




SOFDM-052

SINGLE CHIP MULTIMODE DVB-T Modulator PCI board

- **2K/8K, HIERARCHICAL & SFN OPERATION**
- **2K DUAL ADJACENT CHANNELS OPERATION**

COMPLIANCE

	DVB-T Standards Conformity	
	ETS EN 300 744	ver. 1.4.1 01/2001
	ETS TS 101 191	ver. 1.3.1 01/2001
	ETS EN 301 701	ver. 1.1.1 08/2000

Topics

- Single chip COFDM processing
- SW selectable operation mode
- LVDS input / clock output
- 4 ASI inputs (2xHP, 2xLP)
- 64 QAM Eye aperture: >42 dB
- Digital generated VHF output

Mode 1: BROADCASTING MODULATOR

- Native SFN Operation
- All hierarchical modes
- 6-7-8 MHz channels

Mode 2: DUAL CHANNEL

- Two adjacent DVB-T channels
- Embedded TS de-multiplexer
- 2x8 MHz channels
- 2x6MHz channels





Description

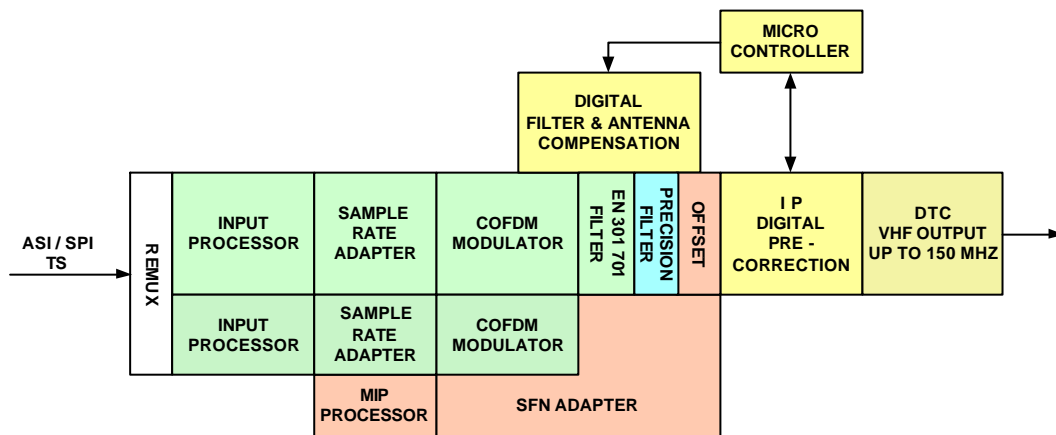
SOFDM-052 design is part of the SOFDM-xxx family of single chip DVB-T modulators design of M.B. International.

SOFDM-xxx designs started in 1999 with the SOFDM-011, the successful 2K only COFDM wireless link solution, and has now grown up including in a single chip any desirable feature for a complete top quality DVB-T modulator.

SOFDM-052 is a **multimode board**: by SW selection it can be set to operate either in full DVB-T for high end broadcasting transmission, or in dual channel mode for HDTV wireless camera links or high bit-rate telecom mobile links.

SOFDM-052 is a complete board, with a single 12 V power supply for very easy integration into any existing or new DVB-T transmitter design.

SINGLE CHIP SFN DVB-T SOLUTIONS



SOFDM-052 is a unique SFN DVB-T modulator board based on a single chip design.

It provides with the most advanced solution for high quality DVB-T transmitters.

Single chip COFDM processing ensures a very high reliability, low power consumption, and small size (Eurocard), while providing with the best available performances.

SOFDM-052 is the only solution providing with a VHF output, directly generated from the digital signal; it ensures a much simpler up-conversion and alias filtering.

Digital IP pre-correction (AM & PM) and Digital Antenna Filter pre-correction allow to pre-correct curve linearization and Intermodulation Products, getting better performances out of your amplifier chain.

