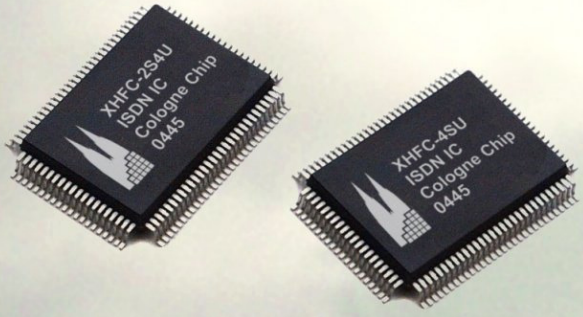
Cologne Chip

XHFC-2S4U
XHFC-4SU

Chip Replacement



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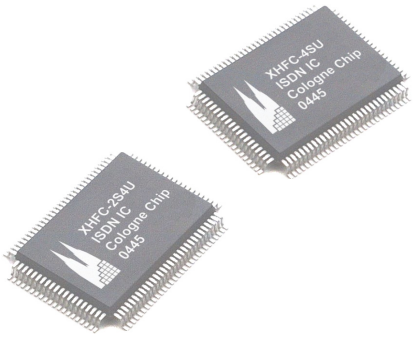

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This document describes how to substitute XHFC-2S4U in existing designs with XHFC-4SU.

Please refer to the XHFC-2S4U / XHFC-4SU datasheet 'Extended ISDN HDLC FIFO controller with multiple Universal ISDN Ports'

Basically, the only difference between the two ISDN chips is in the ISDN interfaces. While all ISDN interfaces on the XHFC-4SU are Universal ISDN Ports (numbered 0 . . 3), meaning they can be set to either S/T or U_p, the XHFC-2S4U only has two Universal ISDN Ports (numbered 0 and 1) and two additional interfaces that can only operate in U_p mode (numbered 2 and 3).

In particular, all pins have the same function and all registers are identical, with the exception that XHFC-2S4U has slightly less functionality.

If a project has previously used XHFC-2S4U and the printed circuit board is now to be equipped with XHFC-4SU, the existing printed circuit board can continue to be used unchanged.

Regardless of the chip replacement, it should be noted once again that for all not used S/T interfaces

- the level adjustment pins `ADJ_0 ..ADJ_3` should be left open and
- the `VDD_SU0 ..VDD_SU3` pins should be connected to `VDD`.

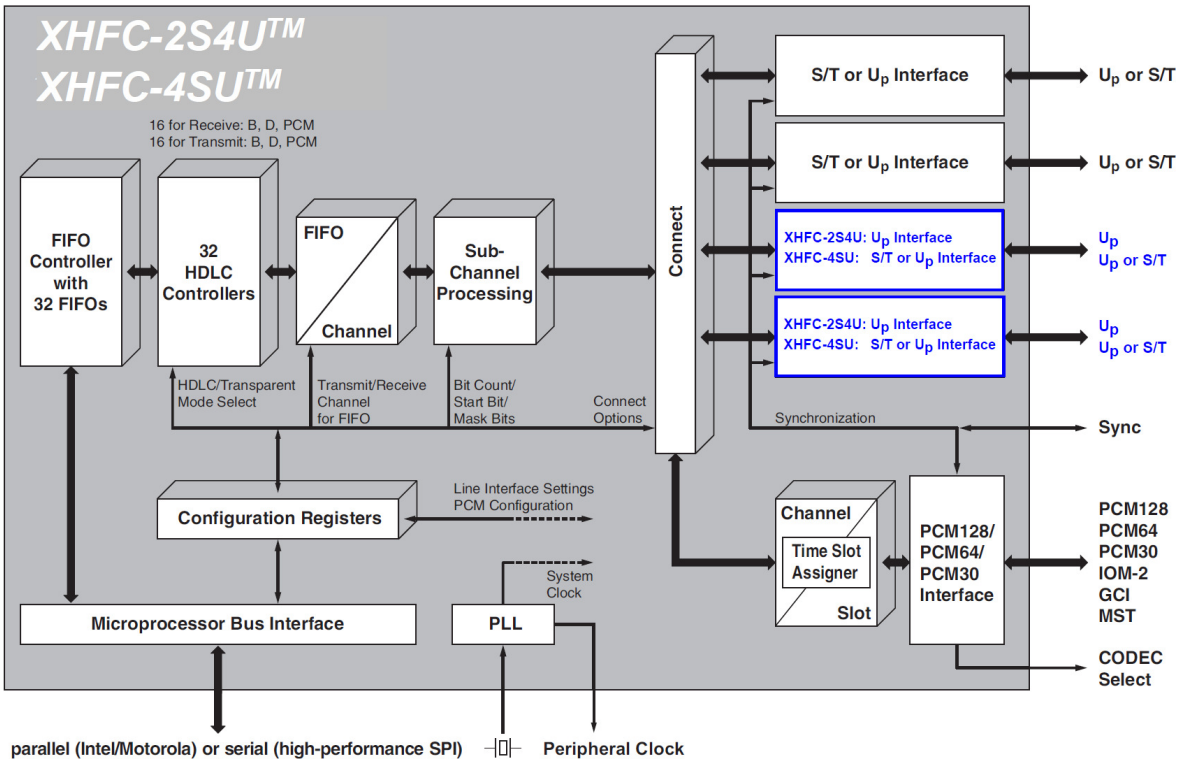


Figure 1: *Differences between XHFC-2S4U and XHFC-4SU (marked in blue)*

Table 1: *Chip identification codes of the XHFC series*

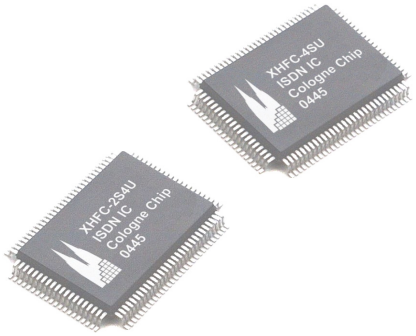
ISDN chip	Chip ID (hexadecimal)	Chip ID (binary)
XHFC-1SU	0x60	0b0110 0000
XHFC-2SU	0x61	0b0110 0001
XHFC-2S4U	0x62	0b0110 0010
XHFC-4SU	0x63	0b0110 0011

Due to the extensive compatibility of the entire XHFC series, consisting of XHFC-1SU, XHFC-2SU, XHFC-2S4U, and XHFC-4SU, it is assumed that universal driver software is used for communication with the ISDN chips.

In this case, after replacing the XHFC-2S4U with a XHFC-4SU chip, only the chip identification code needs to be accepted in the software. For the XHFC series, the R_CHIP_ID register (address 0x16) provides the identifiers specified in Table 1. In the case of XHFC-2S4U and XHFC-4SU, as already specified in the data sheet, a comparison with the value 0b0110 001X must be performed.

Regardless of the chip replacement, it should be noted once again that unused line interfaces

- should be switched into NT mode with V_SU_MD = '1' in register A_SU_CTRL0 and
- V_SU_SYNC_NT must be in its default state '0' in register A_SU_CTRL2.



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