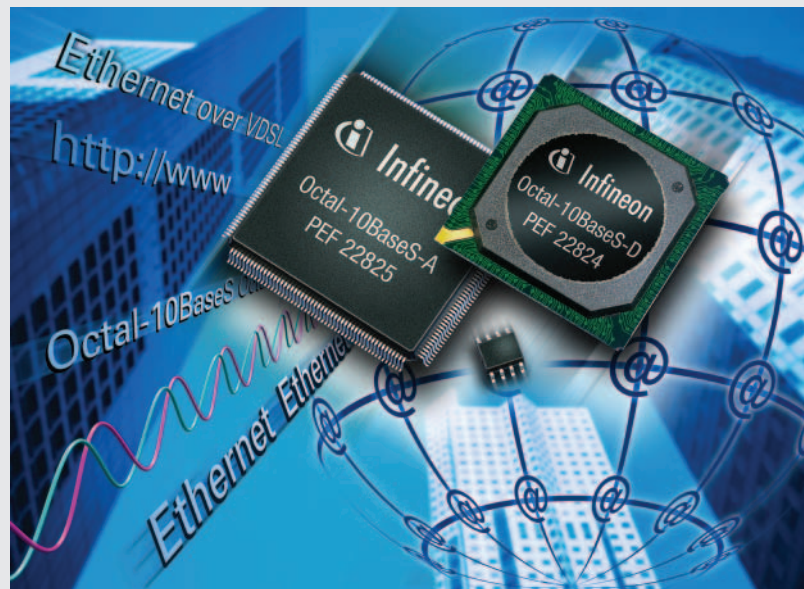Infineon's innovative Octal-10BaseS chipset is a very high density 8-port 10BaseS™ solution for the design of switches and IP-DSLAMs. The chipset combines the structural simplicity of Ethernet with the high performance of VDSL communications. It supports transmission of 10 Mbit/s, full-duplex Ethernet packets over existing copper wires for distances up to 4000 ft. (1200 m). The chipset also supports transmission of legacy communication services without disruption.

Ethernet PHY functionality is fully integrated into the Octal-10BaseS chipset for direct connectivity to standard Ethernet switching devices. Infineon's VDSL technology uses frequency duplexing and QAM modulation to ensure robust operation. Its spectral allocation allows noise-free coexistence with other xDSL technologies in the same bundle.

The Octal-10BaseS chipset is a very economical solution for distribution of broadband services in MDU/MTU markets and a most suitable solution for broadband LAN extension applications.

Applications

- Ethernet Switch and DSL Access Multiplexer (IP-DSLAM) systems
- Multiple Dwelling/Tenant Units (MDU/MTU) networking
- 10 Mbit/s or 100 Mbit/s MII configurationin full-duplex or half-duplex modes are supported
- Hospitality networking
- Multi-building campus networking
- High-speed industrial network environment
- Fiber, broadband wireless, and cable extensions over copper

Features

- A single 10BaseS chipset equipped with 8 integrated ports
- Configurable as a standard 8-port Ethernet PHY for use in switch/ IP-DSLAM applications
- RMII, SMII and SS/SMII Interfaces are compliant with IEEE 802.3 Ethernet specifications
- MII Serial Management Interface supports full access to all internal registers and control of both local and remote devices
- Internal buffering, back pressure and IEEE 802.3x flow control capabilities
- Uses Quadrature Amplitude Modulation (QAM)
- Employs Frequency Division Duplexing (FDD)
- Delivers symmetrical 10 Mbit/s payload for distances up to 4000 ft./1200 m

- Symmetrical/asymmetrical line rates from less than 1 Mbit/s to 25 Mbit/s
- Robust operation over severely noise-distorted lines
- Spectral allocation for noise-free operation with xDSL, ISDN, and "Smartphone" digital PBX devices
- Transmit Notch filter, Scrambler, Reed-Solomon Forward Error Correction (FEC) and Convolutional Interleaver with internal SRAM
- Link WatchDog combined with robust link configuration ensures link establishment
- Transmit power management
- Low power consumption: 0.85 W per port including line driver
- Power boost for extended reach
- Embedded microcontroller for stand-alone operation
- JTAG for chip level and board level testing

Octal-10BaseS
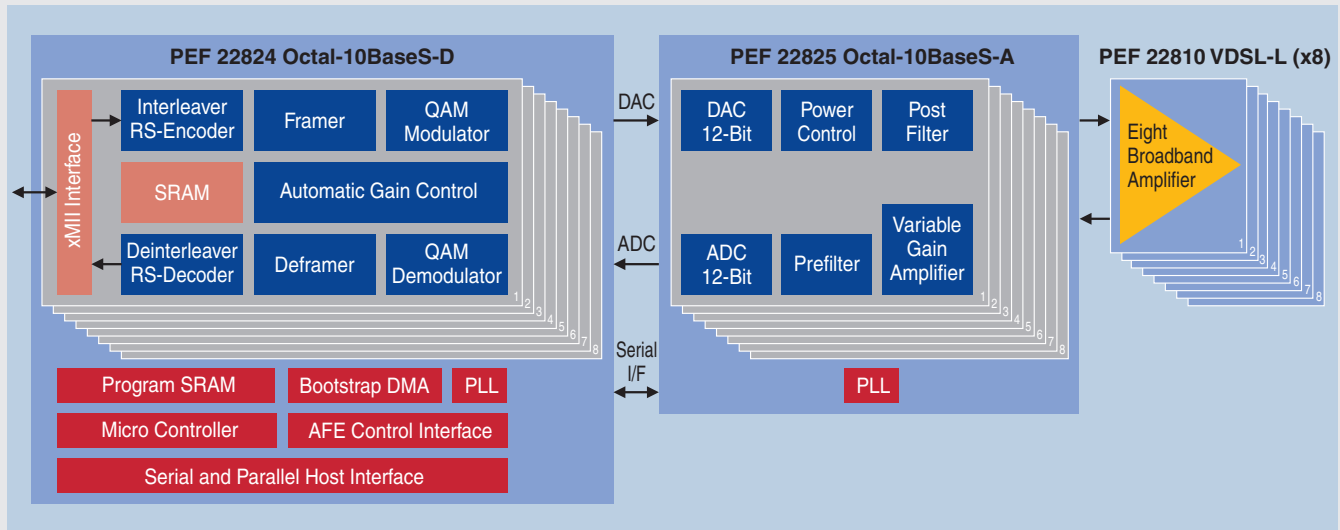
8-Port 10BaseS™ Chipset
PEF 22810 (VDSL-L)
PEF 22825 (Octal-10BaseS-A)
PEF 22824 (Octal-10BaseS-D)