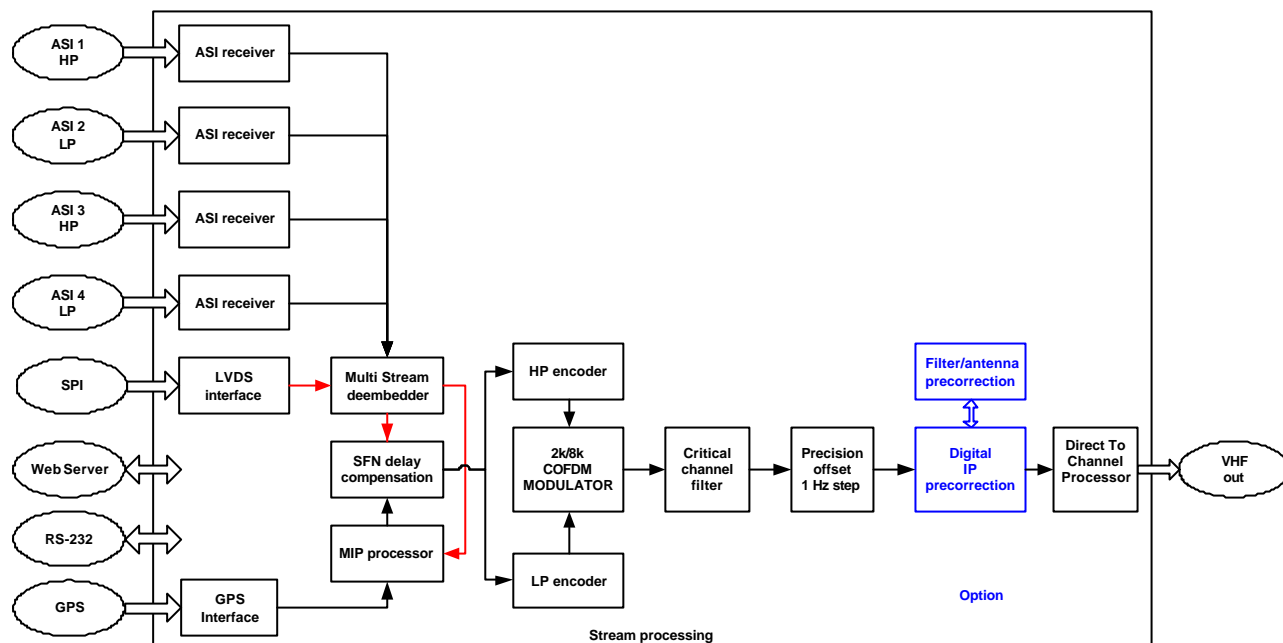
Embedded Digital precision mask filter will ease adjacent channel operation.

SOFDM-052 is a Hardware based design, with no SW loop inside; its linear processing guarantees its uninterrupted functioning also in most difficult situations.

RS-232 or I²C user interface allow easy integration into the transmitter.



SFN Block Diagram



Supported Modes:

Constellations:	QPSK, 16-QAM, 64-QAM
IFFT:	2k,8k
Code Rate:	1/2, 2/3, 3/4, 5/6,7/8
Guard Intervals:	1/4, 1/8, 1/16, 1/32
Mapping:	Uniform a=1, a=2, a=4
Hierarchical mode:	Full support
Bandwidth:	6, 7, 8 MHz

Delays

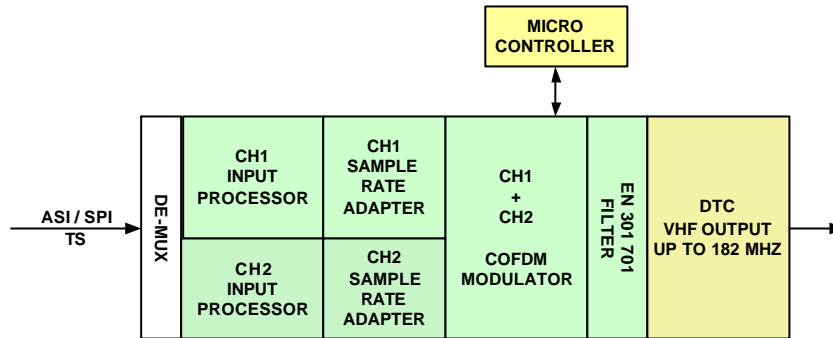
Processing Delay:	<50ms
Dynamic Delay (SFN mode):	up to 1s;
MIP evaluation	full compliant to ETSI TR 101 190

Test Modes

Internal PRBS:	refer to ETSI TR 101 291
Removal of carrier block:	50 carriers in the middle of the block



