Cologne Chip
The ISDN Chip Company!

Combined External Circuitry for ISDN S/T and U_p Interface

UniversUp S0 ISDN Port

March 2004

Introduction

In ISDN technology there are three types of interfaces for ISDN Basic Rate Interface:

S/T Interface (S_0)

4-wired, with seperate pair of wires for transmit (TX) and receive (RX) direction

millionfold approved in the field

U_p Interface

2-wired, with ping-pong technique, depending on possible cable range divided in U_{pN} and U_{p0}

> In the following called U_p

integral part of all new Cologne Chip products

U_{k0} Interface

2-wired, with echo cancellation

not planned

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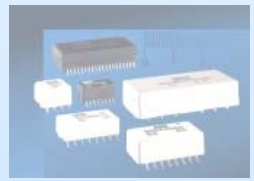
Initial Situation

At the present moment different transformer types and line interface circuitries are required for the S/T and U_p interface standards.

Especially in NT mode the power feeding has to be realized in different ways. The ISDN controller ICs on the market capable of switching between S/T and U_p require this adaption effort (e.g. DELIC / VIP).



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New from Cologne Chip: Combined Circuitry

This new Cologne Chip design makes it possible to implement a circuitry that can easily be switched between S/T and U_p configuration by using a few additional jumpers.

The design concept: For S/T and U_p only one circuitry and even the same S/T transformer modul is used. The operation mode is set by jumpers. The line interface power feeding of the different configurations for S/T and U_p in NT mode is realized through two additional jumpers.

Because of the turns ratio of 2:1 of the transformer a greater signal range is attained and in addition supply power is saved.

