

12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT

(Prepared for inclusion in this prospectus)



PERFORMANCE AND FORECAST OF THE WORLD CONNECTOR INDUSTRY

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EXECUTIVE SUMMARY

The Connector Industry

What's a Connector?

Electronic connectors are small electro-mechanical devices that connect signal pathways in electronic equipment, allowing an electrical impulse to move from one place to another. A signal pathway could be a cable, a printed circuit board or a flexible circuit. Connectors attach to these pathways enabling the signal to move from place to place. For example, a computer keyboard sends a signal to the semi-conductor inside the computer. Connectors are located in the keyboard and inside the computer, and the signal travels through a cable. When a signal is sent from the computer to a printer, connectors enable the signal to leave the computer, travel through a cable and enter the printer.

Any time an electronic signal must travel from place to place, inside or outside of the equipment, a connector is required. Therefore, connectors are required in all electronic equipment.

Connectors are found in computers, printers, automobiles, trucks, airplanes, medical equipment, DVD players, televisions, etc. etc. The equipment types that require connectors make a very long list.

Additionally, there are thousands of different types of connectors. They are different in size and shape, and vary significantly in technical sophistication. Some are highly engineered, state-of-the-art devices that require expert engineering and manufacturing. Others are low-tech and require less technical expertise. Generally, more engineering content means higher prices and better profit margins.

Market Size & Profitability

Approximately \$33.0 billion of connectors are sold worldwide annually. The industry has averaged 5% annual sales growth and 6% net income over the past twenty years. The industry's profitability is better than many other industries such as: computer, automobile, semi-conductors, aircraft, distribution, contract manufacturing. Only a few industries achieve a higher average net income. Examples are medical electronics, computer software, and pharmaceuticals.

A handwritten signature in black ink that reads "Ronald E. Bishop". The signature is written in a cursive, flowing style.

Bishop & Associates, Inc.

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Leading Manufacturers**

There are over 1,200 connector manufacturers worldwide. However, the top ten companies account for 53% of world sales. There are four U.S. companies in the top ten (Tyco, Molex, Delphi, Amphenol). There are three Japanese companies in the top ten (Yazaki, JST, JAE, Hirose). FCI is the one European company in the top ten, and Foxconn is from the Asia Pacific region.

Generally, the large global connector manufacturers have an advantage over medium and small companies. However, our research has shown that small, niche oriented companies, can successfully grow their business and be very profitable.

**A Global Industry**

Connectors are manufactured and consumed in all regions of the world. The following table segments connector sales by region.

**2004 Sales by Region**

<b>Region</b>	<b>2004</b>	<b>Percent Total</b>
North America	\$9,087.6	27.2%
Europe	\$8,680.3	26.0%
Japan	\$5,802.6	17.4%
China	\$4,118.5	12.3%
Asia-Pacific	\$3,859.3	11.5%
ROW	\$1,870.6	5.6%
<b>Total</b>	<b>\$33,418.9</b>	<b>100.0%</b>

\$ Millions

Asia, particularly China, is now the fastest growing area of the world. Connector manufacturers are moving manufacturing into China to achieve lower manufacturing costs.

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Connector Markets**

The computer and peripherals market purchased \$8.1 billion of connectors in 2004. The automotive market used \$8.5 billion. Connector sales by equipment sector are shown below.

**2004 Connector Sales by Equipment Sector**

<b>Equipment Sector</b>	<b>2004</b>	<b>Percent Total</b>
Computers & Peripherals	\$8,105.7	24.3%
Business/Office Equipment	\$417.7	1.2%
Instrumentation	\$695.4	2.1%
Medical Equipment	\$820.1	2.5%
Industrial	\$3,889.9	11.6%
Automotive	\$8,537.6	25.5%
Transportation (non-auto)	\$1,446.3	4.3%
Military/Aerospace	\$2,329.2	7.0%
Telecom/Datacom	\$4,070.1	12.2%
Consumer	\$1,522.8	4.6%
Other	\$1,584.1	4.7%
<b>Total</b>	<b>\$33,418.9</b>	<b>100.0%</b>

\$ Millions

**Sales Channels**

Connectors are sold direct to OEMs (original equipment manufacturers), to CEMs (contract electronic manufacturers) and through electronic distributors.

The trend is for a larger percentage of connector sales to CEMs. The following shows this trend very clearly.

