Immediate Release Date: July 30, 2007

Banpil advances flexible circuit technology: First-ever 20 Gb/s electrical signal over 2-meter long flex

Banpil Flex consumes less than one-tenth the power of conventional electrical interconnects

Santa Clara, California – July 30, 2007 - Banpil Photonics, Inc., a leading company in expanding the boundaries of optics and electronics through innovations, today announced that it has successfully demonstrated the first-ever over 20 Gb/s data transmission over a 2-meter long flexible-printed-circuit (FPC) using its patented metallic (electrical) interconnects technology. The company also verified 20 Gb/s on a 3-meter long FPC and 40 Gb/s over 1-meter FPC. The remarkable channel efficiency of Banpil's metallic interconnect in conventional LF-FPCs made it possible to increase signal-carrying capacity by more than 6 times over conventional flex solutions, while significantly reducing power consumption.

A prototype of the Banpil flex technology demonstrated transmission of 20 Gb/s electrical signals through 2-meter long signal lines routed on 12”x12” boards and two SMA connectors. The Banpil FPC consumed a remarkable one-tenth of the power that conventional electrical interconnects utilize. Scaled to data center terms, this means a 50,000-square-foot data center which uses approximately 4 Megawatts of power would require less than 400 kilowatts to directly power its server farms by implementing Banpil’s FPC. This is a timely achievement when energy conservation and environmental awareness is becoming a factor that companies need to pay attention to along with the benefits technologies deliver to society.

“We are extremely pleased once again to show the significant performance enhancements that our high-speed metallic interconnects are capable of providing,” said Dr. Achyut Dutta, Banpil’s CEO. "This is a significant breakthrough because it is a purely electrical FPC solution requiring significantly less power to drive the signal over long, practical application-length interconnects. Implementing Banpil Flex will help to significantly increase signal speed and reduce system power consumption. This surpasses our earlier achievement exceeding 10 Gb/s signals over a 1.5-meter long rigid FR4 printed circuit board (PCB), and paves the way for more flex alongside rigid applications in high-speed systems.”

The development of Banpil’s high-speed FPC was funded by a National Science Foundation (NSF) Small Business Innovation Research (SBIR) grant. "This is an important outcome of Banpil’s R&D efforts. The NSF is very pleased and proud when a grantee develops a breakthrough that can potentially benefit not only the company, but its industry, and the society at large. This is one of the goals of the SBIR program—funding innovative, high risk, high reward projects,” said Dr Rathindra DasGupta, Program Director of the NSF SBIR Program.

The FPC market is estimated at $11 billion by 2010. "The market is growing steadily worldwide and part of that is driven by flex replacing rigid PCBs in some cases," said Frost & Sullivan Industry Analyst Dr. Jayson Koh. "PCBs face severe limitations as the demand for high-speed systems of over 10 Gb/s continues to grow. Banpil's flex interconnect technology, with its unique capability to increase significantly (by >6 times) signal-carrying capacity while reducing signal loss, is projected to increase bandwidth to as high as 40 Gb/s in the future," added Dr. Koh. "The breakthrough of Banpil FPC is capable to replace current low-speed and high-speed applications of rigid PCBs with additional benefits of enabling lighter, smaller form factor, flexible, faster, and increased system power performance functionality, which reduces costs to end users."

Banpil's innovations are major contributions toward the dual interconnect challenge of bandwidth performance and power efficiency in next-generation high-speed systems. Power efficiency is critical for system motherboards in computing, communications, and networking equipment. Banpil’s interconnects can be used in servers and PC chipsets to connect on-board chips reducing power consumption by more than 80% compared to conventional solutions and eliminating the need for additional cooling. Banpil Flex

can also replace optical interconnects used in board-to-board and rack-to-rack connections resulting in an even greater power reduction.

Banpil targets making a sample-level FPC product available during Q2 of 2008 and expects to bring a full product to market in Q2 of 2009. Samples of its high-speed rigid FR4-PCB product are already available. The company welcomes opportunities to work with system vendors to explore new or enhanced applications. Banpil is also actively seeking licensees, strategic partnerships with both rigid PCB and FPC manufacturing, and investors.

About Banpil Photonics, Inc.
Banpil Photonics develops and licenses fundamental technology expanding the boundaries of optics and electronics. The company has developed an extensive IP portfolio of high-speed interconnects, multispectral image sensors, and high-efficiency photovoltaic technologies. Banpil innovations enable the development and manufacture of new generations of low-cost, high-speed electrical interconnects for chip-to-chip, chip-to-board, board-to-board, and rack-to-rack applications; multispectral image sensors for automotive & medical imaging, remote-sensing, and communication applications; and photovoltaic technology for solar cell applications. For more information, visit www.banpil.com.

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