SINGLE CHIP MULTI-CHANNEL DVB-T SOLUTIONS



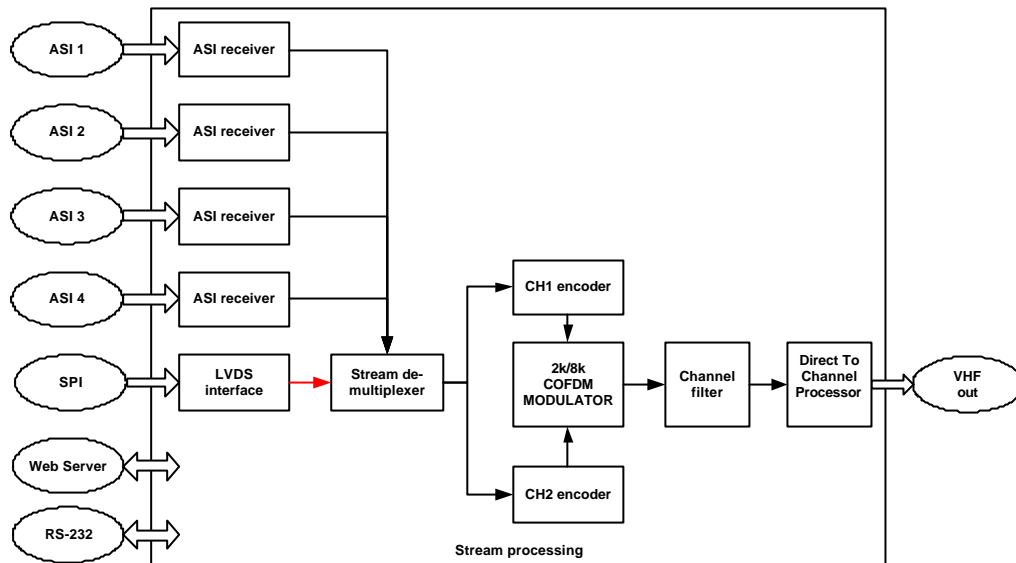
Control Interface

All settings

- RS-232 serial connection
- Web server Interface



Dual Channel Block Diagram



Supported Modes:

Constellations:	Independent on each channel: QPSK, 16-QAM, 64-QAM
IFFT:	2k
Code Rate:	Independent on each channel: 1/2, 2/3, 3/4, 5/6, 7/8
Guard Intervals:	Common to both channels: 1/4, 1/8, 1/16, 1/32
Mapping:	Uniform
Hierarchical mode:	Not supported
Bandwidth:	2x6 MHz, 2x8 MHz (Factory preset)

Control Interface

All settings

- RS-232 serial connection
- Web server Interface (option)



Input Signals

- Data stream Input: - Nr. 4 ASI 75 OHM EN50083-9 compliant
 - Nr. 1x SPI EN50083-9 compliant
- Ext. Ref Inputs: - 10MHz: 4Vp-p sinwave \geq 200 Ohm Impedance
 - 1pps Signal TTL compliant

Output Signals

Analogue IF or VHF Output:

	SINGLE CHANNEL	DUAL CHANNEL
Impedance:		50 Ohm
Level:		-16 dBm (1 V output at the DAC)
Stability:		\pm 0,5dB
Frequency (factory selectable for single channel operation):	36 MHz \pm 500 KHz, or, 109.5 MHz \pm 500 KHz, in \leq 1Hz steps	109.5 MHz \pm 500 KHz, in \leq 1Hz steps
Spectrum polarity:		non-inverted or inverted
Amplitude flatness:		\pm 0,2dB
Shoulder distance	Compliant or ETSI EN300744 critical mask	Compliant or ETSI EN301701
Harmonics:		\leq -60dB relative to total active power
Spurious:		\leq -60dB relative to total active power
MER:	$>$ 42 dB in analog domain, \geq 45 dB in digital domain	$>$ 40 dB in analog domain
Data Clock Output:		TTL compatible, for measurements

Power Supply

Single Input: 12 VDC,

Temperature

Temperature Range within specifications: 5°C to 45°C with low airflow

Temperature Range storage: -30°C to 70°C

Board Size

PCI format, approx. 200 x 100 mm

Reference Manual

SOFDM-052 board is supplied with a reference manual, describing:

- Input/output connections
- Interface protocols
- Clocking signals
- Commands
- Registers.



Standard Evaluation system

The system is composed of:

- Nr. 1 Evaluation board with SFN single Channel Software
- Nr. 1 Reference manual
- Nr. 1 Standard user interface SW for PC (RS-232)
- Nr. 1 companion multi-coaxial connector

SOFDM-052 PCI Evaluation Board