Patent pending

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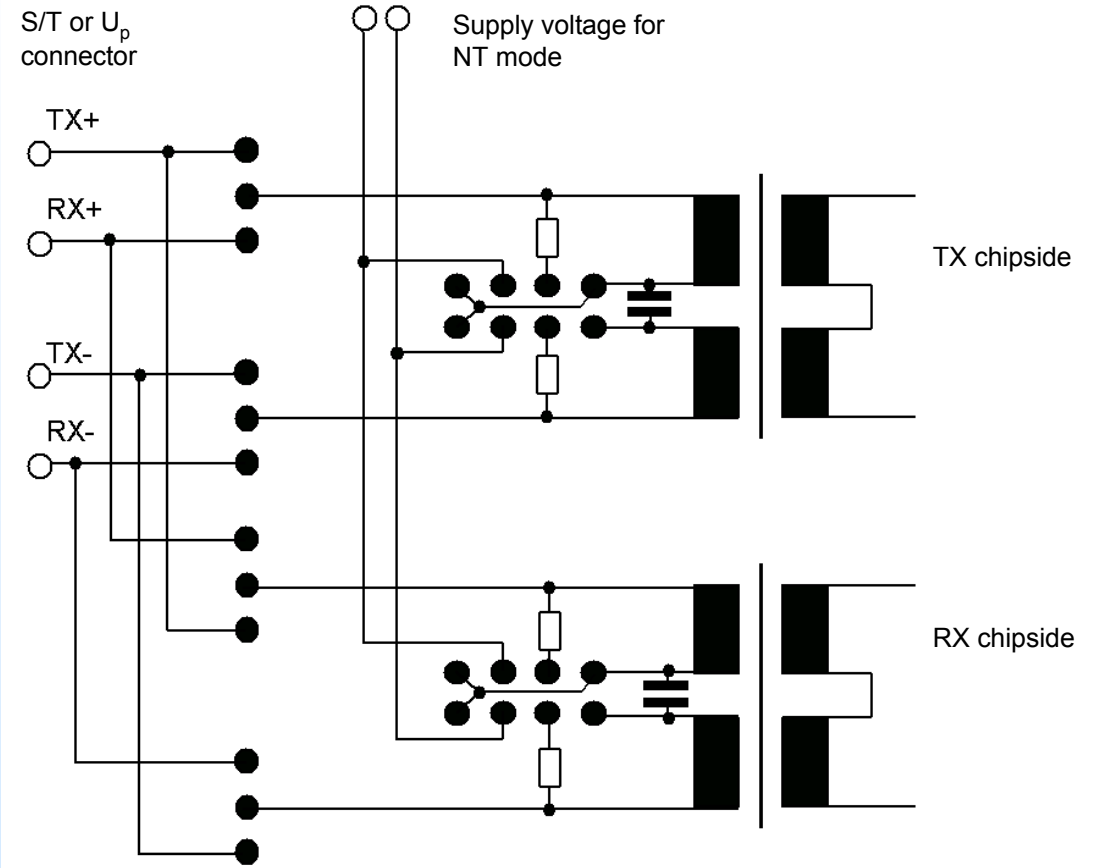
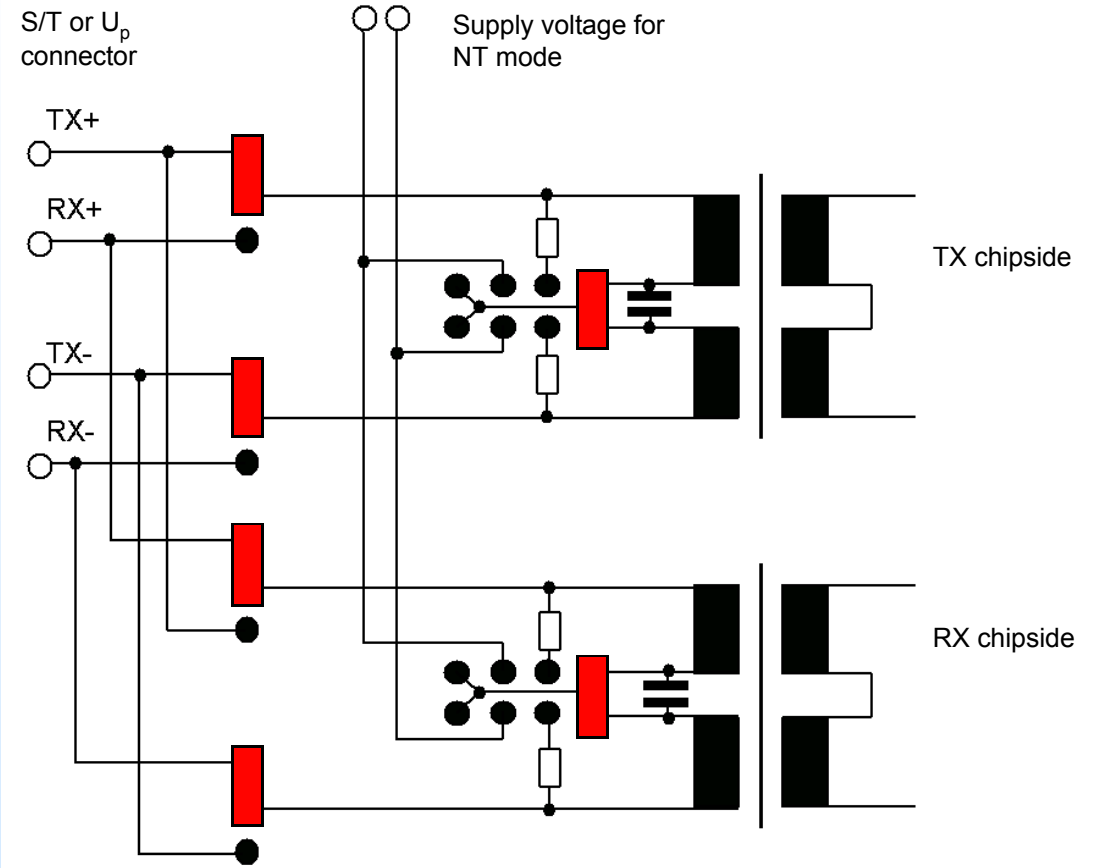
Combined Circuitry with open jumpers



Combined Circuitry for S/T in TE mode



[Configuration 1]

