



Universal ISDN Port Cologne Chip Technology Information



Background

In PABX scenarios, end-users struggle with the existing 2-wire cabling for their old analogue phones when upgrading to digital system phones: The popular ISDN S/T bus requires a 4-wire cabling. This problem is solved by ISDN U_p which is a standard for private ISDN communication over 2 wires by using a time-division duplex method (ping-pong). It is also known as U_{pN} or U_{p0} specification.

A Universal Transceiver for S/T and U_p

With the latest chip generation, Cologne's reliable ISDN S/T interface has become capable of the ISDN U_p standard: S/T and U_p interface have been integrated into the same transceiver. The line interface mode is selectable by software.

Cologne's "Universal ISDN Port" technology is perfectly suited for PABX applications and all other ISDN applications where both interfaces, S/T and U_p , are required.

Benefits

- ▶ one component fitting U_p and S/T applications which means less IC stocking
- ▶ high receiver sensitivity which leads to excellent signal range (exceeding the U_{pN} and U_{p0} specs)
- ▶ low power consumption due to pure digital CMOS architecture
- ▶ optional: a combined external circuitry for both interface modes – even automatic detection of the cabling type is possible for the connected terminal device
- ▶ excellent chip price

Universal
 U_p U_{p0}
ISDN Port

Products – the XHFC Series

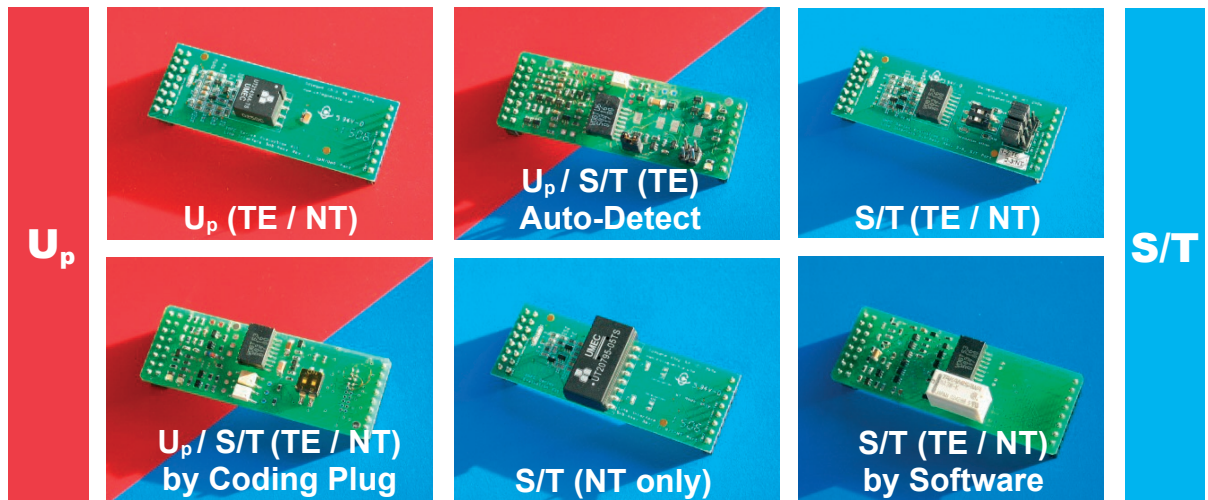
The "Universal ISDN Port" architecture is part of all new ISDN transceiver ICs of Cologne Chip. This innovative interface design has become available with Cologne Chip's "XHFC Series", a new family of cost-effective ISDN ICs for all kinds of embedded applications.

Circuitry variants

The outstanding possibilities of the „Universal ISDN Port“ technology are demonstrated within the evaluation kit of the „XHFC Series“: The modular evaluation board can be equipped with various line interface boards, either for S/T, for U_p or for a combination of both.



A total of six circuitry variants is available for the line interfaces:

**S/T (TE / NT)**

Cologne's traditional ISDN S/T interface – in an optimized version – whereby TE and NT mode as well as termination are selectable by jumpers

S/T (NT only)

An S/T interface for NT mode only, offering the benefits of a reduced BOM count

S/T (TE / NT) by Software

An S/T interface whereas TE and NT mode, termination and power feeding to the S/T bus can be configured by software through GPIO pins and electronic switches (in full compliance with the CTR3 type approval! – patent pending)

U_p (TE / NT)

Cologne's regular U_p interface for TE and NT mode (using a standard U_p transformer), offering an excellent signal reach

Based on "Universal ISDN Port" technology:**S/T / U_p by Coding Plug**

A combined circuitry for ISDN S/T and U_p (using only standard S/T transformers, even for U_p!) in which tiny coding plug PCBs are used to select the interface mode including termination and power feeding. The variant is mainly intended for line cards in PABX applications. This technology of Cologne Chip is patented.

S/T / U_p by Automatic Detection

Another combined circuitry for S/T and U_p whereas the line interface mode is detected automatically by the terminal device on the basis of a different phantom power for S/T and U_p. The circuitry was especially designed for the use in terminals, such as ISDN system phones. A patent is pending.

ISDN system phones based on the Automatic Detection variant have been already successfully introduced to the market. Products are shipping in quantities.

At CeBIT 2007, a leading German ISDN PABX manufacturer presents a new series of modular PABX systems using Cologne's Coding Plug approach for universal ISDN line cards. Thus, equipment manufacturers can greatly benefit from reducing their phone models and PABX systems to the half. And the end-users enjoy greater flexibility when moving from one office to another – they can keep their phones even on another type of cabling.

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