**Connector Sales by Channel**

<b>Channel</b>	<b>Year</b>	
	<b>1994</b>	<b>2004</b>
Direct	55%	45%
Distribution	25%	25%
CEM	20%	30%
<b>Total</b>	<b>100%</b>	<b>100%</b>

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Major Trends**

The most significant industry trends are:

- ♦ Manufacturing is moving to China.
- ♦ OEMs are outsourcing manufacturing to CEMs.
- ♦ OEMs drive for lower component prices, forcing manufacturers to low cost labor areas and more efficient manufacturing plants.
- ♦ The drive is for smaller, higher-density, higher speeds, lower cost connectors.

**Outlook**

We cannot identify any structural change in the electronics world that would have a negative influence on the demand for connectors. Conversely, it is possible that the industry average of 5% sales growth will be exceeded over the next decade for two fundamental reasons. First, the growing economies of China and Eastern Europe are increasing the average income of the population and creating more consumers of electronic products. Second, electronic equipment life cycles are much shorter than in the past, meaning new technology obsoletes existing products, creating a steady flow of new electronic products that require electronic connectors.

**Forecast**

Our five-year connector forecast is shown in the following table:

**Five-Year Connector Forecast by Region**

Region of the World	2004	2009E	2004/2009
			CAGR
North America	\$9,087.6	\$11,470.1	4.8%
Europe	\$8,680.3	\$11,302.9	5.4%
Japan	\$5,802.6	\$7,443.2	5.1%
China	\$4,118.5	\$7,957.6	14.1%
Asia-Pacific	\$3,859.3	\$5,020.7	5.4%
ROW	\$1,870.6	\$2,830.3	8.6%
<b>Total World</b>	<b>\$33,418.9</b>	<b>\$46,024.8</b>	<b>6.6%</b>

\$ Millions

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Serial ATA**

Serial ATA is the personal computer (PC) Industry's latest technology for the connection of the disk drives to the PC motherboard. This new technology has the support of Intel and the disk drive manufacturers and has already begun to incorporate SATA in PC's. Intel is building the necessary chipsets to ensure its success in PCs originally expected to have all disk drives, including optical drives interfaced with SATA by 2005. This has not occurred as quickly as originally planned but it should occur by the middle of 2006. This will result in a SATA connector / cable assembly market of over a \$300 million dollars in just a couple of years.

**Background**

ATA (Advanced Technology Attachment or AT Attachment) draws its name from the IBM PC/AT, which was the state of the art PC architecture of its time. It has been the standard for the PC industry for more than 10 years (although the standard was not officially released in 1994). The signals are carried in wide, parallel data paths. There have been upgrades along the way and the performance of ATA is now at 133MB/sec. While this is adequate for today, its future is limited.

The computer industry recognized the need to develop a higher speed connection between the disk drives and the PC motherboard. To address the need, the Serial ATA working group was formed. It includes APT Technologies Inc, Dell Computer Corporation, International Business Machines, Intel Corporation, Maxtor Corporation, Quantum Corporation, and Seagate Technology. These leaders in the Disk Drive and PC hardware arena chose a high speed serial link to provide a solution that not only meets today's need for high speed data transfer, but provides the ability for even higher speeds in the future.

The Serial ATA specification established a transfer medium that could handle data rates of 1.5Gbits per second, with a capability to twice double that (as the need arose) up to an eventual 6Gbits per sec. It was determined that the selected serial data path would be employed, yielding several benefits. These included:

- Less obstruction of cooling air flow.
- Higher transfer rates
- Lower signaling voltage
- Reduced pin count

The real estate intensive, wide, parallel data paths and 40 pin connectors of ATA will give way to narrow data paths and 7 pin connectors. SATA will allow for significant performance increases that would have been extremely difficult with ATA as cross talk and clock/timing issues begin to multiply with frequency and lower chip voltages make the 5V requirement of parallel ATA harder to support.

While performance is an issue so are the ribbon cables used to carry the parallel ATA signals. The physical reality of the wide ribbon cables is that they block airflow. Almost as important as the prospect of higher performance is the prospect of less restriction of airflow in the chassis: especially important as higher performance processors and chipsets generate more heat. Higher speed and cooler performance, as well as intel chipset support, guarantee SATA acceptance and success.

