



Telecoms Daily | 22 September 2009

Straight Talk provides you with daily analysis and opinion from Ovum's global team of analysts.

- [Photonic integration makes its way to FTTx](#)

Access the [Telecoms Knowledge Center](#).

We actively encourage feedback from our customers, so if you have any comments or questions then please contact us at straighttalk@ovum.com.

Photonic integration makes its way to FTTx

By Lynn Hutcheson and Daryl Inniss

OneChip Photonics has announced EPON transceivers that are based on monolithic photonic integrated circuits (PICs) in indium phosphide (InP). These are the first fully integrated optical access transceivers on the market. The market may finally see the promise of low cost for a high-volume product that this technology promises. OneChip's design includes using lasers and receivers that support longer-distance transmission and larger splits than those currently used. These components have yet to be evaluated by subsystem vendors, so we will have to wait to see whether the hype is justified.

Promise of lower cost and higher performance

Monolithic integration is the path to low cost and high volume in optics. The access market has always been sensitive to price, so targeting it with low-cost technology is a sound strategy. Furthermore, this product promises better performance at a lower cost than the incumbent technology.

However, keep in mind that there have been a number of companies that have tried to develop similar products but to date there have been no successful stories of integration for a high-volume, low-cost product in telecoms.

So what is so special about OneChip's approach to photonic integration? Its approach fully integrates all the active and passive functions required for an optical transceiver on a single indium phosphide chip. There is no active alignment required due to its proprietary automated alignment technique on a silicon optical bench. Higher yields

and a smaller footprint result in a lower-cost product. With its single-chip process it is able to integrate higher-performance lasers, which mean longer reach, higher split ratios and higher bit rates. Additionally, OneChip claims its pre-amplified detector design is a higher gain-bandwidth solution than the conventional avalanche photodiode.

OneChip's products address both the OLT and ONU subsystems with a single fiber data link. The OLT transceiver consists of a 1490nm continuous mode transmitter and a 1310nm burst-mode receiver. The ONU transceiver consists of a 1310nm burst-mode transmitter and a 1490nm continuous mode receiver. They can be operated at 1.25Gbps or 2.5Gbps in both the downstream and upstream direction.

It's a good story but we need to see the proof

Before we get too excited, there still are some gates that OneChip has to go through – samples, qualification, and production. OneChip has excited a number of its potential customers with the promise these PICs hold, and will be providing samples to its customers in the fourth quarter of this year. China will be its first area of focus, which makes a lot of sense as OneChip's first product supports EPON and China has a very aggressive FTTP deployment strategy which has primarily been EPON to date. This puts Huawei, ZTE and FiberHome as potentially its first customers.

The cost of deployment is far more expensive than the cost of the transceivers. It is not clear whether a significant reduction in just the transceivers will have a large impact on facilitating larger-scale FTTx deployment. There is a significant cost associated with installing the passives, which is somewhere around 50% of the total cost to connect a home. Yet cost reduction is always a good thing as it will improve someone's bottom line. It definitely works for OneChip.

This technology also promises performance enhancement with longer-reach PONs, which could facilitate FTTx deployment in those applications that require longer distances (e.g. for rural areas).

Can OneChip be successful in this tough competitive market?

OneChip is not putting all its eggs in one basket. It is looking at other market segments, which should drive costs even lower. One such area might be those applications having ultra-short (yet high-speed) optical interconnection data links such as chip-to-chip or board-to-board communication, where size and power consumption are extremely important. Since this is Ethernet technology, we know it works and the standards are well established.

[Back to top](#)

This message was sent to:

[Unsubscribe](#) | [Update your profile](#)