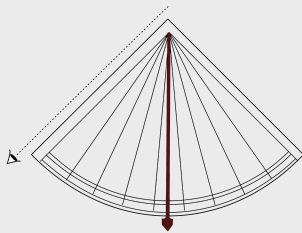


Matching Engine

Super fast, reliable and scalable

Multi-market, multi-asset

Our matching engine, *Quadrant*, delivers matching and simulation of both lit and dark markets, across equities, futures, FX, derivatives and crypto-currencies. It supports continuous 24x7 running, and many types of auction.



Performance Measures

In a standard deployment, the matching engine handles between 2 and 3 million messages per second. Placing and acking an order, and generating an L1 update takes on average $0.471\mu\text{s}$, with 99% of cases handled in less than $2.14\mu\text{s}$. Performance for a single match was similar ($0.509\mu\text{s}$ & $1.62\mu\text{s}$), and sweeping 1000 orders across 10 levels had a 99% percentile time of $0.448\mu\text{s}$.

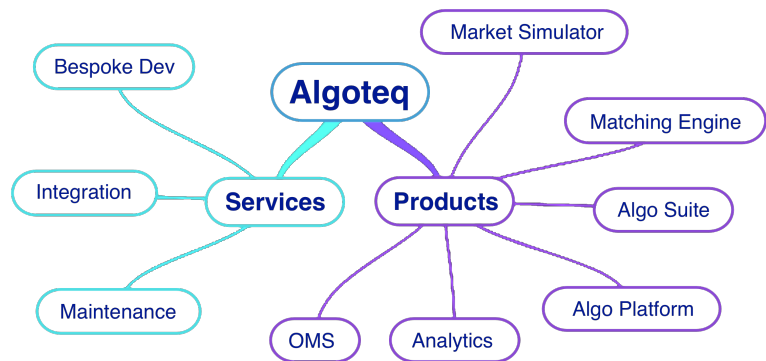
Audit and Compliance

All transactions are stored in a distributed journal for offline (or non-critical path) audit, reporting and analysis.

Transactions can be drop copied into back office systems via FIX or custom protocols.

Algoteq Products and Services

Algoteq delivers customised, end-to-end services ranging from architectural consulting to bespoke software development. Our systems are high-performance and low-latency, ensuring optimal execution and cost-effectiveness for every transaction.



The Algoteq Matching Engine

Quadrant is a high performance, multi-asset matching engine. Initially built to underlie our simulations, its core design necessarily supports configuration and extension to provide the order types and microstructure appropriate for all types of market, while also being sufficiently performant to process an entire days events in a matter of minutes.

Quadrant's flexible topology allows for both bare metal or cloud deployments, and configuration options allow the deployment to be tailored according to various infrastructure, functional and performance needs.

Quadrant sits atop a light weight, high performance Order Management System, that not only provides connectivity to the matching engine, but can also be expanded with additional connectivity and services, such as an algorithmic platform, multi-protocol upstream connectivity, drop copy, passthrough and hedging venue feeds.

Join us on this journey, let's challenge the status quo, and make history together!

High Performance Connectivity

The matching engine is in a collection of processes connected by a fast but extensible inter-process communication (IPC) protocol. To allow clients to target specific performance, resiliency and infrastructure requirements Algoteq provides a number of networking options that can be designed to implement the IPC in both bare metal and cloud deployments.

These include:

- A proprietary ultra high performance in memory bus used to connect components on the same box,
- Reliable multicast for fast, network efficient multi-box deployments,
- Star Topology Broker (for distributed locations or processes that can not handle multicast infrastructure),
- Bus Bridging within or between data centres allowing bidirectional data flow across WAN or LAN.

As well as the internal IPC, the OMS on which the matching engine resides provides connectivity options for both receiving and responding to external orders (*Facades*) as well as sending orders on to other venues (*Gateways*) for passthrough, arbitrage or hedging

A proprietary low latency engine provides both FIX and native connectivity, and is accessible through the use of Algoteq's client libraries or bespoke development.

Resilience

Quadrant is architected for resilience, with combinations of hot/hot and hot/warm processes, and dynamic routing to protect against system, network or hardware outages.

Flexibility

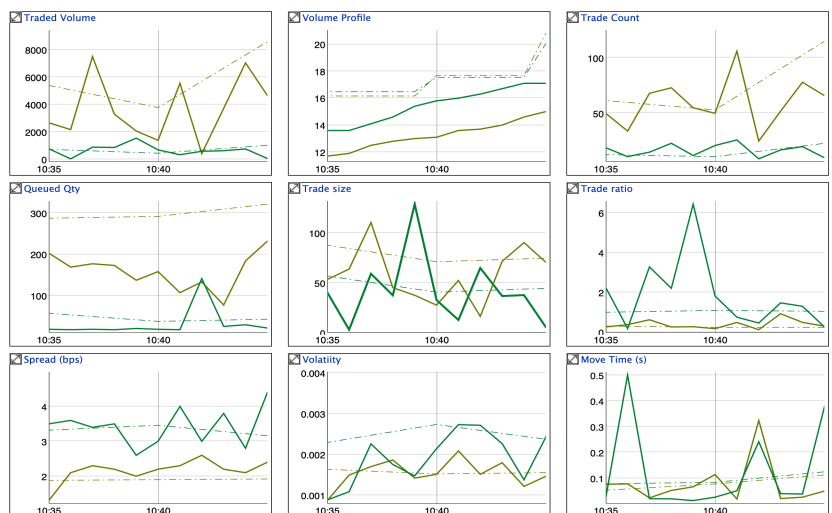
Quadrant is designed for maximum flexibility without sacrificing performance, and is customisable for specific needs through:

- Pluggable components,
- Clear and consistent APIs,
- Extensible messaging.

These factors combine to allow bespoke functionality to implemented either by Algoteq or directly by the client.

Real Time Monitoring and Analytics

The sophisticated analytical and visualisation tools we employ to analyse and optimise our algorithms, are also available for interactive and automated performance assessment of the matching engine. These allow tracking any desired analytics in real time, comparing them to chosen historical averages, with customised alerting for events of interest.



Select or filter this data according to multiple possible criteria.

Select group: All data Index Volume Price Activity Custom

>20.00
 5.00-20.00
 1.00-5.00
 0.20-1.00
 <0.20

Mid
 Depth Ask Range
 Depth Imbalance
 Num Trades
 Volatility

Depth Bid
 Quote Size
 Spread
 Quote Updates
 Cumulative Volume

Depth Ask
 Depth Size
 Depth Spread
 Updates

Mid Range
 Full Size
 Volume
 Update-Trade Ratio

Depth Bid Range
 Quote Imbalance
 VWAP
 Clearing Mins

Get in Touch

Algoteq's flexible, high-performance and cost-effective systems are uniquely suited to today's rapidly evolving market technology needs. Whether you represent a small hedge fund, or a large investment bank, Algoteq offers the perfect fit.

Contact us today (contact@algoteq.com) to experience the future of finance.