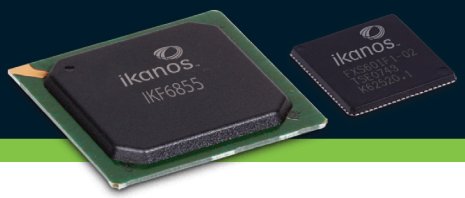
PRODUCT BRIEF

Fusiv®

Vx185/IFE-7

G.Vector Capable Communications Processor Chipset for Single Line and Bonded Multi-mode VDSL2/ADSL2+ Residential Gateways



Target Applications

- A/VDSL2 Residential Voice and Wireless Gateways
- A/VDSL2 SoHo/SME Gateways
- A/VDSL2 + Gigabit Ethernet Storage/NAS Devices
- A/VDSL2 Bonded Bridge and Gateways

Features

- Wire-speed packet processing
- Integrated A/VDSL2 datapump
- A/VDSL2 bonding support (up to 17a)
- Single front end design for ADSL, ADSL2, ADSL2+, and VDSL2 (including 30a)
- Advanced power management
- Integrated dedicated voice processing engine
- Accelerator Processors to offload packet processing
- Integrated SATA interface
- 2 x RGMII/GMII/MII/RMII
- 2 x PCIe interface for concurrent, dual-band 802.11n (2.4 GHz + 5.0 GHz)
- 2 x USB 2.0 high speed host
- DDR2 controller
- Flexible flash interface – integrated NAND flash controller, parallel flash, and high speed serial flash

Software

- FusivWare™ advanced Linux-based software
- xDSL gateway drivers
- Full-chain voice processing
- Network device management
- IP middleware
- IPSec VPN

Ikanos' Fusiv® Vx185 is a next-generation convergence device that leverages the advancements from the previous Fusiv family, while adding more processing power and critical interfaces to form the foundation for next-generation residential gateways.

An advanced, multimode A/VDSL2 communication processor, the Vx185 provides leading edge processing power, VoIP, multi-mode DSL, wire-speed performance and a hardware security block, while supporting carrier class quality of service (QoS) and VoIP. Ikanos' Vx185 supports all flavors of single line and bonded DSL, including ADSL, ADSL2, ADSL2+, and VDSL2, and further enhances IPTV and triple-play networks by offering features such as retransmission (G.INP), dynamic rate repartitioning (DRR), and seamless rate adaptation (SRA).

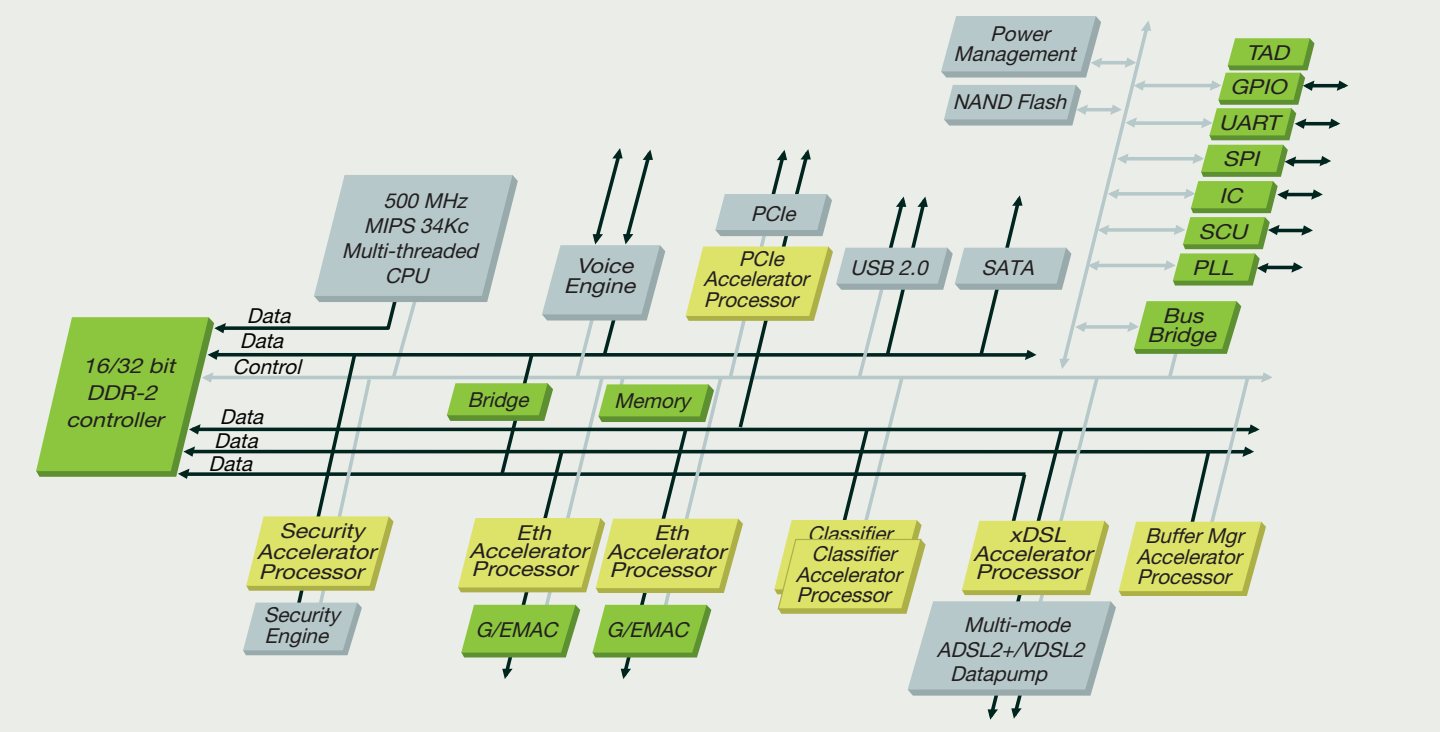
The Vx185 integrates cost-effective support for bonding (ITU-T G.998.1 and G.998.2) by natively interfacing directly to two integrated analog front-end devices. This built-in support is designed to allow service providers to extend the reach of their advanced broadband services by coupling two pair of copper wires together. Bonding can also be used to increase the data rate over shorter distances. Together, bonding and vectoring can be combined to push aggregate data rates up to 300Mbps.

