Bricken™ Technologies

COMPANY DESCRIPTION

Bricken Technologies Corporation (BTC), a Delaware corporation founded in March 2001, is a development stage company established to bring to market a *new generation of computational architectures*. These architectures not only outperform existing hardware devices, they add new capabilities that are outside the reach of any binary computer.

Have you ever wondered why the computers of today are simply smaller and faster versions of those from 1970? Why are the computer architectures of the new millennium using the same principles of binary computation that were invented more than 60 years ago? The symbolic approach to mathematics developed in 1910 was entirely appropriate for the plug-boards and vacuum tubes of the 1950s. The ones and zeros of binary computation certainly appear to be the simplest way for transistor networks to perform logic and arithmetic. But BTC is about to bring to market *a simpler way for computers to work*.

Between 1870 and 1900, the ideas of logic were explored from a diversity of perspectives. American logician Charles S. Peirce and German mathematician Gottlob Frege (who is credited with the invention of formal mathematics) both developed logical systems which incorporated aspects of topology. These powerful techniques were lost when computers which processed strings of binary symbols were invented. But ones and zeros are not the only way to perform computation.

Based on the work of Peirce and Frege, BTC has developed and patented Iconic Logic™, a seamless integration of computational logic, algebra and topology. This revolutionary approach is *unary* rather than binary; it is based on the single concept of a spatial container rather than on two linear binary numbers. Iconic Logic computation deletes irrelevancies rather than accumulates facts. Iconic Logic hardware propagates disconnections rather than binary signals. Iconic Logic uses spatial arrays rather than symbol strings. And Iconic Logic fits the way that transistor networks work far better than does the binary structure of conventional logic gates.

Since binary logic is simply an overly complex unary logic, all Iconic Logic processes are fully compatible with current techniques of functional specification, circuit design, and hardware fabrication. BTC's Iconic Logic Optimizing Compiler accepts as input any existing circuit design. The Optimizer deletes the irrelevant complexity of conventional logic gates, and then the Compiler generates the spatial configurations used by BTC's Iconic Logic hardware architectures. This software is fully implemented and functional.

BTC’s first product is Comesh™, a family of homogeneous *computational mesh* architectures. The physical core of the Comesh architecture is a collection of cellular arrays. Rather than relying on logic gates, look-up tables, or two-level programmable logic arrays (as do ASICs, FPGAs, and CPLDs), Comesh uses a pattern of activated array cells to define a spatial representation of the desired computational functionality. The propagation of disconnections through the matrix of active cells results in the evaluation of the circuit. Comesh is dynamically reprogrammable for different functionality simply by changing the configuration of active cells. Comesh has the same efficiencies of physical fabrication as does memory, since both consist of homogeneous arrays of cells. The design of Comesh hardware is currently being refined at the transistor level.

The patent-pending Comesh architecture is expected to be very competitive in $4.1 billion programmable logic device market. Within this market, BTC is targeting and anticipates success in acquiring market share in the $2.7 billion market for Field Programmable Gate Arrays and in the higher-end product segment of the $1.2 billion market for Complex Programmable Logic Devices. Our initial target markets are original equipment manufacturers in communication, computer, consumer appliance, and industrial

equipment applications. In these markets, the principal competitors are Xilinx, Altera, Cypress, and Lattice.

The innovative Comesh architecture is a disruptive technology that provides substantive improvement over existing CPLD and FPGA performance, while offering fundamentally new capabilities that address outstanding market needs. When compared with FPGAs, Comesh offers speed, density and design flexibility advantages. Engineers will no longer have to address difficult timing, placement, routing, and resource allocation design issues. Compared with CPLDs, Comesh offers speed and scalability advantages while enhancing both design flexibility and ease of reprogramming.

BTC products which will follow Comesh have the potential to redefine performance expectations in all areas of computation. Numerical processing will no longer face the awkward and inefficient conversion of arithmetic into binary logic. The advantages of unary computation will be brought to all existing CPUs through bit-stream encoding of Iconic Logic functions. Both hardware and software design will benefit from the formal and completely provable models of spatial computation. And the techniques of *void-based computational architecture* will provide new approaches to optical and chemical computing machines.

BTC will operate as a fabless semiconductor company, selling vertically integrated hardware products through traditional manufacturer's representatives and distributors of electronic components and, in some instances, directly to customers. BTC will license free of cost the Iconic Logic Optimizing Compiler software used to program Comesh chips, using the Internet as a primary communications channel for software distribution, documentation, and support.

BTC presently owns and is continuing to develop *pioneering intellectual property*. BTC has filed several patent applications in the United States and intends to file additional applications in both the United States and in commercially important foreign jurisdictions.

It is now time for computer architecture to catch up with the progress of technology.