Abstract

The Kestrel board, a massively parallel processor, consists of 512 processors in a SIMD (single instruction, multiple data) array. Kestrel performs quick computations and is therefore useful in sequence analysis. In a team effort, Kestrel’s software has been updated to mirror the changes in the new controller, altering the way the hardware interacts with the user program.

How It Fits Together

- Kestrel board: a linear array of processing elements and a controller
- Driver: an interface with the hardware, translating data into a usable format
- Board interface library: a seamless connection to the board or simulator
- Server: allows programs to be executed remotely
- Client libraries: interface between user programs and the Kestrel board
- Debugger: an optional executable to aid in program development

Problems and Future Work

The new controller requires many software changes:
- Changed the simulator to handle different instruction encoding.
- Debugger will need to incorporate the changes in the controller.
- When new boards are made, the Linux driver will need to be rewritten.