

# StratiPHY™ IP-Bonded VDSL2

## Silicon Intellectual Property Platform



### KEY BENEFITS

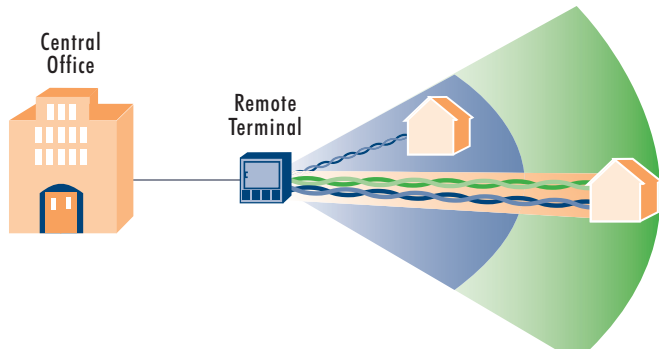
- Uses existing copper network to double the VDSL2 bandwidth to residential customers
- Expands IPTV service area without the cost of extending fiber network
- Supported by off-the-shelf VDSL2 chipsets and DSLAM solutions
- Capable of supporting VDSL2 connections of varying capacities
- Based on ITU G.998.2 G.bond standards

### StratiPHY™ IP-Bonded VDSL2

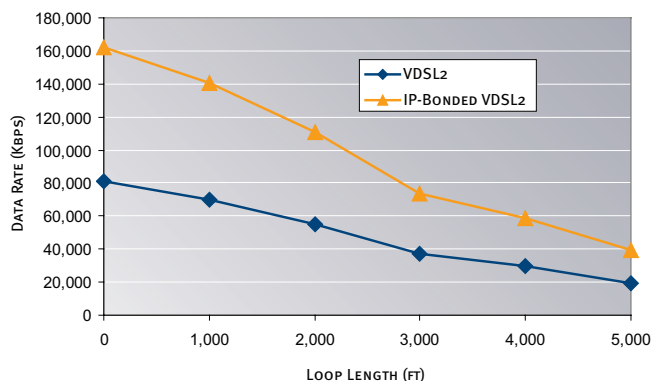
Aware's StratiPHY™ IP-Bonded Platform is compliant to the G.998.2 G.bond standard and based on Internet Protocol or Ethernet pair-bonding. This new product provides access equipment providers with a revolutionary approach to electronically bond two VDSL2 links into a single, aggregated connection. As a result, service providers can dramatically increase the bandwidth delivered to residential customers, substantially increasing triple-play service area.

IP-Bonded VDSL2 is well suited for customers served by fiber-to-the-node (FTTN) networks. By enlisting an existing second unused copper pair connected to each home, IP-Bonded VDSL2 will enable delivery of up to 40 Mbps as far as 5,000 feet from the fiber-fed remote terminal -- a 40% increase over the current 3,000 foot limit. As a result, service providers can expand the service area footprint for triple-play voice, multi-channel IPTV HD and Internet services. As with all DSL connections, achievable rate/reach will depend on the quality and gauge of the phone line, as well as possible disturbers that can impede data rates.

### IP-Bonded VDSL2 expands IPTV service area from 3 to 5KF



**IP-BONDED VDSL2**  
Downstream Data Rate  
Profile 12a, 26 AWG, White Noise



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VDSL2 IP pair-bonding does not require any additional equipment in the DSLAM because bonding can be supported at the VDSL2 chip level or on the DSLAM line card controller. Delivery of VDSL2 IP bonding requires assigning two DSLAM ports to a customer and deploying an IP-Bonded-capable gateway or set-top box to terminate the two copper pairs. The in-home networking will not change.

## Aware StratiPHY IP-Bonded VDSL2 Reference Model

Aware's StratiPHY IP-Bonded Platform requires the addition of a bonding layer between the VDSL2 and Ethernet layers and is responsible for packet flow control, segmenting, and reassembly of packets. For a pair-bonding VDSL2 application, the IP bonding logic accepts a single aggregate Ethernet stream from the Ethernet layer. The IP bonding software distributes and tags the fragmented packets with the proper identification to allow recovery of packet sequencing at the receiver. Each packet is then mapped to a different DSL connection. At the CPE, the packets from each DSL connection are recombined in the correct order to recreate the original Ethernet cell stream. The bonding management functional block is used to setup and remove a bonding group, as well as manage the bonding group's operation.

Aware's StratiPHY IP-Bonded intellectual property offering contains all the requisite technology for semiconductor suppliers to rapidly integrate standard-compliant G.998.2 customer premises solutions. The Aware IP bonded reference design platform contains two StratiPHY3™ field-proven ICs and a bonding programmable logic device (FPGA). The network processor bonding management C-language software and control can easily be ported to a third-party processor.

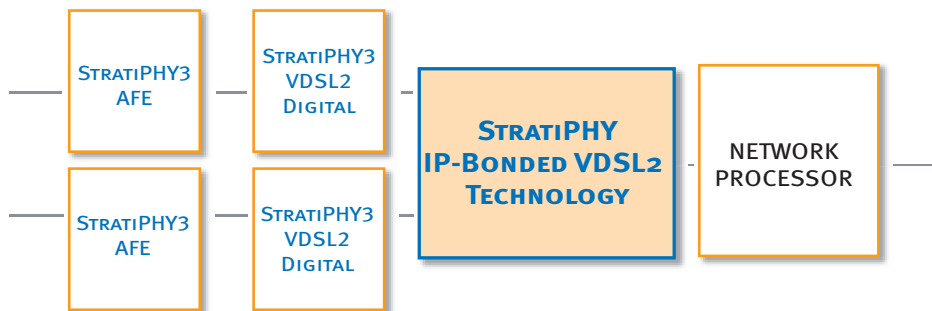
## StratiPHY ATM-Bonded ADSL2+

Aware also offers an ADSL2+ ATM-Bonded intellectual property solutions which is compliant to the ITU G.998.1 G.bond standard. The StratiPHY ATM-Bonded solution integrates two StratiPHY2+™ field-proven ADSL/ADSL2+ CPE cores and ATM bonding and management software into a single monolithic device. The StratiPHY ATM-Bonded solution contains the industry-leading performance and interoperability of the proven StratiPHY2+ core.

## Aware IP-Bonded VDSL2 Reference Model

IP-Bonded VDSL2 Reference Model supports the following features:

- IP-based pair-bonding as defined in the ITU G.998.2 and IEEE 802.3 Clause 61 specifications
- Disparate VDSL2 data rates among its pairs
- Implements bonded pass-through mode to operate as a single VDSL2 physical layer connection
- Interoperable with VDSL2 field-deployed DSLAMs and CPEs



Aware StratiPHY IP-Bonded VDSL2 Reference Model



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