a special optical DSP (RZDSP-U) or optical quad (QZDSPO). The optical card has an interface located on the back panel of the RZ processor and connects to the PO8e via orange fiber optic cables provided with the system.

Data streamed through the PO8e is buffered at several points while the system copies it from the RZ to PC memory. When data is generated on the RZ unit and fed into the PO8e HAL object in Synapse Processing Tree (or the Stream_Remote_MC macro in RPvdsEx), this data is placed in a 10000 sample (per channel) FIFO buffer on the RZ processor. Data from this FIFO is transferred over the fiber optic link to the PO8e PCI Express card.

A shared library is provided (PO8eStreaming) along with a C/C++ interface for writing custom applications to collect data from the PO8e card in real-time. In the PO8eStreaming library a dedicated software thread actively attempts to read from the PCI Express card and places the transferred data into a RAM buffer. This structure allows the application program to query the API when convenient and read data in larger blocks. The RAM buffer is limited only by available memory, though the programmer should consume the data as soon as possible since this interface can transfer at rates up to ~12.5 MB/second.

See the PO8eStreaming programming guide for more information.

PO8e Installation

Synapse has a built-in object for the Processing Tree to stream data to the PO8e. This must be added to your Hardware Rig in Synapse and then simply connect the desired output stream to the PO8e object. See the Synapse Manual for more information.

> ✏️ **Note**
>
> For RPvdsEx circuit design (OpenEx users), the TDT drivers installs the PO8e circuit macro in `C:\TDT\RPvdsEx\Macros\Device\PO8e_Streamer\`. See the Legacy System 3 Manual for circuit design.

PO8e Hardware Requirements

Basic requirements include a paired fiber optic cable, an RZ processor equipped with the RZDSP-U or QZDSPO card.

The PO8e requires a Windows or Linux computer with a PCI Express slot.

Setting Up Your Hardware with the PO8e

In order to setup the RZ PO8e interface, connect the fiber optic cable from the RZ back panel to the PO8e card installed in the computer. The PO8e can be installed in the same computer as the PO5/e card or in a separate computer. For more information on setting up or configuring the RZ processor see the System 3 Installation Guide.
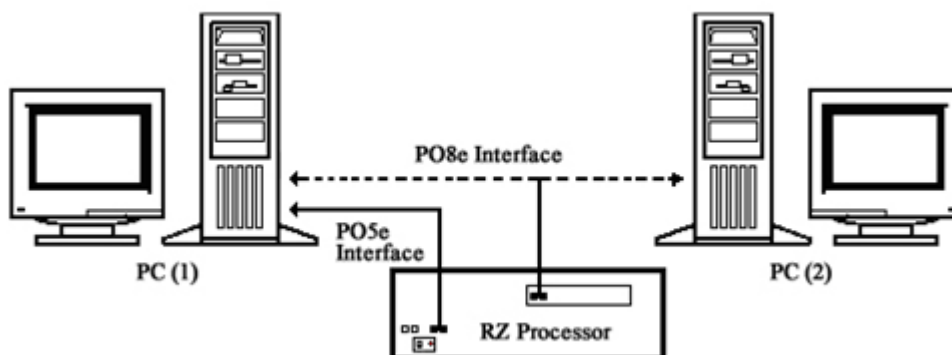
PO8e Connection Diagram

The diagram above illustrates the possible PO8e connections from the RZ processor to the TDT PC (1) or to a separate PC (2).