The Vx185 supports a rich set of interfaces that easily integrates with home networking technologies such as Gigabit Ethernet, 802.11n, MoCA™, HomePNA™, HomePlug®, ZigBee, Z-Wave, and G.hn. A SATA interface enables Network Attached Storage (NAS) without compromising performance. Also integrated is a dedicated DSP engine to deliver full-chain deployment-proven VoIP.

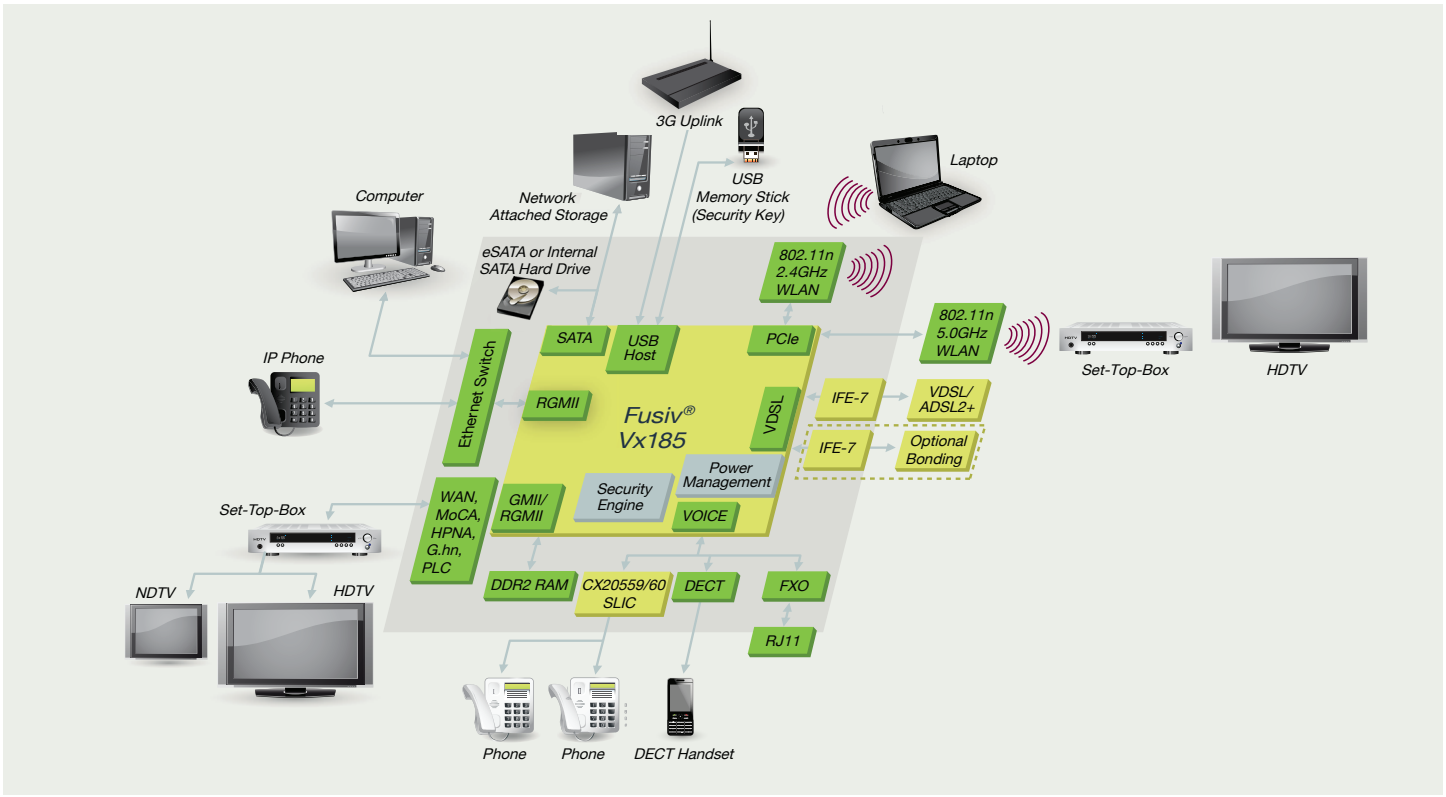
By employing industry-standard G.Vector (ITU-T G.993.5), the Vx185 is designed to enable telecommunications service providers to deploy 100 megabit-per-second (Mbps) service over traditional copper lines at 1/10th the cost of fiber. The Vx185 adds to Ikanos' NodeScale Vectoring architecture, which spans the central office, remote cabinets in fiber to the node (FTTN) networks, and now the customer premises.

