



# Cheetah Solutions

www.cheetah-solutions.com

FPGA Cores for Algo Trading and HFT

## Cheetah Designer

### Graphical Configuration of Hardware Trading Algos

### Product Brief

#### Introduction

It is well known that running a trading algorithm in hardware yields the lowest possible latency and a throughput that doesn't degrade under load. It is also known that it takes a specialized design team weeks, if not months, to bed down a custom FPGA hardware design – or simply make a small change to it. This has traditionally led to a tradeoff between time to market and ultimate low latency, with many choosing to implement in software to achieve better time to market.

#### Cheetah Designer changes all that.

Designed to go hand in hand with the Cheetah Framework, Cheetah Designer gives you full control of the algo from your workstation, while the algo executes directly in the hardware at lightning speed.

#### Keep realtime control on your profits

While the Cheetah Framework can still be controlled and configured programmatically using the Cheetah API, it is now possible to simply drag and drop the Cheetah Blocks you need onto a design worksheet, connect them up, and then push your design to the hardware. The Cheetah Designer integrated design environment (IDE) lets you quickly build or modify a design visually.

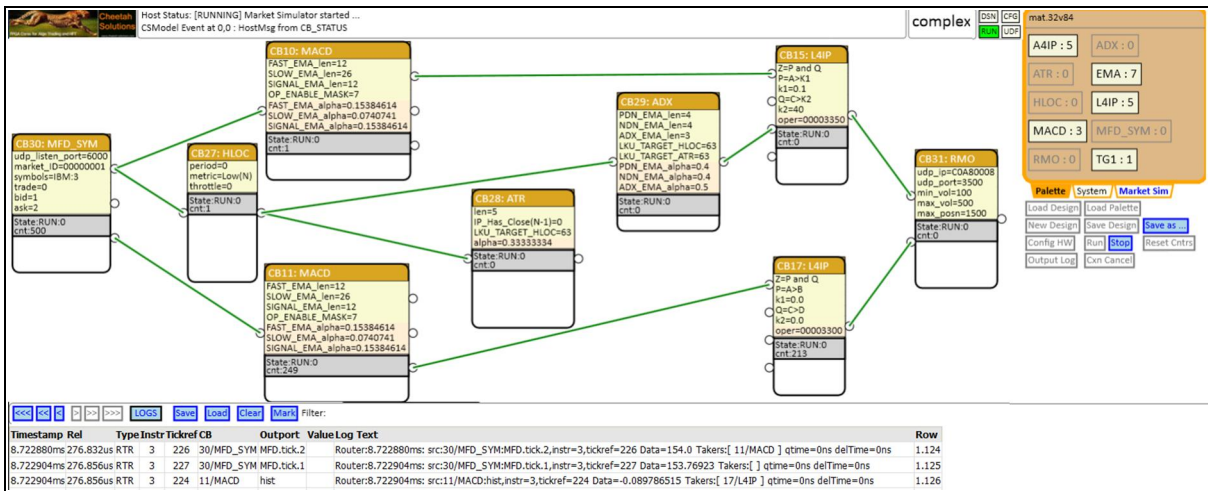
#### Using Cheetah Designer

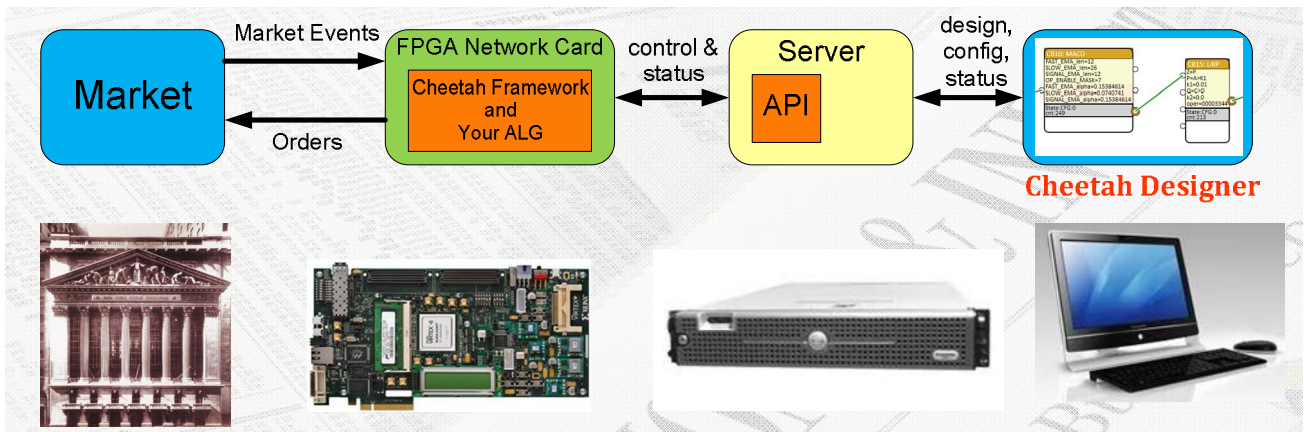
Start with Market Feed Cheetah Block, connect it to a MACD and a logical comparison block before feeding to an Order placer. If you need to, drag an ADX trend strength indicator into the design and connect it up. Configure the parameters how you want them, observe how your alg behaves against current market conditions, and make changes as needed. It takes only a few seconds to tweak a parameter and reconfigure the hardware at the touch of a button. No FPGA compilation, no synthesis, place and route, or timing issues.

