PRODUCT BRIEF

AHA4709E2IQ

DVB-S2X Digital Ethernet Modem IP Core

FEATURES

- Symbol Rate: 1-72 MSym/s
- Maximum Data Rate (at decoder output):300 Mbps
- DVB-S2X ETSI EN 302 307 Part 1 and Part 2, professional services compliant for QPSK, 8PSK, 16APSK, and 32APSK modulations.
- Entire DVB-S2X Path from Ethernet to ADC/DAC Interfaces
- ACM and CCM support
- Generic Stream Encapsulation (GSE) – industry standard encapsulation
- Monitor and Control via RS232 / UART Interface
- Available as Encrypted FPGA / Flash Chipset or IP Core

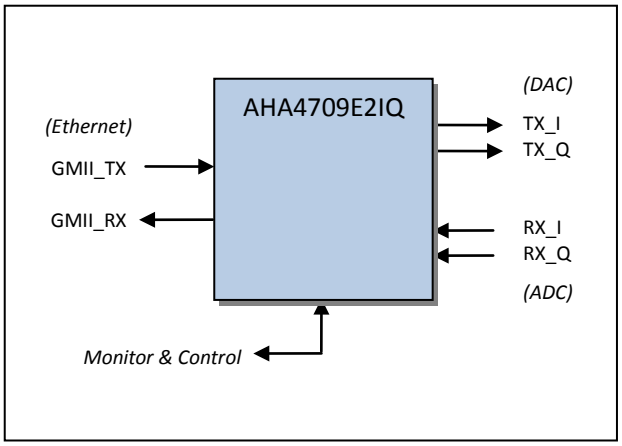

Figure 1: Block Diagram

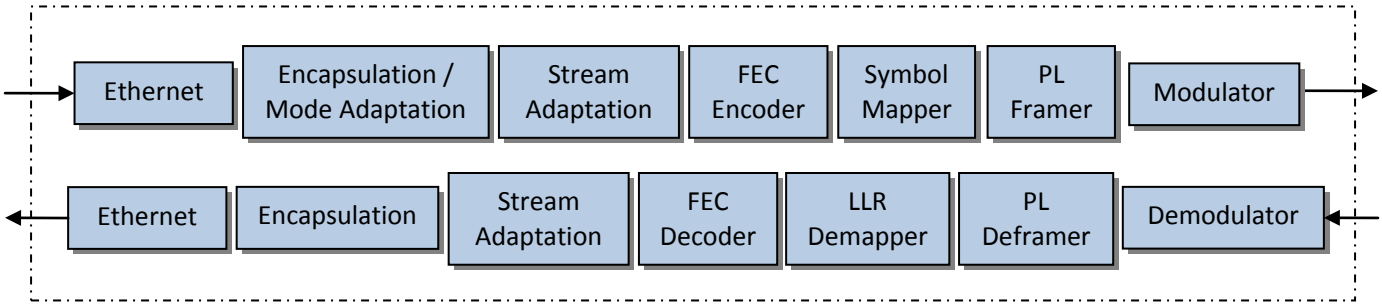

Figure 2: Included Functions

OVERVIEW

The AHA4709E2IQ is a highly integrated solution for DVB-S2X spanning from Ethernet GMII interface to DAC and ADC interfaces. The highly integrated architecture allows efficient networking and transport over satellite links while supporting a wide range of applications and network topologies. When combined with an RF front end, a complete modem solution is easily implemented. DVB-S2X assures backwards compatibility with DVB-S2 and DVB-S signals.

Both Adaptive Coding and Modulation (ACM) and Constant Coding and Modulation (CCM) are supported. ACM allows optimization of throughput under varying link conditions. CCM allows operators to define groups of remotes having different modulation and coding parameters, as a means to improve efficiency on existing satellite capacity.

On the Tx (transmit) side:

Transmit data from the Ethernet GMII interface is encapsulated by a Generic Stream Encapsulation (GSE) module, the Baseband header is added and the baseband frame is padded and scrambled. Next the frame is encoded with AHA's DVB-S2X FEC encoder (AHA4709E), formed into symbols,

physical layer framed and then modulated into I and Q symbol values to be sent to the D/A converter.

On the Rx (receive) side:
Signals from the channel are passed in from the RF front end by an A/D Converter and recovered by a DVB-S2X demodulator and deframed. Next the data is decoded with AHA's high performance (implementation loss <0.1dB) DVB-S2X FEC Decoder (AHA4709D), the baseband frames are removed, and the data is decapsulated (GSE) to extract the Ethernet frames before being sent out the Rx side of the GMII interface. The receiver automatically detects for pilots ON/OFF, supports spectral roll off of 5%, 10%, 15%, 20%, 25% or 35%, and detects spectral inversion.

Verification:
The AHA4709E2IQ includes test modes and loopbacks for rapid verification of the correct functioning of the device.

Customization Available:
AHA has vast experience providing highly optimized Error Correction and Communications solutions. Share your requirements and AHA can provide you with an optimized solution in the smallest possible footprint.

APPLICATIONS

- Broadcast TV, HDTV, UHDTV
- Satellite communications
- Microwave communications
- Cellular backhaul

DELIVERABLES

- Complete documentation
- 40 hours of Engineering Support
- Netlist (EDIF)
  - OR -
- Encryption protected FPGA (Xilinx or Altera) and Encrypted Bitfile optionally in a pre-programmed Flash

ORDERING INFORMATION

Part Number	Description
AHA4709E2IQ	DVB-S2-X Digital Ethernet Modem IP Core

ABOUT AHA

The AHA Products Group (AHA) of Comtech EF Data Corporation develops and markets superior integrated circuits, boards, and intellectual property cores for improving the efficiency of communications systems everywhere. AHA has been setting the standard in Forward Error Correction and Lossless Data Compression for many years and provides flexible and cost effective solutions for today's growing bandwidth and reliability challenges. AHA has a reputation for exceptional product quality, reliability, outstanding customer support and is an AS9100 certified manufacturer. Comtech EF Data is a wholly owned subsidiary of Comtech Telecommunications Corporation (NASDAQ: CMTL). For more information, visit: www.aha.com.

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