# Summary - Baud Tracking Simple

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| Name | baudtracking_simple |
| Worker Type | Application |
| Version | v1.3 |
| Release Date | February 2018 |
| Component Library | ocpi.assets.dsp_comps |
| Workers | baudtracking_simple.rcc |
| Tested Platforms | linux-x13_3-arm, c7-x86-64, and c6-x86-64 |

# Worker Implementation Details

### baudtracking_simple.rcc

The input data to this worker is expected to be pulse shaped samples. The full length of the baud in samples (SPB) is averaged over BaudAvrCount bauds. The maximum of this array of averages is then calculated, if this is not in the mid point of the array, then a drift is calculated. The midpoint of the next SPB envelope is then shifted based on the drift value.
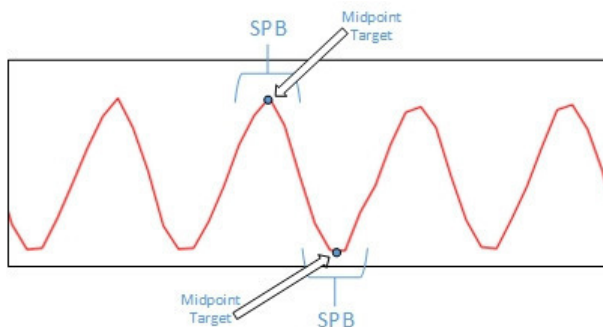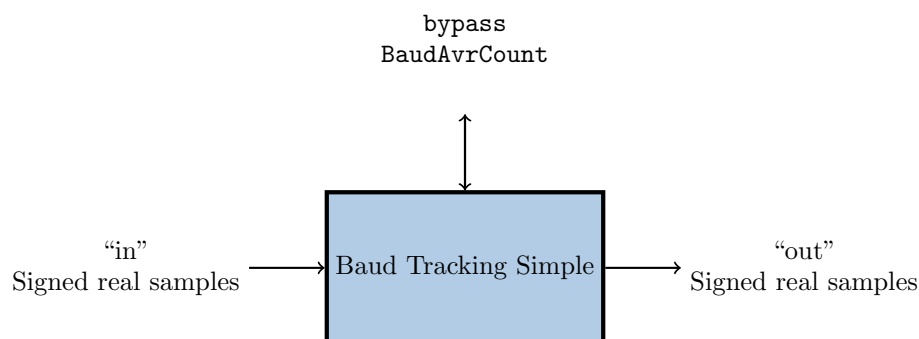


Figure 1: Functionality Diagram

For a consistent signal the algorithm will lock on after a few iterations followed by a few small adjustments. If you are not exactly sure of the SPB the algorithm will constantly adjust and find the peak values as long as the SBD is not off by too much.

# Block Diagrams

### Top level

# Source Dependencies

## baudtracking_simple.rcc

- ocpiassets/components/dsp_comps/Baudtracking_simple.rcc/Baudtracking_simple.c

# Component Spec Properties

| Name | Type | SequenceLength | ArrayDimensions | Accessibility | Valid Range | Default | Usage |
|------|------|----------------|-----------------|---------------|-------------|---------|-------|
| bypass | Bool | - | - | Readable, Writable | Standard | - | When set to true the worker will pass its input to its output without any processing. False means normal operation. |
| BaudAvrCount | Short | - | - | Readable, Writable | 5-34767 | - | The number of bauds to average over to determine drift(10 is a good place to start). If this number is too high the algorithm wont be able to compensate quickly enough if the average number is too low it will adjust back and forth without enough averages to make an intelligent decision. |

# Worker Properties

## baudtracking_simple.rcc

Control Operations: Start

| Type | Name | Type | SequenceLength | ArrayDimensions | Accessibility | Valid Range | Default | Usage |
|------|------|------|----------------|-----------------|---------------|-------------|---------|-------|
| Property | SPB | UShort | - | - | Readable,Writable | 3-100 | - | The expected number of samples per baud. This number can be slightly off and the algorithm will work correctly. As long as it is close, the averaging mechanism will compensate. |

# Component Ports

| Name | Producer | Protocol | Optional | Advanced | Usage |
|------|----------|----------|----------|----------|-------|
| in | false | rstream_protocol | false | - | Signed real samples |
| out | true | rstream_protocol | false | - | Signed real samples |

# Performance and Resource Utilization

**baudtracking_simple.rcc**

| Processor Type | Processor Frequency | Run Function Time |
|----------------|---------------------|-------------------|
| TBD            | TBD                 | TBD               |

# Test and Verification

No unit test currently exists for this worker.