Ikanos provides a comprehensive suite of Vx185 software that includes operating system independent drivers for Ethernet, xDSL, and integrated peripherals. FusivWare™, Ikanos' Linux-based software, includes a networking stack, voice processing, and network management functions which enable system vendors to quickly design residential gateways.

Fusiv Vx185 – System Architecture



Fusiv Vx185-based Residential Gateway



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Key Features

- Highly integrated Communications Processor leveraging the field-proven Fusiv architecture
- Dedicated voice processing engine (DSP subsystem) capable of handling 4 voice channels
- Enhanced Accelerator Processors running up to 500 MHz for data path processing
  - Accelerator Processors are programmable engines providing flexibility to support new packet handling requirements at wire-speed performance
  - PCI Express Accelerator Processor for WLAN host-based processing offload
- Industry-leading DSL solution providing true xDSL convergence
  - Supports all VDSL2 profiles: 8 MHz through 30 MHz
  - Full industry-standard G.Vector Compliant (ITU-T G.993.5)
  - Supports 17 MHz VDSL2 Bonding (ITU-T G.998.2)
  - Supports all ADSL standards and Annexes: ADSL 1/2/2+, Annexes A, B, I, J, M, and L
  - Single Integrated Front End (IFE) design for all ADSL and VDSL modes
  - Meets Broadband Forum performance requirements (TR-67, TR-100, and WT-114)
  - Erasure decoding
- Interfaces:
  - Two RGMII/GMII/MII/RMII
  - Two PCI Express v1.1 lanes
  - One Serial ATA (SATA)/eSATA
  - Two Integrated Front End (IFE) interfaces for implementing bonding
  - Two USB 2.0 HS/FS/LS hosts with UTMI-PHY
  - Two asynchronous serial UART ports
  - Serial peripheral interface (SPI)
  - Two SPORT (TDM) interfaces for the VoIP DSP subsystem connecting to FXS, FXO, or DECT port
- Dynamic power management, enabling support for:
  - European Code of Conduct compliancy through 2011 and beyond
  - Home Gateway Initiative (HGI) energy efficiency requirements
- On-chip DDR2 controller for 16/32-bit DDR2 up to 400 MHz
- On-chip asynchronous memory controller for asynchronous RAM, FLASH, and external devices
  - NAND controller
  - Serial Flash controller
- Integrated SATA interface
  - Provides high-speed connectivity to HDD
  - Support for eSATA for external Storage/ NAS options
- 32 kB local buffer and table memory for up to 128 flow rules storage
- Multiple on-chip buses to exploit the full bandwidth of the 400 MHz 16/32-bit DDR2 memory
- IEEE 1149.1-compliant JTAG interface
- General purpose timers
- Software features:
  - Software drivers such as Linux board support package and voice framework
  - Fast Path API (Application Programming Interface) for increased packet performance
  - Network software for TCP/IP, routing protocols, and network management
  - IP services/QoS software for QoS/ bandwidth management and firewall applications
  - DLNA Media Server and UPnP
  - VoIP software for voice compression, echo cancellation, CNG, PLC, DTMF detection and generation, call progress tone generation, FSK caller ID generation, country-specific tones, and fax pass through
  - Security modules such as VPN, IPSEC, SSL, etc.
  - ATM WAN processing module

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