

The Smart Integrated Digital Echo Canceller (SIDE C) PEB 20954 is a highly sophisticated single chip solution for T1/E1 echo cancellation. It incorporates leading edge CMOS technology as well as Infineon's many years experience with Telecommunication ICs.

The SIDE C suppresses echoes in telecommunication networks which might disturb any kind of terrestrial or wireless communication.

Electrical echo in communication links may occur at hybrid splits or imperfect terminations in subscriber loops. The acoustical echo is caused by poor isolation between the microphone and speaker of some telephone systems.

For the distant subscriber these echoes disturb the quality of the transmission. Echo cancellation is extremely desirable for data links with total round trip transmission times of more than 50 ms.

To ensure high quality, pure data transmission the ITU-T (International Telecommunications Union, Telecommunication Standardization Sector) suggests in the recommendation G.131 the use of echo cancellers.



**Features**

The SIDE C electrical and acoustical echo canceller offers the following features:

- Single chip T1/E1 echo canceller for up to 32 channels
- Echo cancelling according to ITU-T G.165 and G.168
- Echo cancellation for end path delay of 63.75 ms for 32 channels
- Echo cancellation for end path delay up to 127.75 ms for 32 channels (usage of two SIDE Cs in parallel)
- Echo return loss enhancement of > 30 dB (ERLE), > 36 dB steady state
- 2.048 MHz PCM input and output interfaces with selectable  $\mu$ - and A-Law coding according to ITU-T G.711
- Selectable  $\mu$ - to A-Law or A- to  $\mu$ -Law conversion on a global or per channel basis
- Double talk detector for adaptive convergence control
- Rapid convergence at the beginning or during a connection even in the presence of background noise at the near end subscriber
- Smart non-linear processor
- Integrated Universal Control and Communication Interface (UCCI) for signaling highways with direct hardware control
- Serial 256 kbit/s interface to control the functions:
  - disable canceling
  - freeze coefficients
  - clear channel
  - disable NLP
  - PCM Law conversion control or combinations of above
- Monitor pins for several internal states
- Flexible microprocessor interface (Infineon/Intel or Motorola type, Mux and Demux mode)
- P-TQFP-144 package
- Power dissipation 700-900 mW

