



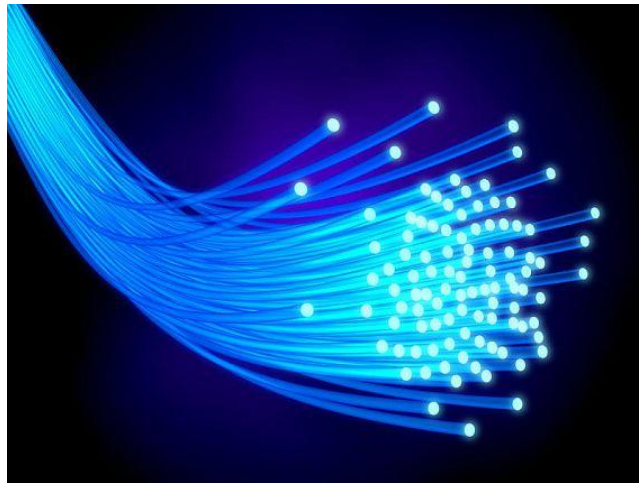
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Aerospace engineers opt for optical Technologies

[By Courtney Howard](#)

Executive Editor

PHOENIX, 19 Jan. 2015. Aerospace and defense applications are increasingly going to optical implementations. “It’s a mature technology that has been used on a lot of programs,” explains Rodger Hosking, vice president and cofounder of Pentek in Upper Saddle River, N.J.



More and more information is being squeezed through small bandwidth, which requires greater processing power; faster sensors, data converters, and digital signal processors (DSPs); and faster links between embedded system elements, Hosking explains.

According to Hosking, the “nuts and bolts” of an optical link include:

- Light emitters (LEDs, lasers, VCSELs)
- Multimode and single-mode fiber cables
- Light detectors (PIN diode, avalanche photo diode)

Moreover, modulation schemes include: AM, FM, and Digital (highest performance).

Optical interfaces have security advantages over copper; it is more difficult to eavesdrop with optical cable, Hosking clarifies. Optical cable is smaller in diameter, lower in weight, less expensive, and can be pulled with more force making it easier to install than copper cable.

Optical links are faster than copper for critical high-bandwidth board-to-board interconnects within a chassis, Hosking continues.

Optical links are replacing copper in embedded systems.

VITA 17.1 Serial Front Panel Data Port (sFPDP) replaces older VITA 17 FPDP 32-bit parallel flat ribbon cable specification. It offers a simple, efficient raw data link, Hosking says.

Optical offers lower maintenance costs, and improved reliability.

Lightweight optical cables benefit unmanned vehicle systems, also known as drones, UAS, and UAVs. Moreover, remote optically connected sensor subsystems make sense, Hosking concludes.

<http://www.intelligent-aerospace.com/articles/2015/01/aerospace-engineers-opt-for-optical-technologies.html>