

OpenCPI

IQstream Max Calculator Component Data Sheet

OpenCPI Release: v2.4.8

Summary - IQstream Max Calculator

Name	iqstream_max_calculator
Worker Type	Application
OpenCPI Release	v2.4.8
Last Update	04/2019
Component Library	ocpi.assets.util_comps
Workers	iqstream_max_calculator.hdl, iqstream_max_calculator.rcc
Tested Platforms	CentOS7, ml605

Functionality

in/out ports

Messages are passed directly from the **in** port to the **out** port. Backpressure is transferred 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

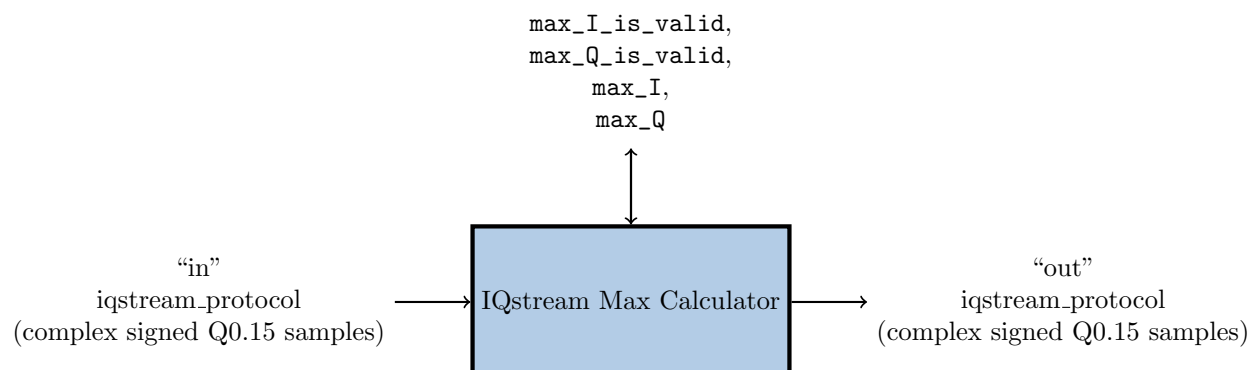
iqstream_max_calculator.hdl

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.

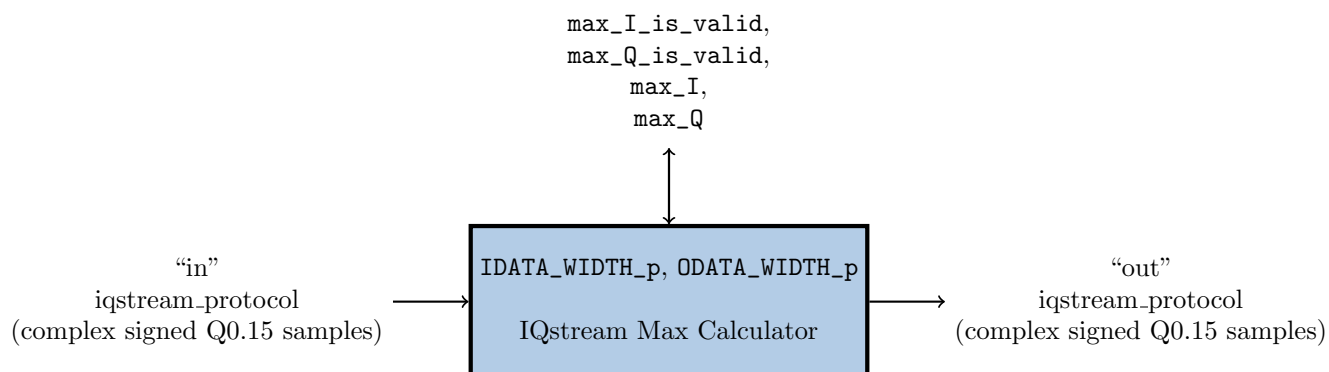
Block Diagrams

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	-	Indicates max_I is valid.
max_Q_is_valid	Bool	-	-	Volatile	Standard	-	Indicates max_Q is valid.
max_I	Short	-	-	Volatile	Standard	-	Max I value observed on in port since last read.
max_Q	Short	-	-	Volatile	Standard	-	Max Q value observed on in port since last read.

Worker Properties

iqstream_max_calculator.rcc

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

iqstream_max_calculator.hdl

Name	Type	SequenceLength	ArrayDimensions	Accessibility	Valid Range	Default	Description
max_I_is_valid	Bool	-	-	Volatile	Standard	-	Indicates max_I is valid.
max_Q_is_valid	Bool	-	-	Volatile	Standard	-	Indicates max_Q is valid.
max_I	Short	-	-	Volatile	Standard	-	Max I value observed on in port since last read.
max_Q	Short	-	-	Volatile	Standard	-	Max Q value observed on in port since last read.
IDATA_WIDTH_p	Ushort	-	-	Parameter	Standard	32	-
ODATA_WIDTH_p	Ushort	-	-	Parameter	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.rcc

Name	Producer	Protocol	Optional
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in	False	iqstream_protocol.xml	False
out	True	iqstream_protocol.xml	True

iqstream_max_calculator.hdl

Type	Name	Producer	Protocol	Optional	DataWidth	Clock	ClockDirection	WorkerEOF	InsertEOM
StreamInterface	in	False	iqstream_protocol.xml	False	IDATA_WIDTH_p	(control clock)	-	False	False
StreamInterface	out	True	iqstream_protocol.xml	True	ODATA_WIDTH_p	(control clock)	-	False	True

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

Performance and Resource Utilization

iqstream_max_calculator.rcc

iqstream_max_calculator.hdl

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`).