

# Pipelined Data Encryption / Decryption Standard

## Features

- High speed DES Encryption and Decryption core
- Compliant with FIPS PUB 46-3
- Fully pipelined
- Available for all vendors
- Easy to use interface signals
- On the fly encryption decryption changes

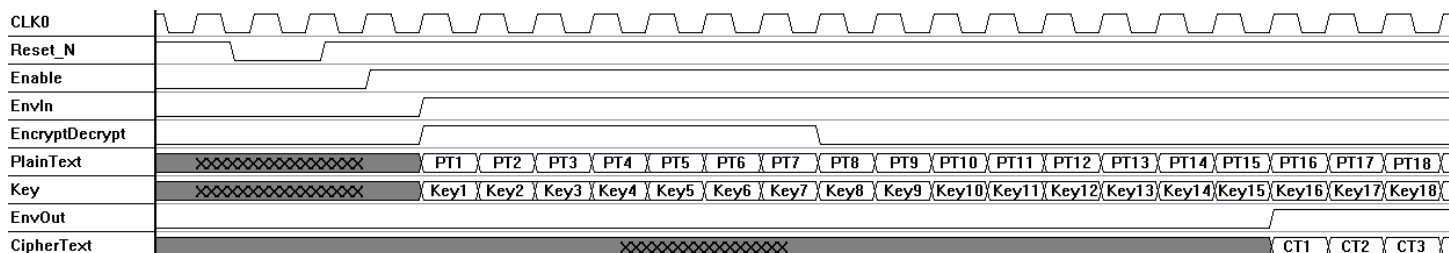
## Application

The pipelined DES core can be used to secure all communication systems, data storage, financial transactions, video, etc...

## I/O

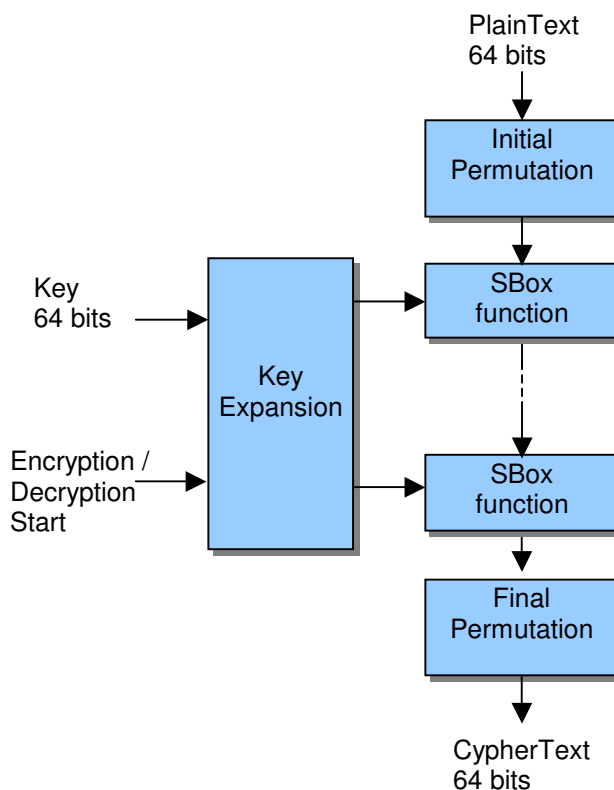
Signal	Direction	Width	Function
Clk	IN	1 bit	Input clock
Reset_n	IN	1 bit	Reset (active Low)
Enable	IN	1 bit	Enable
EnvIn	IN	1 bit	Input envelop
EncryptDecrypt	IN	1 bit	Encryption ('1') or Decryption ('0') selection
PlainText	IN	64 bits	Data to encrypt or decrypt
Key	IN	64 bits	Encryption or decryption key
CypherText	OUT	64 bits	Encrypted or decrypted data
EnvOut	OUT	1 bit	Output envelop

## Timing



## Functional description

The pipelined DES core encrypts and decrypts block words of 64 bits with the ECB (Electronic Codebook) method. The architecture is below :



## Performance characteristics

The pipelined DES occupies 2755 slices on Xilinx Virtex 2 Pro, and the synthesis frequency is 296MHz. The overall throughput is 18 Gbits/s.