#### HIGHLIGHTS

Configure, Observe, Alter your Hardware Algo in real time:

- Quickly configure your Alg using Cheetah Designer's visual editor.
- Download and Configure the Hardware in seconds.
- Review performance in Real Time.
- The Alg executes in the Hardware at lightning speed, but you see everything from your console.
- Cheetah Designer connects using HTTP and runs in your Browser for full remote control.



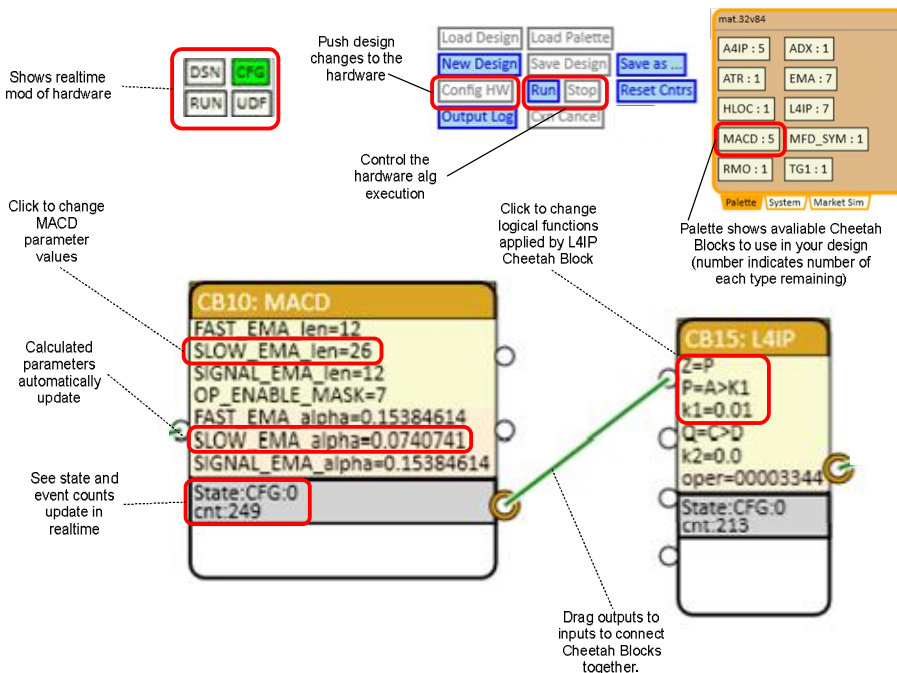


## The Cheetah Framework

The framework allows for true execution of your trading algorithm in the hardware. Market events enter the FPGA-enabled network card in your server. Within the FPGA, a network stack decodes the network protocol, decodes the market feed format and feeds market events directly into the Cheetah Framework. Running within the FPGA, and exploiting its parallelism, the Cheetah Framework allows you to dynamically configure your trading algorithm and the processing that it comprises. Ultimately, if your alg decides to make a trade, the order is encoded up and sent back to the market without ever making the trip to the server.

**This makes it possible to achieve sub 1us tick to trade times.**

The server monitors your trading alg's behavior in realtime, feeding results to the Cheetah API, either for your software to monitor, or for you to see it on the screen of your Cheetah Designer. Configuration, and indeed, full design changes can be made and pushed to the FPGA hardware in seconds.



## FEATURES

- Load palettes to match HW capability
- Drag Cheetah Blocks from palette to design, and connect them up
- set parameters
- configure the hardware
- See hardware stats in realtime
- Send commands to Cheetah Blocks at the press of a button
- See logs from the hardware in realtime
- Change parameters or reconfigure the hardware in seconds
- save and load designs
- save and load logs

Cheetah Designer is HTML-5 based allowing simple remote monitoring and reconfiguration of your collocated hardware alg.

For further information on Cheetah Designer or the Cheetah Framework, visit [www.cheetah-solutions.com](http://www.cheetah-solutions.com).