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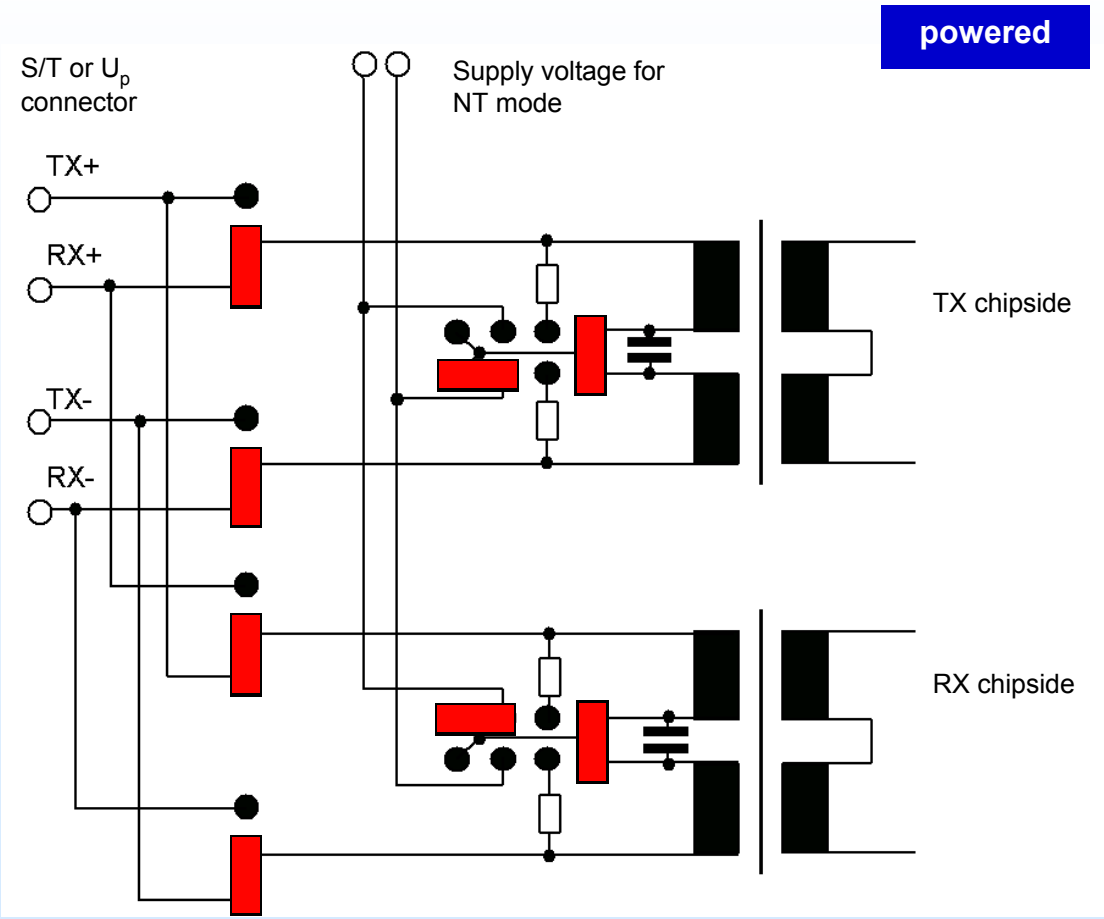
Combined Circuitry for S/T in NT mode



[Configuration 2]