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Technology Description**

Initially, SATA drives will just be ATA drives with an additional chip to accomplish the parallel to serial conversions, but new drives will have native SATA circuitry to maintain price parity with existing ATA disk drives for the PC. The goal was to have all drives with SATA connectivity by 2005. That reality has been a little slower coming, but should be realized in early 2006.

The signals are carried along differential paths, one pair in each direction. In the connector, the differential pairs are separated by ground pins to minimize crosstalk.

SATA offers the following:

- Reduced voltage requirements (500mv peak to peak)
- Lower pin count and thin cables (increased air flow and less motherboard real estate for data paths.
- One meter cable length
- Improved robustness

The performance of SATA is specified at 1.5Gbits/sec, which translates into about 150Mbytes/sec: representing only a marginal boost over the existing Ultra ATA running at 133Mbytes/sec. The SATA rate will double with SATA II to 3Gbits/sec with plans to ultimately go to 6Gbits/sec. SATA uses the same software drivers as ATA eliminating the need for changes to the operating system. Intel chipsets are available to interface the SATA drives to the processor. The 915 and 925 series chipsets each provide 4 channels of 1.5 Gbps SATA support and an ATA 100 channel. The latest 945 and 955 chipsets come with 4 channels of 3.0 Gbps SATA and 1 parallel ATA port.

**Connector Implications**

As earlier stated, the signal connector is a 7 pin, blade on beam technology connector. The mating cable can be as long as 1 meter, twice as long as ATA. This allows the OEM more flexibility in the layout of the motherboard. SATA also specifies a "combo connector" which attaches to the disk device. It is made up of two sections, one mates to the 7 pin serial data connector, while the second mates to a 15 pin power connector. Two cables provide connection from the drive to the motherboard.

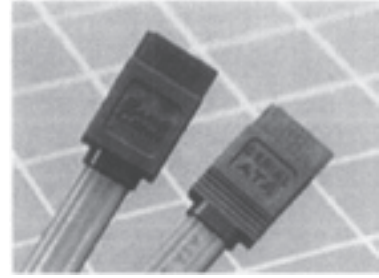
SATA drive systems have already begun to replace ATA drive systems; and along with that come the replacement of ATA connectors and ribbon cables with SATA connector and cables. The transition will be quick, as Intel has already begun to supply chipsets with SATA native support. The seven pin blade on beam signal connector is sourced by numerous companies including Molex, FCI, Foxconn, RapidConn, Aska, Comax, and others. The SATA connector supplier list continues to grow as the technology gains traction.

There are many different mounting options such as SMT or through hole. In addition, there will be vertical and right angle versions as well as reversed versions. Backplane and docking connectors will be available for direct attach of disk drives in Laptops and storage systems when required.

A very thin cable terminated with the signal plug mates with the signal connector. This cable assembly provides one of the biggest advantages of SATA over the parallel ATA: that being that it does not block the airflow through the chassis.

**12. EXECUTIVE SUMMARY OF THE INDEPENDENT MARKET RESEARCH REPORT (Cont'd)****Conclusions And Market Outlook**

Initially, the application of SATA will be in the PC space; however the move to SATA will be across the board to all systems that presently use ATA drives. In the PC, the initial offerings in 2003 and 2004 had two SATA connectors for hard drive interconnect. This has been followed by two more SATA ports for the ATAPI (optical) drives. This application alone will generate a need for almost a half billion connectors per year. The adoption and application of Serial ATA technology creates a large market opportunity for component manufacturers in electronic equipment markets such as PCs, servers, workstations, game consoles, set top boxes, etc., as well as storage systems, and storage back up systems.

**SATA Cable Connector**

The market for SATA was originally forecast at \$339 Million Dollars in 2004, however the market was slow to develop in terms of applications, and the actual market was less than \$200 million. As a result, there was a surplus of parts, both connectors and cables. The original target cost for cable assemblies was expected to be less than a dollar and then falling to less than half that over the next couple of years. Price erosion (historically present in the PC industry) has already begun to seriously affect the market, with some cables being offered at \$0.25. The ability of those cables to operate at the next increment of speed has been questioned, but improvements in the cable at a reduced cost are making that less of an issue. New applications in the consumer and enterprise storage arenas should help to offset unit prices and keep the market at approximately \$300 million dollars through 2008.