Summary - Iqstream Max Calculator

Name	iqstream_max_calculator
Latest Version	v1.5 (release date 4/2019)
Worker Type	Application
Component Library	ocpi.assets.util_comps
Workers	iqstream_max_calculator.hdl, iqstream_max_calculator.rcc
Tested Platforms	ml605, centos7

Functionality

in/out ports

Messages are passed directly from the `in` port to the `out` port. Backpressure is transfered to the `in` port from the `out` port.

max_I_is_valid Property

Indicates `max_I` is valid. Will be false if no data has been received on `in\verb` port since either a) the last read of `max_I` or b) the worker first went into the operating state.

max_Q_is_valid Property

Indicates `max_Q` is valid. Will be false if no data has been received on `in` port since either a) the last read of `max_I` or b) the worker first went into the operating state.

max_I Property

Max I value observed on `in` port. Value will be -32768 when worker first enters the operating state and will be reset to -32768 after each read. `max_I_is_valid` should always be read prior to reading this property because `max_I_is_valid` will immediately be set to false once `max_I` is read.

max_Q Property

Max Q value observed on `in` port. Value will be -32768 when worker first enters the operating state and will be reset to -32768 after each read. `max_Q_is_valid` should always be read prior to reading this property because `max_I_is_valid` will immediately be set to false once `max_Q` is read.

Worker Implementation Details

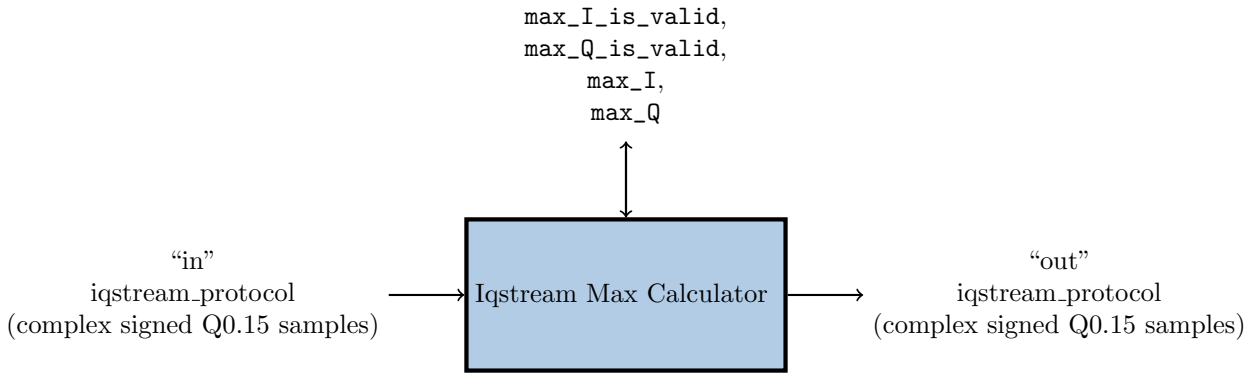
iqstream_max_calculator.hdl

The iqstream_max_calculator.hdl worker has `IDATA_WIDTH_p` and `ODATA_WIDTH_p` parameter properties which facilitate the build parameterization of DataWidth of the `in` and `out` ports.

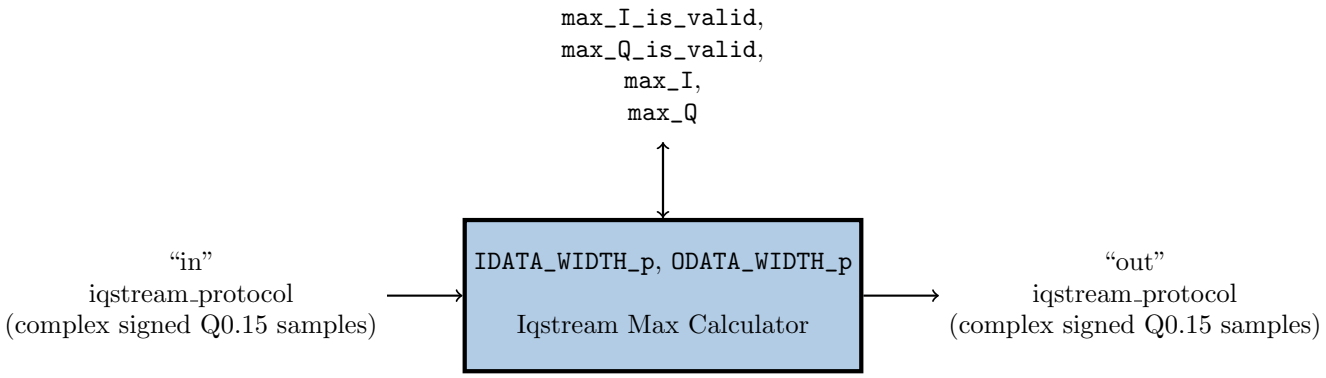
Block Diagrams

Top level

iqstream_max_calculator.rcc



iqstream_max_calculator.hdl



Source Dependencies

iqstream_max_calculator.rcc

assets/components/util_comps/iqstream_max_calculator.hdl/iqstream_max_calculator.cc

iqstream_max_calculator.hdl

assets/components/util_comps/iqstream_max_calculator.hdl/iqstream_max_calculator.vhd

Component Properties

Name	Type	SequenceLength	ArrayDimensions	Accessibility	Valid Range	Default	Description
max_I_is_valid	bool	-	-	Volatile	Standard	0	Indicates max_I is valid.
max_Q_is_valid	bool	-	-	Volatile	Standard	0	Indicates max_Q is valid.
max_I	short	-	-	Volatile	Standard	0	Max I value observed on in port since last read.
max_Q	short	-	-	Volatile	Standard	0	Max Q value observed on in port since last read.

Worker Properties

iqstream_max_calculator.hdl

Name	Type	SequenceLength	ArrayDimensions	Accessibility	Valid Range	Default	Description
IDATA_WIDTH_p	ushort	-	-		Standard	32	-
ODATA_WIDTH_p	ushort	-	-		Standard	32	-

Component Ports

Name	Producer	Protocol	Optional
in	false	iqstream_protocol.xml	False
out	true	iqstream_protocol.xml	true

Worker Interfaces

iqstream_max_calculator.hdl

Type	Name	DataWidth
StreamInterface	in	IDATA_WIDTH_p
StreamInterface	out	ODATA_WIDTH_p

Control Timing and Signals

iqstream_max_calculator.hdl

Data is passed from the input port to the output port with the minimum possible latency.

Worker Configuration Parameters

iqstream_max_calculator.hdl

Table 6: Table of Worker Configurations for worker: iqstream_max_calculator

Configuration
0

Performance and Resource Utilization

iqstream_max_calculator.rcc

iqstream_max_calculator.hdl

Table 7: Resource Utilization Table for worker "iqstream_max_calculator"

Configuration	OCPI Target	Tool	Version	Device	Registers (Typ)	LUTs (Typ)	Fmax (MHz) (Typ)	Memory/Special Functions
0	stratix4	Quartus	17.1.0	N/A	283	312	N/A	N/A
0	zynq	Vivado	2017.1	xc7z020clg400-3	312	303	N/A	N/A
0	zynq_ise	ISE	14.7	7z010clg400-3	304	511	343.752	N/A
0	virtex6	ISE	14.7	6vcx75tff484-2	304	511	271.669	N/A

Test and Verification

No unit test for this component exists. However, a hardware-in-the-loop application (which is NOT a unit test) exists for testing purposes (see assets/applications/iqstream_max_calculator_test).