OpenCPI
IQstream To CSTS Component Data Sheet

OpenCPI Release: v2.4.6

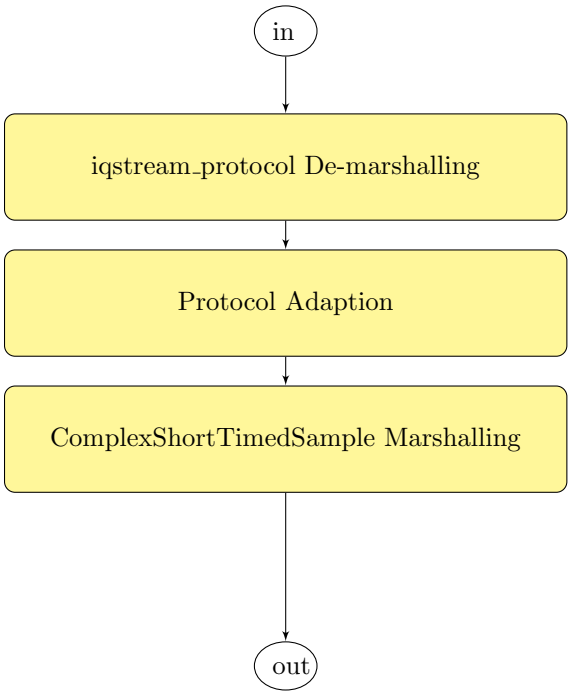
Revision History

Revision	Description of Change	Date
v1.7	Initial release	05/2020

Summary - IQstream To CSTS

Name	iqstream_to_csts
Worker Type	Application
OpenCPI Release	v2.4.6
Last Update	05/2021
Component Library	ocpi.assets.misc_comps
Workers	iqstream_to_csts.hdl
Tested Platforms	CentOS7, xsim, Zed

Block Diagram



Functionality

"It then converts them to ComplexShortTimedSample protocol messages that are marshaled on to the out port, according to the following table."

iqstream operation	ComplexShortTimedSample operation
iq	sample time sample_interval flush discontinuity metadata

Source Dependencies

csts_to_iqstream.hdl

- core/hdl/primitives/timed_sample_prot/complex_short_timed_sample_body.vhd
- core/hdl/primitives/timed_sample_prot/complex_short_timed_sample_marshaller.vhd

- core/hdl/primitives/timed_sample_prot/complex_short_timed_sample_pkg.vhd
- core/hdl/primitives/protocol/iqstream_demarshaller.vhd
- core/hdl/primitives/protocol/iqstream_pkg.vhd
- core/hdl/primitives/protocol/protocol_pkg.vhd

Test and Verification

The Unit Under Test (UUT) is tested by a) generating a file containing IQStream protocol-formatted messages which are sent to the UUT via the `file_read` component, b) using the `file_write` component to save the file containing the UUT's output as protocol-formatted message, and c) verifying the contents of the output file. The generated file contains one or more `ComplexShortTimedSample sample` messages. The sequence of `sample` messages include samples whose I and Q signals are positive and negative ramp functions, respectively. The output file is verified by confirming that a) the same number of samples exists in the input and output files, and b) the output file contains the same ramp functions as the input.

Output Width and Bit Growth

Both the input and output data is marshalled across a 32-bit bus, so bit growth is not a concern.