

Features

- High speed DVB-T mapper
- Compliant with DVB-T standard [1]
- Fully pipelined
- Available for all vendors
- Easy to use interface signals
- Configurable output length

Application

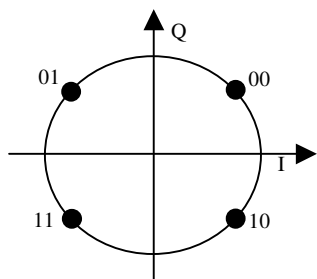
The DVB-T mapper core is compliant with the DVB-T standard [1].

Functional description

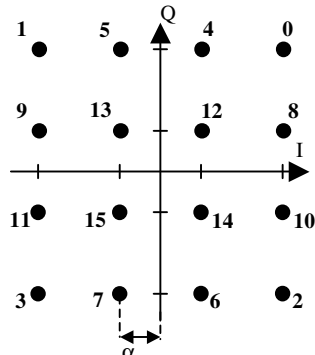
The DVB-T mapper core generates symbols coded on 2's complements. The output values are quantified between [-2;2] (due to the QAM modulations), rounded to the closest integer. QPSK maps 2 bits (the 2 LSB of LabelIn), 16APSK 4 bits (4LSB) and 64QAM 6 bits.

The module is fully pipelined which enables high rates. The mapping for each modulation is shown below :

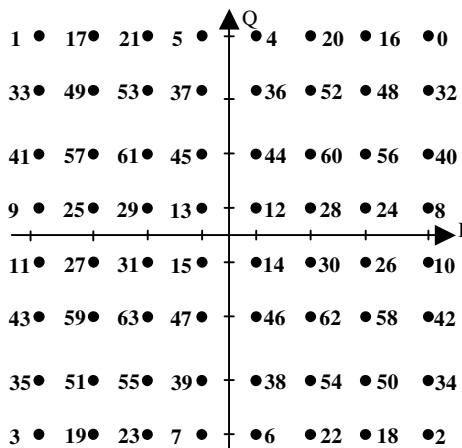
QPSK Mode:



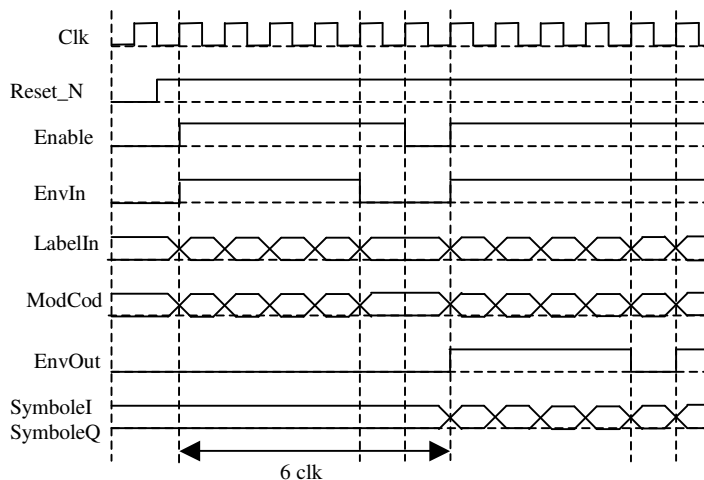
16QAM Mode:



64QAM Mode:



Timing



I/O

Signal	Direction	Width	Function
LengthOut	Generic Integer	14	Symbol size
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
Alpha	IN	2 bits	Minimum distance selection QAM
Mode	IN	2 bits	Modulation selection
LabelIn	IN	5 bits	Input bits
SymbolI	OUT	LengthOut	Symbol I
SymbolQ	OUT	LengthOut	Symbol Q
EnvOut	OUT	1 bit	Output envelop

Mode value		Alpha value	
Standard	IP	Standard	IP
QPSK	00	1	00
16-QAM	01	2	01
64-QAM	11	4	11

Performance characteristics

The DVB-T mapper occupies 126 slices on Xilinx Virtex 2, and the synthesis frequency is 235MHz.

Reference

[1] ETSI EN 300 744 V1.5.1 (2004-11)