Direct I/O Library

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This DIO library aims at providing a CSL-like Serial RapidIO (SRIO) *functional layer* for the directIO mode of Texas Instruments' TMS320C645x/7x DSP generation. The I/O operations supported by this library are defined in Chapter 2 of the RapidI/O Interconnect Specification rev 1.2. The DIO library is built on top of TMS320C645x/7x Chip Support Library (CSL).

This DIO library contains five different modules:

- RIO module:

  The RIO module is dedicated to the definition of generic elements for the TMS320C645x/7x SRIO module, independent to the directIO or message passing protocols, and dedicated to the hardware initialization of the SRIO module.
- DIO module:

  This DIO module is dedicated to the handling of SRIO directIO operations supported by the TMS320C645x/7x SRIO module. DIO differentiates three types of operations: data request packets (nread, nwrite, nwrite_r, swrite and atomic), maintenance request packets, and doorbell signals. The DIO module also supports *one-shot* long (>4KBytes) read and write I/O operations with EDMA-initiated *streaming* requests. Finally, the DIO module offers *raw* IDMA or EDMA directIO fast request. It assumes the application has pre-configured directIO operations at initialization time. This functionality gives the application a way to bypass the configuration calls of higher level DIO lib APIs, by re-using pre-set LSU command sets.
- COM module:

  This COM module contains benchmarking APIs, the library error handler and callback set, and a random bit generator. Please note that the COM module is not documented.
- BRU module:

  The BRU module is dedicated to the support of system bring up. The initial scope is to enable static system configuration, where one end point has knowledge about the topology of the system.
- TST module:

  "$(DirectIODir)/test" contains all tests used to validate the library.

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