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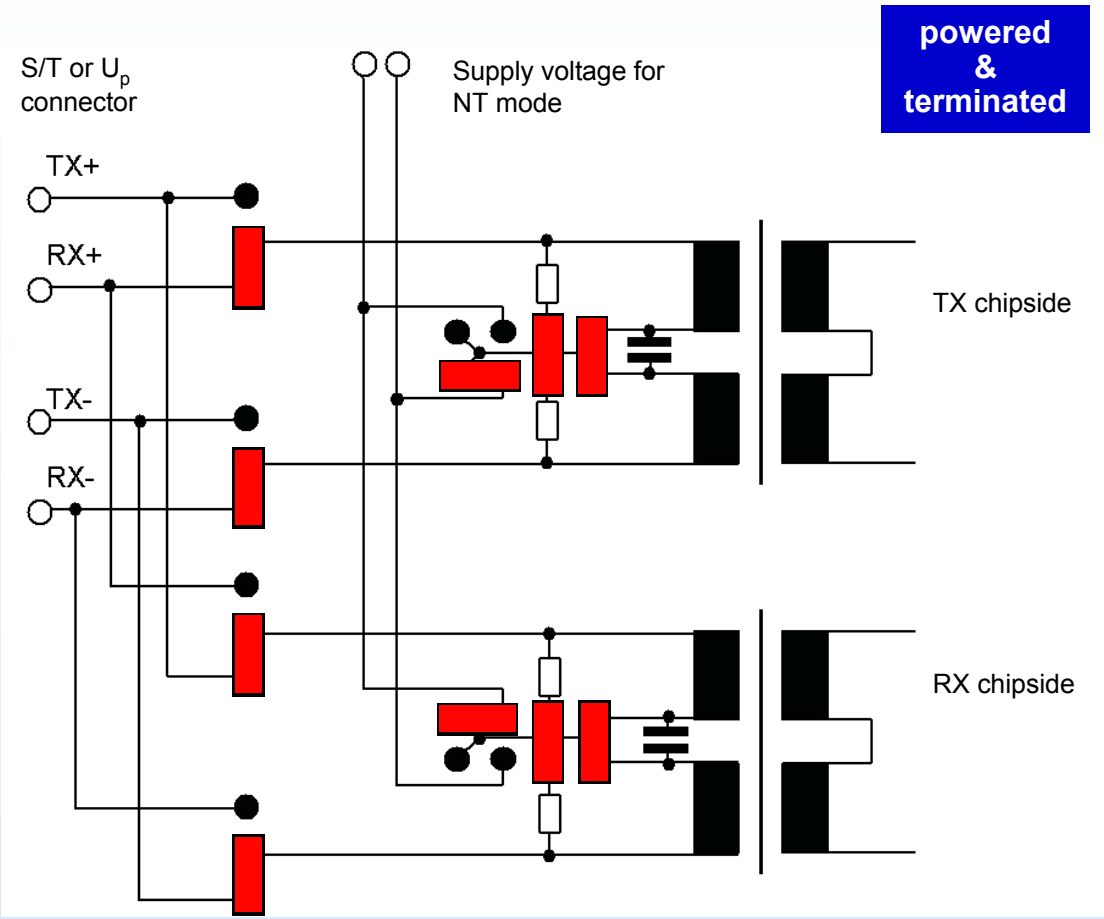
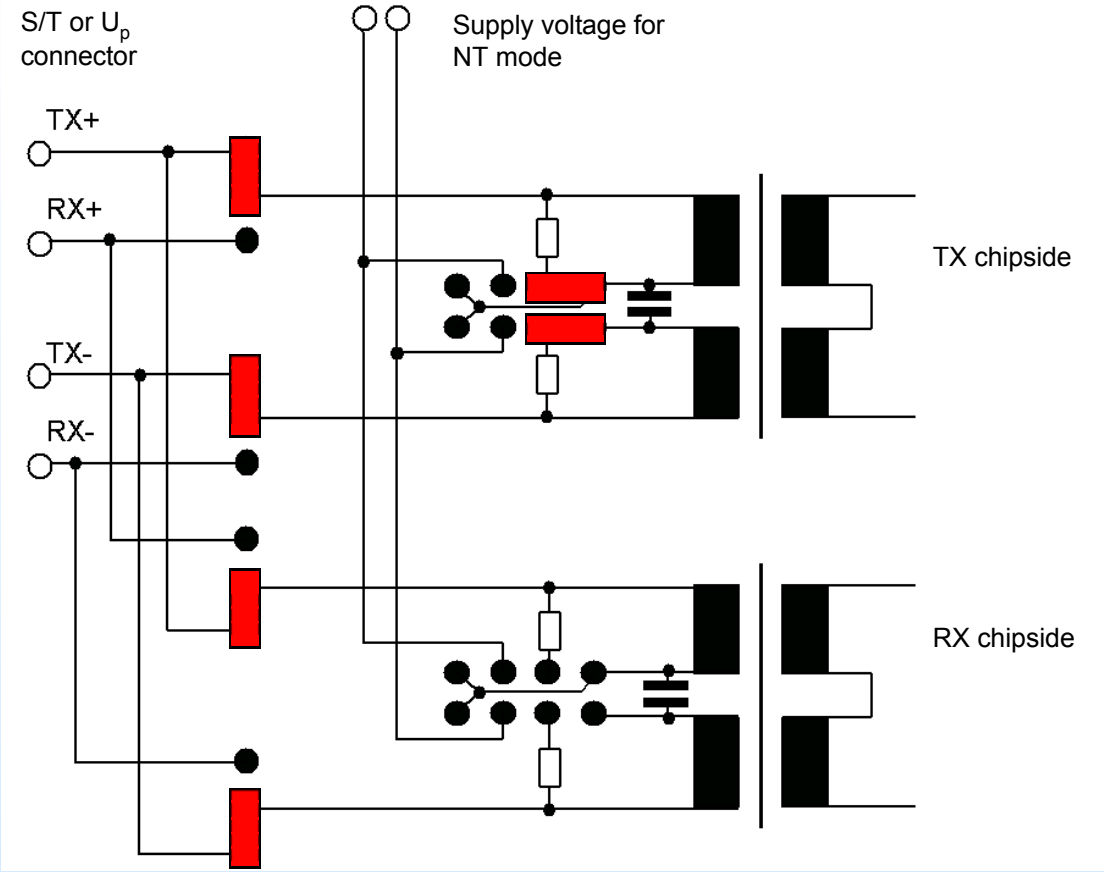
Combined Circuitry for S/T in NT mode