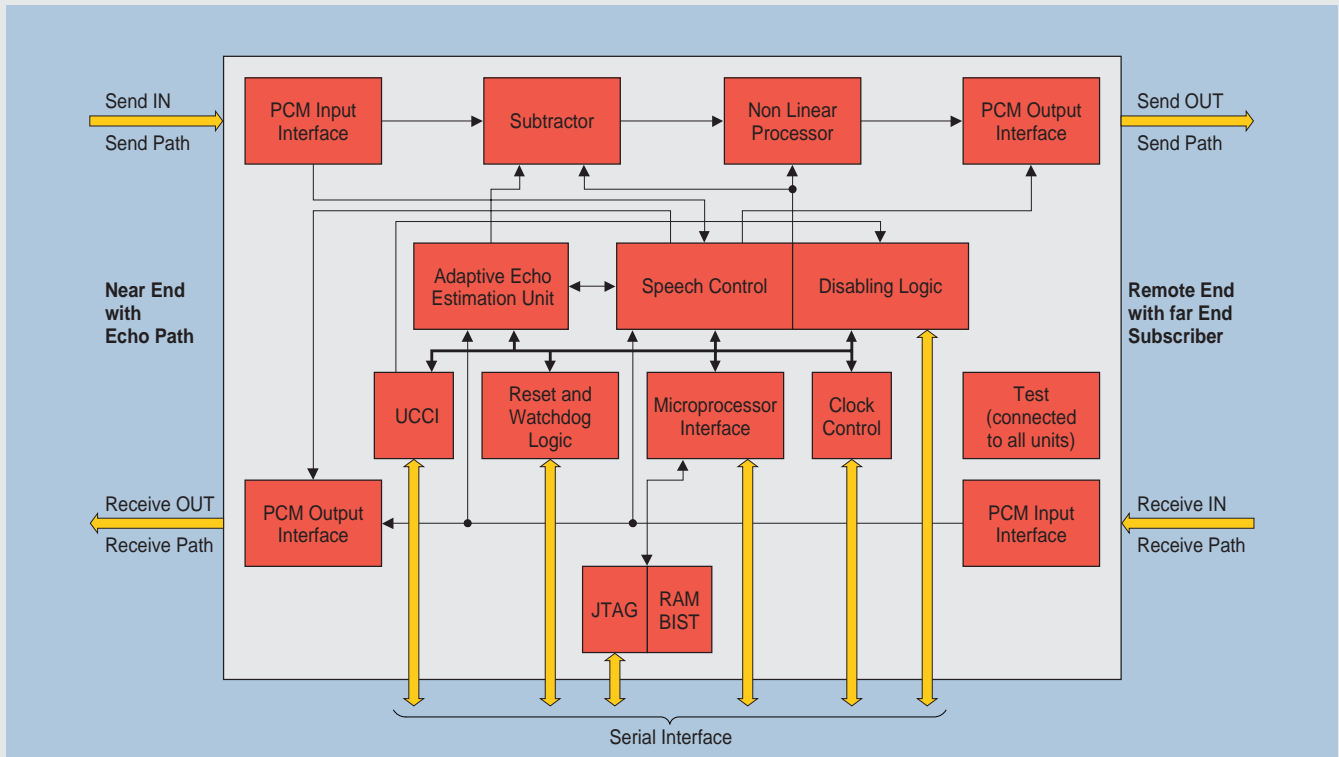
**Documentation and Support Package**

- Product Overview
- Data Sheet
- Application Notes
- EASY954 SIDE C Evaluation Board & Software

S I D E C  
 P E B 2 0 9 5 4  
 S m a r t I n t e g r a t e d D i g i t a l  
 E c h o C a n c e l l e r



# The SIDEC Integrates Different Functional Blocks on a Single Chip



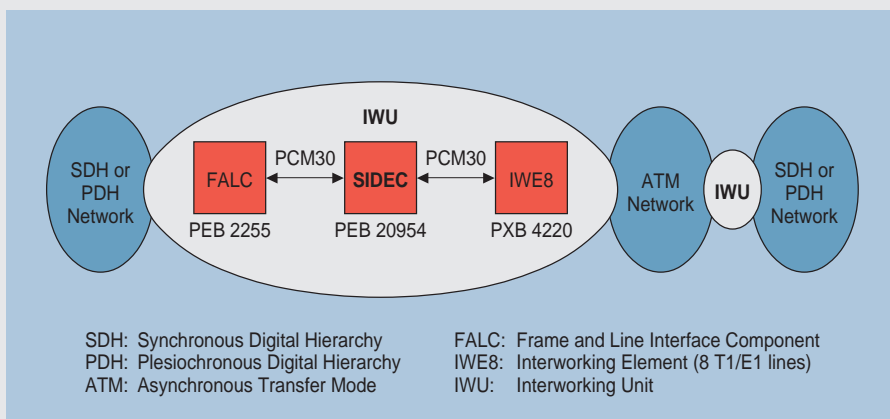
- Speech control
- Disabling logic
- Adaptive echo estimation unit
- PCM input/output interface
- Subtractor
- Non-linear processor
- Microprocessor interface
- Universal control and communication interface
- Watchdog timer
- Clock control
- JTAG and RAM BIST

## SIDEC in a Wireless Network

Due to the voice compression in wireless network the characteristic delay is more than 50 ms for speech transmission. Therefore, it is a typical application for the SIDEC.

## Availability

The SIDEC device is available with complete documentation and support package. A dedicated engineering support team is there to assist you. Please contact your local Infineon Technologies office for further details.



## Application Example: SIDEC in a Voice over ATM Application

For voice over ATM application the SIDEC works perfectly together with the FALC™54 PEB 2254 or FALC-LH PEB 2255 (Frame Aligner and Line Interface Component for T1/E1) and the IWE8 PXB 4220 (Interworking Element with 8 E1/T1 channels) as a complete solution.

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Infineon Technologies is an approved CECC manufacturer.

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