Mission Statement

To tightly integrate storage, computing and networking to make software and applications easy, more capable and higher performance, enabling big data solutions not before possible.

The Company

Once in a generation there is a fundamental new computing technology that changes everything. Panève has developed just such a breakthrough - storage with integrated processing. Panève’s innovations will allow software companies to deliver on the promise of Big Data by giving them a compute platform that will access massive quantities (100s of petabytes) of data in real time. Data is growing exponentially in every imaginable part of our lives. In order to reap the benefits of that data, Panève has developed technology that accesses data as if it were cache (up to 10,000 times faster than conventional technologies). Put simply, ALL processing has Cache-Direct access to ALL storage.

And this allows software applications to do more, more easily. Panève’s Cache-Direct platform is scalable enough to hold, process and manage the largest data sets and to support data solutions that cannot even be imagined today. We create solutions in response to the needs of today’s data loads and the predictions of zettabytes that are coming.

The strength of Panève’s breakthrough starts with new thinking. By eliminating the software, operating system and I/O overhead, we can achieve performance increases greater than 10,000X. By putting the computes with the memory and the memory with the computes, we gain unprecedented speed, flexibility for software and scalability, all while making it easier to use. This will result in much better performance while delivering systems with a lower cost to buy and operate. By combining Cache-Direct storage with super-computer amounts of computation, the software can concentrate on solving problems and analyzing structured and unstructured data in a single, centralized, real-time system.

The Market

Big Data
Big Data is defined by data sets that cannot be easily handled by current technologies. “Almost Big Data” is our definition to describe almost every company with many terabytes of data that will soon be in the “Big Data” category. The driver for Big Data demand is that 90% of the world’s data was created in the last 2 years. According to IDC, the Big Data infrastructure market is expected to grow from $3.2B in 2010 to $30B by 2015. There is simply no end in sight for Big Data applications in financial markets, medical research, business analytics, retail, manufacturing, national security, geo-spatial applications, earth sciences, e-commerce, astro-physics...

According to IDC, digital content is expected to grow to 2.7 zettabytes this year. Ninety percent of that data will be...
unstructured. Recently, IDC forecasted the market for data analytics is poised to grow from $3.2 billion now to $16.9 billion per year by 2015. Forrester Research forecasts that the global market for cloud computing will grow from $40.7 billion in 2011 to more than $241 billion in 2020. That’s a lot of storage and a lot of computing.

**Technology**

Panèvè’s technology is driven by a key breakthrough:

**Cache-Direct Data-Flow Memory Fabric**

The Cache-Direct data-flow memory architecture enables all processing to uniformly access all storage with just memory reference instructions vs. an OS or database software stack. By treating all storage as cache, data is transparently and dynamically arranged based on use and accessed by processing at processor cache speeds. Panèvè can therefore, move data through the processor at unprecedented speeds, blurring the lines of where the processor starts and where the storage ends. Accessing memory with cache is the fastest known method to move and retrieve data. Panèvè takes advantage of that leverage.

**ZettaLeaf and ZettaTree products**

Each ZettaLeaf module consists of Panèvè's processor with Cache-Direct access to 500GB of Flash. Each ZettaTree is made up of 64 ZettaLeaves. By using a single store memory fabric, Flash, DRAM, even disk will be accessed as if it were cache. One ZettaTree, the size of a large pizza box, will offer 600 million I/O's per second, 13 TeraOps of computing performance, 32 TBytes of Flash, and 2 TBytes of DRAM. This amount of performance will replace 50-100 commodity servers and will provide 100X the performance for Big Data applications.

**Scalable single level storage**

Panèvè’s scalable single level storage model collapses the server, network, and storage by removing software and replacing them with memory system primitives. This eliminates all network and network-processing overhead associated with accessing storage and delivers a 10,000X increase in raw performance.

**Efficiency**

In order to achieve such dramatic efficiency gains, Panèvè uses its Cache-Direct fabric to replace the operating system and the networking software stack for a 10^4 improvement. The Cache-Direct fabric also enables threads to communicate with effectively zero overhead, a 10^3 improvement over existing architectures. Power efficiency is gained throughout the system.

**Competitive Strengths**

Because Panèvè is using an innovative approach to deliver real-time solutions with the biggest databases, we are able to see a lot of blue sky in between the competitive clouds. That said, the market is huge and the competition is fierce. A key differentiator of Panèvè is our ability to achieve almost unlimited scalability for in-memory storage. Conventional servers have limitations in both memory and storage size. Hadoop-like systems are difficult to program, require a lot of expensive data engineers and they have performance limitations due to the OS and software overhead required for the distributed approach. Panèvè will allow users to manage their environment with far fewer resources, centralize all of their data, access it within nanoseconds and deliver real-time response rates to improve the value of that data.
Business Model

The company’s Zetta products consist of module rack-mount 3RU chassis. We will outsource manufacturing and distribution of the products. The go to market strategy is to sell through Independent Software/Solution Vendors to provide a complete solution to end customers. The company will also expand into OEM relationships with horizontal platform providers.

Product Development & Customer Traction

Panève has ported the architecture to an FPGA Prototype – the processor is tested and demonstrable. This is the most critical component of the technology that proves the in-memory persistent data-flow and Cache-Direct technologies run as designed. The Company has ported the Linux operating kernel and has a working compiler. Panève is engaged with dozens of global enterprises and has many potential partnerships underway. The ZettaLeaf product will be in Beta by the 1st quarter of 2013 and will ship by the end of next year.

Intellectual Property

Panève has developed a broad set of patents to protect the company’s most valuable asset- innovation. Panève’s extensive patent portfolio includes several issued patents and many that are pending. The IP protection uniquely covers our Cache-Direct fabric, virtual thread breakthrough, both parallel and distributed use of the Cache-Direct fabric and all software implementations exploiting these novel innovations.

The underlying Panève IP is applicable in many markets. Today, we are focused on the Big Data in-memory opportunity because of the size of the impact and the current need for real-time, scalable Big Data solutions.

Management

Steven Frank, CEO  
30 years as a computer and software architect | Co-Founder & CTO, Kendall Square Research | CEO, Mangosoft  
Jef Sharp, President  
CEO+SVP Marketing, Qteros | CEO and SVP Sales, TechCavalry | CEO, XScapacity | CEO, Gravity Graphics  
Shigeki Imai, PhD, CTO Asia  
35 years in electronics industry | Division Manager, Display Systems Lab, Sharp Corporation  
Jeff Hausthor, COO  
25 years in IT industry | Senior PM, Sony | Co-Founder, Qteros | CTO, TechCavalry | CTO, XScapacity  
Thomas Tessier, VP R&D  
30 years in electronics industry | Founder & President, t2design | Founder, Talcian Corporation

Advisors

Judith McHale  
Former CEO Discovery Communications, Former Under Secretary of State for the United States of America  
Fred Weber  
Former CTO, AMD | Co-Founder, President & CEO, MetaRAM  
Rajeev Surati, PhD  
Founder & Chairman, Scalable Display Technologies | Co-Founder, Photo.net Corp. | Co-Founder, Flash Communications  
Bob Geiman  
Former General Partner, Polaris Ventures | Product & Business Development, Envoy Networks | MCK Communications  
Richard Eden, PhD  
Consultant to DARPA | Co-Founder, VP R&D & Director, GigaBit Logic Inc | Principal Scientist, Rockwell International