[Configuration 3]

Combined Circuitry for U_p in TE mode



[Configuration 4]

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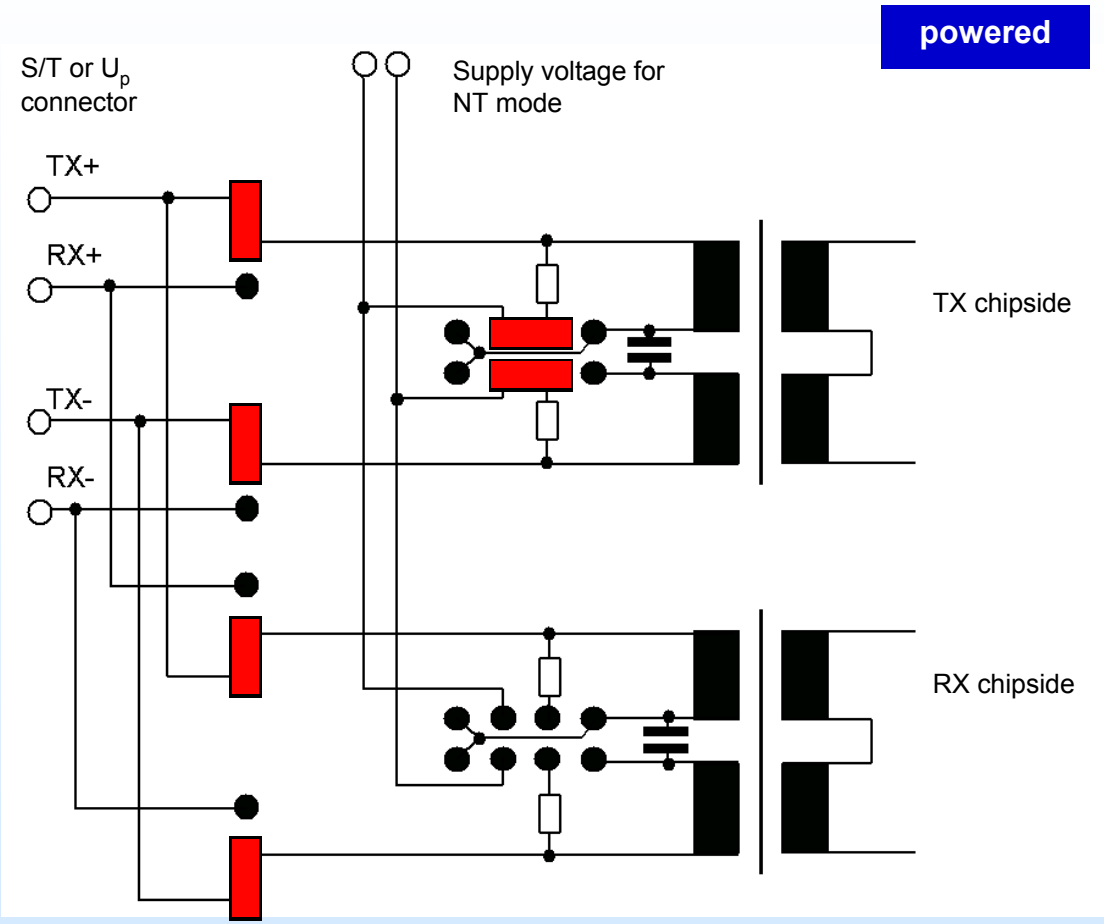
Combined Circuitry for U_p in NT mode



[Configuration 5]

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Advantages of the Cologne Technology

- ✓ Only one PCB layout for all configurations
- ✓ Same transformer modul
- ✓ No stocking of different transformers
- ✓ Only few jumpers required
- ✓ Significantly smaller power consumption for S/T interface
- ✓ Higher receiver sensitivity and hence greater signal range