

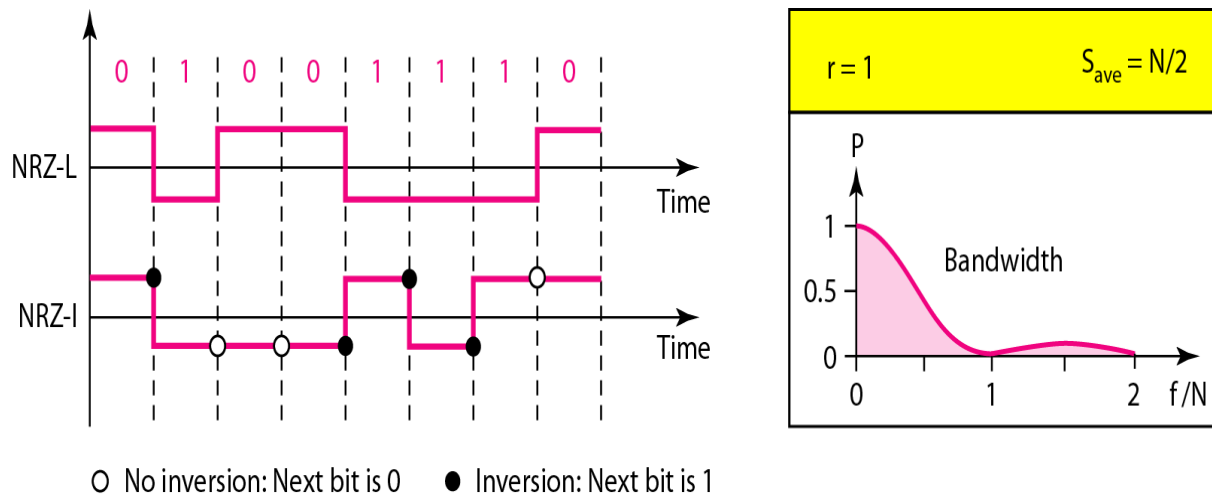
VLSI Design Contest

Introduction to Differential Manchester Line coding

Various line coding techniques are used during transmission of digital data so as to avoid baseline wandering, achieve self-synchronisation and remove DC component. Along with line coding, various block coding and scrambling techniques are used during transmission of digital data.

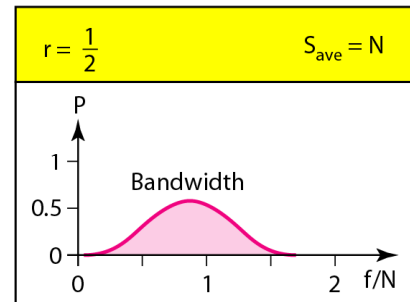
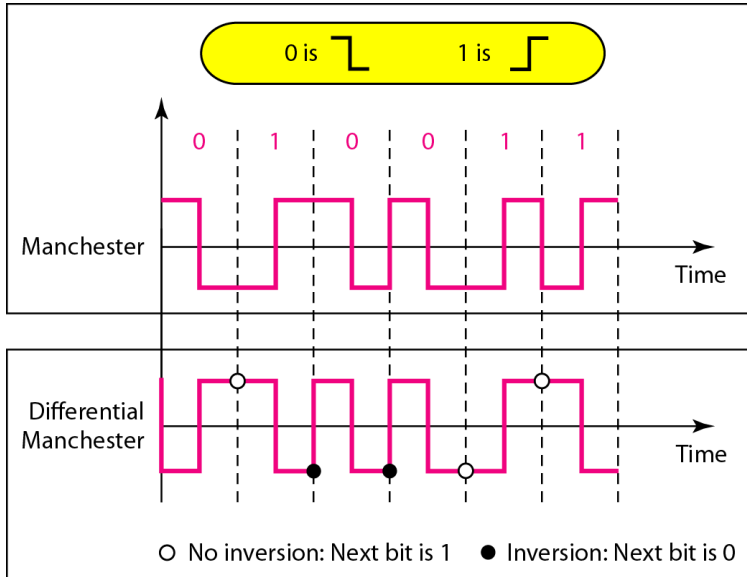
Line encoding may be done in software or hardware. Separate hardware ensures higher speed. An encoder is required at the transmitting end and a decoder at the receiving end. Since most of the communication is bi-directional, an encoder/decoder is a better choice.

NRZ-I (Non Return to Zero-Invert) is a simple line coding technique in which the inversion or lack of inversion determines the value of bit



Manchester coding is another very popular coding technique. It is used in Ethernet LAN. In Manchester encoding, each data element is represented using two signal elements. It eliminates DC component, provides good synchronisation and avoids baseline wandering.

Differential Manchester incorporates the idea of both, Manchester encoding and NRZ-I.



To read more about Line coding, Block Coding and Scrambling, please visit the following links:

http://en.wikipedia.org/wiki/Line_code

http://en.wikipedia.org/wiki/Block_code

<http://www.complextoreal.com/chapters/block.pdf>

http://en.wikipedia.org/wiki/Differential_Manchester_encoding