

A background image showing a bundle of fiber optic cables with light reflecting off them, creating a bokeh effect of bright orange and yellow spots.

OPTIC CONNECTORS CHALLENGING COPPER IN I/O APPLICATIONS

Telecom And Computing Markets

Bishop & Associates has just released a new 14 chapter research report exploring the technology of both electrical and optic communication links, and compares the relative advantages and disadvantages of each in I/O applications. Connector sales data is provided for the years 2006, 2007, 2012 forecast, and five-year CAGRs.

Copper cables have historically been the primary media that allowed electronic systems to communicate. Copper cabling systems have evolved over the years to enable increasing bandwidth as system speeds increased. Cable constructions including coaxial, and shielded twisted pair along with advanced signaling devices have pushed the performance capabilities of copper Input / output cables to multigigabit speeds. Prediction of copper bandwidth limitations has consistently proven inaccurate as designers find ways to enable copper links to satisfy their performance requirements. Copper cable assemblies are an established technology that permits easy repair in the field using common tools. A variety of industry standards define copper interfaces that enable equipment connectivity, an essential feature of many of today's electronic products.

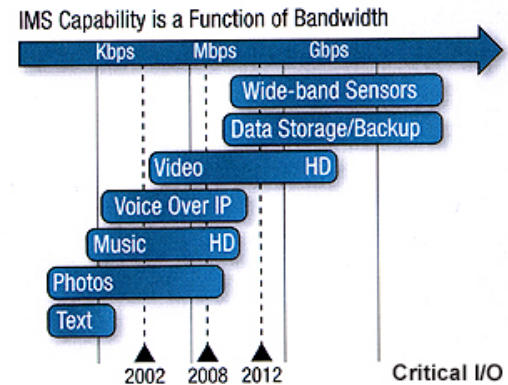


The elements of optic communication technology have been developing over a long period of time, but the ability to fabricate optic links became practical in the 1960's. Copper cables have been in a continuous process of evolving to higher speed performance, while fiber was born with bandwidth capability far beyond the limitations of copper. Glass fiber was quickly adopted as the media of choice for long distance communication links that spanned the earth. Low cost, high bandwidth optic cables have enabled global telecom and Internet communications that have reshaped the world. In addition to exceptional bandwidth, fiber links offers excellent signal integrity, electrical isolation, noise immunity and the ability to transmit over long distances without the need for amplifiers or repeaters.

A primary impediment to the implementation of fiber is the fact that signals produced by electronic equipment must be converted to optic pulses before they can be transmitted over fiber cables. This has been an expensive process that could only be justified in long distance applications. Improvements in the performance of optic cables together with the introduction of lower cost electro-optic conversion devices have allowed fiber to become competitive in shorter reach applications.

Market demand for higher speed links is putting pressure on copper cables that must incorporate more exotic features to keep pace. Increasing data rates can limit the effective length of copper cable assemblies opening the door to optic alternatives. System designers now have the option of choosing optic or copper media in many I/O applications of less than 10 meters.

The report is organized into 14 chapters plus a glossary of terms and definitions.



Some of the issues addressed include:

- What technical and economic factors may be changing the copper vs. fiber I/O selection process?
- What are the primary applications for high-speed communication links in current telecom and computing equipment? How may these change in the next five years?
- What signal loss and distortion factors influence the performance of high-speed copper and fiber optic links?
- What are the factors that make pluggable small form-factor modules an attractive option?
- How do formal and defacto industry standards influence the copper vs. fiber link decision?
- How do the manufacturing and repair processes of copper and fiber optic cables compare?
- What are the fastest growing markets for high-speed I/O cables?
- At what distance and data rate do fiber links become a more practical choice over copper?
- Are “active fiber cable assemblies” a long-term solution to bandwidth and cable bulk problems?
- Where do small form factor pluggable interfaces offer the best alternative to solutions in high-speed I/O applications?
- What are the market values of high-speed copper and fiber optic connectors and cable assemblies by region of the world?
- What are the dollar and percent growth forecasts for high-speed copper and fiber optic connectors and cable assemblies through 2012?
- What emerging technologies now in development may allow fiber to become the preferred media for the majority of high-speed I/O communication?
- Will the cost of advanced high-speed copper cables tip the advantage to fiber optic links?
- Will 10 Gb/s Ethernet drive a movement toward greater use of fiber optic links?

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Optic Interface Manufacturers
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