Eagle™ ADSL CPE Series

Complete 2-Chip UTOPIA, PCI or USB ADSL CPE Solutions

The Eagle CPE offers ADI customers the flexibility of an ATM UTOPIA, PCI or USB interface with the added advantage of a fully integrated driver/receiver AFE.

ADI OFFERS THE INDUSTRY'S FIRST 2-CHIP ADSL CPE SOLUTION WITH INTEGRATED DRIVER/RECEIVER AFE

The Eagle CPE is a highly integrated Customer Premise Equipment chipset that performs all physical layer functions needed to implement standards-compliant Category 1 and Category 2 Asymmetric Digital Subscriber Line (ADSL) modems. The analog IC integrates several passive and active components, a line driver and AFE to reduce the number of components. The digital IC integrates a DSP, DMT coprocessor, framer, and interleave RAM. The programmable DMT engine performs QAM or Trellis encoding/decoding, symmetric 512-point FFT/IFFT processing, echo cancellation, time/frequency-domain equalization, and transmit/filtering. The FFT/IFFT bin assignments are completely programmable to support ADSL over ISDN (Annex B and C). The framer provides ATM TC sublayer processing, standard and reduced overhead ADSL framing, and FEC with interleaving. Dual latency and multi-frame code words are supported. Software-based modem control and configuration allows for considerable flexibility in configuration and management. The chip supports very low-power standby and D3 cold ADSL remote wake-up through an on-board circuit to detect central office (CO) transmitted wake-up tones. On-chip digital timing recovery eliminates the need for a VCXO and allows Eagle to run from a single 12 MHz external crystal.

FEATURES

- Compliant with G.992.1 (Annex A, B and C), G.992.2, G.994.1, T1.413 Issue 2, ETSI TR328
- Data rates up to 12 MB/s downstream and 1024 Kb/s upstream
- Flexible DMT bin assignment and enhanced upstream rate for symmetric (DMT) services
- Category 2 modem functions, Trellis coding, echo cancellation, and dual latency with programmable priority
- Supports DSP IDMA boot (no external FLASH memory or SRAM required)
- Digital Timing Recovery (eliminates need for VCXO)
- ATM AAL0/5 hardware, AAL 1/2 software, HDLC engine and frame relay
- D3 Cold ADSL remote wakeup (G.hs, PCI power management 1.1 and USB power management compliant)
- 176-pin TQFP/LQFP (Digital) and 52-pin TQFP/LQFP (Analog)
- 3.3V, 5V tolerant I/O and 2.5V core power supply; 1.8W total power dissipation
- Fully compliant bus-powered USB supports hot plug-n-play
- NDIS 5.0 device drivers for Microsoft® family and Linux® OS, supporting IP over ATM, IP/PPP over HDLC, PPP over ATM, PPP over Ethernet, Ethernet Bridge, CBR, VBR, ABR, UBR as per UNI 3.1, ATM Forum Traffic Management 4.1

ANALOG DEVICES

There are three versions of the digital IC: UTOPIA, PCI, and USB.

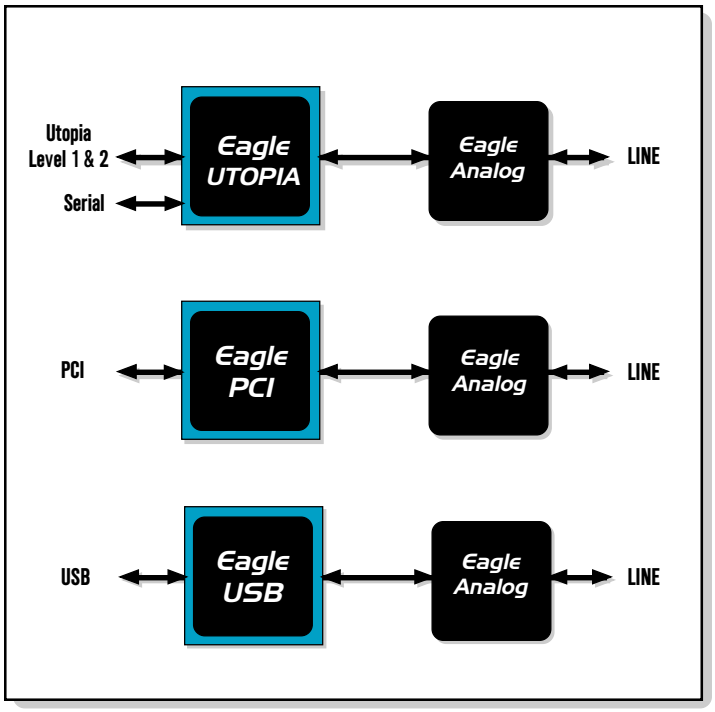
- **ATM UTOPIA** integrates both an ATM UTOPIA-1/2 port for cell-based protocols and a serial port for packet-based protocols such as HDLC. A parallel (IDMA) port enables the DSP to be interfaced to a system host processor or other management entity for booting, program downloads, and monitoring.

- **PCI** integrates a PC2001-compliant 32-bit 33 MHz PCI 2.2 controller, HDLC framer, highly optimized DMA for ATM/HDLC protocols, ATM Cell Delineation block, and SAR. The Master- and Target-capable PCI 2.2 interface includes an EEPROM interface for PCI and MAC Address configuration.

- **USB** integrates a USB 1.1/CDC 1.1-compliant full-speed USB controller, serial interface engine (SIE), and an enhanced (four clocks per instruction cycle) 8051 micro-controller with DMA capability. The SIE supports isochronous, bulk, interrupt and control USB transfer types. The USB device interface is software configurable with convenient firmware upgrades through the USB bus. An EEPROM interface is available to set USB configuration.

The high-performance analog IC integrates a complete analog front-end (AFE) ADC/DAC with an ADSL line driver and low-noise filters supporting digital domain echo cancellation.

Eagle CPE Series Options:



REFERENCE DESIGNS AND TECHNICAL SUPPORT

Analog Devices—the company with a legacy in high-performance DSP, analog, and mixed-signal processing—has the design expertise and in-house manufacturing processes to give your next-generation ADSL product the support and technical backing it deserves. We provide a full range of support for modem manufacturers, including a fully functional reference design complete with PC board layout, schematics, and off-the-shelf component lists.

Documentation includes detailed data sheets and application notes. Online and telephone applications assistance is available. Product demonstrations can be arranged at your facility or at one of ADI's many sales offices. Analog Devices is a semiconductor supplier with a consistent record of quality and dependable on-time delivery. We maintain full control over the manufacturing process from raw wafer to finished product and we have ample capacity for high-volume production.

FIRST TO MARKET

While other vendors scramble to develop standards-compliant ADSL solutions, Analog Devices has everything you need now, off the shelf. From full-featured DSP to analog and software. We meet the needs of today's broadband wired and wireless markets with leadership in analog, digital, mixed-signal processing, RF signal processing, data conversion, interfacing, and total system design. So if time to market & standards compliance is important to you, it's time to connect with Analog Devices.

REDUCING TOTAL COMPONENT BOM RESULTS IN LOWER PRODUCT/ MANUFACTURING COSTS

Incorporating higher integration levels and significantly reducing the analog circuitry and components required for the complete design, Eagle reduces overall system manufacturing costs while dramatically improving ease of manufacture. Setting new standards for CPE chipset density, Eagle allows for the complete solution, from UTOPIA, PCI, and USB protocol interfaces all in a 2-chip configuration.

EAGLE PCI CPE MODEM SHOWN WITH INTEGRATED DRIVER/RECEIVER AFE

ANALOG DEVICES
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