# System K

## What is System K

System K is a high performance framework for building trading strategies or trading systems. It allows you to perform the basic functionality requied to get a trading system running or build a fully automated strategy. Users can easily add GUIs, analysis tools, charts and graphs, monitoring tools as needed, in any language on any system.

Out of the box System K can:

* Connect to a FIX or ITCH market and receive market data
* Collect market data into a an order book (either our implementation or yours)
* Aggregate multiple market BBO data into a single book
* Distribute market data from any single market or from the aggregated book over a local network using TCP/UDP or PGM
* Add, modify, cancel orders on FIX markets
* Serialize orders to database
* Use multiple languages to develop strategies, data analysis tools, store tick data, or smart route orders.

We deliver the core of the system and you can extend it in any language you like.

## Technology

System K is built entirely on open source software meaning you have access to every piece of the system and can modify it as you like. The system is built on the following trusted and proven high-performance components:

* Zero MQ messaging
* Quickfix FIX Engine
* Boost C++ libraries
* Google protocol buffers

We’re always looking for ways to push the performance boundaries of the system with new libraries and techniques. We have two primary goals when building the system:

1. Performance
2. Stability

## Future Directions

Interoperabiilty

Framework for trading

Neeeedless to say we expect to iterate quickly after the initial release to expand capabilities of the sytem including adding asset classes and improving usability.

System K was initially designed and built to trade and manage spot FX trading across multiple exchanges with extremely low touch execution.

System K has passed compliance tests for several venues including Baxter, FXCM Pro, ADS Securities, and FastMatch. Additional venues can be conformance tested as needed.

Designed for full access to all parts of system and source. Intended for using more sophisticated algos than are currently used by institutional traders.

System K provides

Market Data from a range of FIX and ITCH venues

Aggregated market view

Order Entry to FIX venues

Support for FIX versions 4.2-5.0SP2

Technologies

All technology employed is open source

Components

The system consists of the following components:

1. Market data listeners – with implementations for FIX 4.2 – 5.0SP2, ITCH and soon Interactive Brokers.
2. A basic orderbook implementation – an orderbook that can handle input from each exchange and maintain the orderbook using updates from the exchange.
3. Market data broadcast – ZeroMQ is used as the transport layer to broadcast market data messages and synchronize communications.
4. Aggregated order book – all market data may be optionally fed into a single orderbook where only the best prices are retained from all exchanges and broadcast as a separate market data message.
5. Order entry – including implementations for FIX 4.2 – 5.0SP2

Why is it open source

The system has been designed from the ground up for performance and scalability which means that it doesn’t matter if you’re running 100 trades or 1000000 trades per day. The system is released as an open source product. According to the license terms you are free to use the system as you please in its current form but any changes you make must be made public and released under the same terms.