Infineon
technologies

Never stop thinking.

Octal-10BaseS Chipset Block Diagram

PEF 22824 Octal-10BaseS-D

- xMII Interface
- Interleaver RS-Encoder
- Framer
- QAM Modulator
- SRAM
- Automatic Gain Control
- Deinterleaver RS-Decoder
- Deframer
- QAM Demodulator
- Program SRAM
- Bootstrap DMA
- PLL
- Micro Controller
- AFE Control Interface
- Serial and Parallel Host Interface

PEF 22825 Octal-10BaseS-A

- DAC 12-Bit
- Power Control
- Post Filter
- ADC 12-Bit
- Prefilter
- Variable Gain Amplifier
- PLL

DAC / ADC / Serial I/F

PEF 22810 VDSL-L (x8)

- Eight Broadband Amplifier

Ordering Information

Design Tools

Product Name	Sales Code	Package	Description
Octal-10BaseS Evaluation Board	10BaseS 22824	One Board	Octal-10BaseS Switch PHY Evaluation Board
10BaseS NT Evaluation Board	10BaseS 22822NT	One Board	NT 10BaseS CPE Evaluation Board

Chipset

Product Name	Sales Code	Package	Description
VDSL-L	PEF 22810 T V2.1	P-DSO-8	VDSL Line Driver (8 devices required)
Octal-10BaseS-A	PEF 22825 F V1.1	P-FQFP-208	8-Port Analog Front End (AFE)
Octal-10BaseS-D	PEF 22824 E V1.2	P-BGA-292	8-Port Digital Transceiver

10BaseS Switch/IP-DSLAM Line Card Example

Ethernet Switch — SMII or RMII — PEF 22824 Octal-10BaseS-D Digital Transceiver — Serial I/F — PEF 22825 Octal-10BaseS-A Analog Front-End — Line Driver (PEF 22810) — TX Filter / RX Filter — Hybrid + HP — LP — Source: POTS, ISDN, PBX Ports — Twisted Pair

Passive Filters for Frequency Band and POTS/ISDN Separation
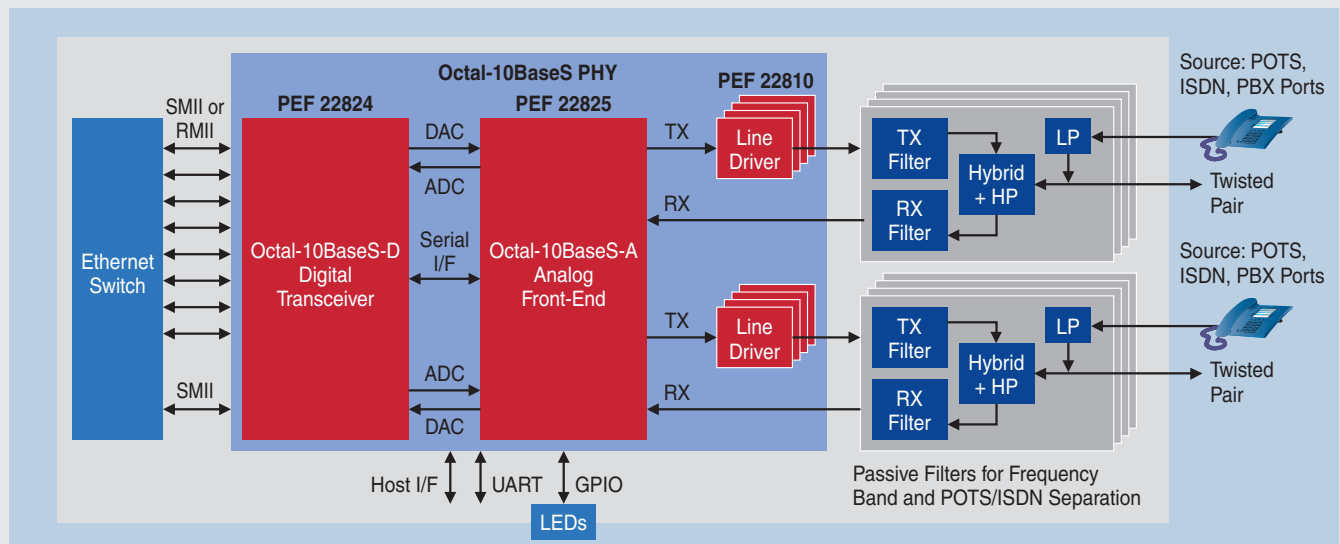
Host I/F   UART   GPIO   LEDs

Published by Infineon Technologies AG