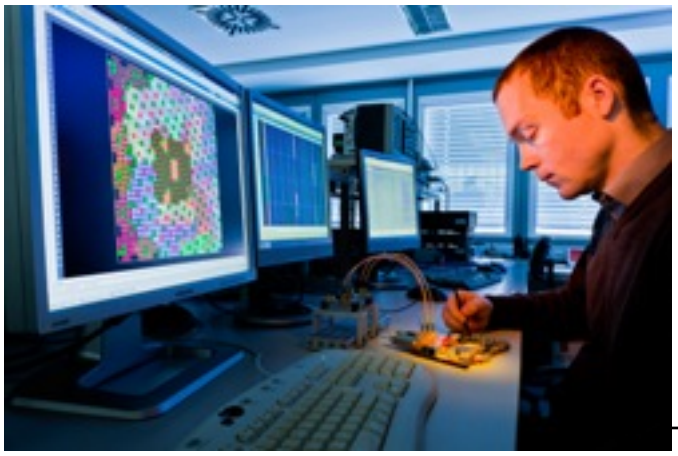
Fraunhofer IPMS Opens the Door to Wireless Gigabit-Class Communication



Today’s devices almost always use RF-based solutions such as WLAN or Bluetooth to communicate wirelessly. Those solutions support up to some hundred Mbit/s data rate. Currently, that is no longer sufficient for many applications and large file transfers. With this in mind, Fraunhofer Institute for Photonic Microsystems (IPMS), Dresden, has developed an optical wireless communication (OWC) link with up to 3 Gbit/s data rate. This can be used for docking solutions or to replace cable connections such as USB or Gigabit Ethernet.

Fixed or portable devices in consumer, industrial or medical areas as well as in logistics produce and manage large amounts of data like multi-media, full HD videos or enterprise-based information. Those data are transferred or synchronized with base stations, servers or kiosks by cables mostly. Cable connections such as USB or Gigabit Ethernet provide high data rates up to the gigabit range, but users have to deal with annoying cables and reliability issues regarding high frequency RF-based connectors as well.

Additionally, today’s wireless RF-based solutions like WLAN or Bluetooth only support insufficient low gross data rates up to 600 Mbit/s. “That is not enough” said chief developer Frank Deicke from Fraunhofer IPMS. “Resulting net data rates of 20-50% are too slow for many multi-media data links. Additionally this data rate is shared by many users and reduces final speed.”

To meet the growing need of simple to use and wireless gigabit-class communication, the Fraunhofer IPMS revealed an optical wireless multi-gigabit communication module. It supports 512 Mbit/s and 1 Gbit/s Giga-IR compliant communication and can be tuned up to 3 Gbit/s. It uses eye-safe infrared light and provides half, as well as full duplex mode with double the overall data rate. It is highly energy-efficient and provides high net data rates for safe, secure, yet fast data transfers.

The new optical wireless multi-gigabit communication module as well as integrated hardware and software IP solutions provide a product development platform. It can be applied, for example, as stand-alone controller, protocol-bridge or in multi-media system-on-chips (SoC). This can be deployed in a wide range of applications in consumer, medical and industrial areas. People can jump on a new experience utilizing docking and beaming scenarios with portable devices such as smartphones, tablets, cameras, notebooks and many more. Users can stream full HD videos more rapidly, synchronize mass data, use kiosk applications, or even do wireless cable replacement for USB, Gigabit Ethernet, board-to-board or backplane communications.

For more information please visit www.ipms.fraunhofer.de [1].

Posted by Ron M. Seidel, Editorial Intern

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