

StreamMaster

PCB V1.4

PCB Overview

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August 14, 2014

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Using this Document

This document is intended for the software and hardware engineer's reference and provides overview about the PCB of the StreamMaster. Though every effort has been made to ensure that this document is current and accurate, more information may have become available subsequent to the production of this guide. In that event, please contact ByteStudio (bytestudio@bytestudio.hu) for additional information that may help in the development process.

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1. PCB Overview

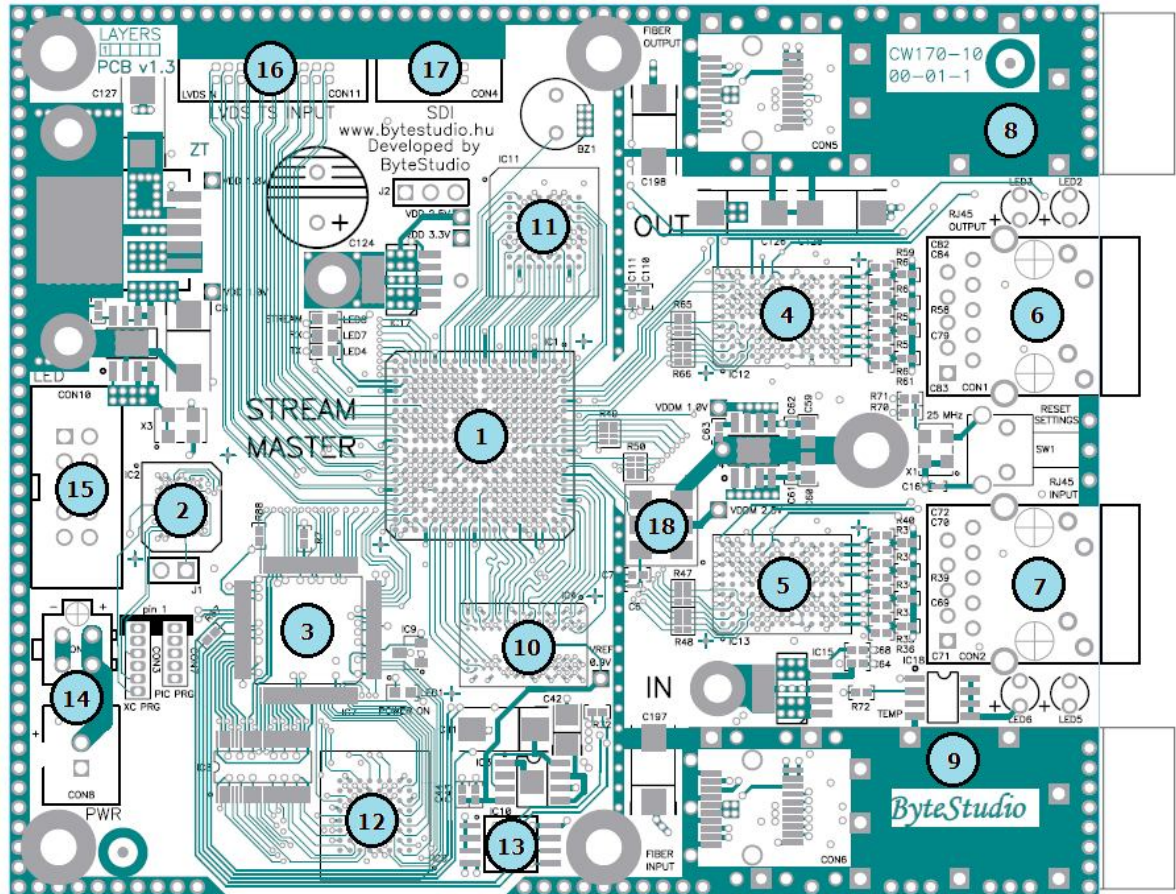


Figure 1. PCB top side

Integrated Circuit	Description
1	Xilinx Virtex-5 FPGA (XC5VLX30, FGG324 package)
2	FPGA Boot Flash (XCF08P, FSG48 package)
3	Microchip PIC24HJ256GP210 microcontroller
4, 5	Marvell Alaska 10/100/1000 Base-T PHY (88E1111-XX-BAB-C000) connected to the FPGA
6, 7	RJ45 LAN Connector of the Marvell PHY
8, 9	SFP Connector of the Marvell PHY
10	128 MB Micron DDR2 SDRAM (MT47H64M16HR-FBGA84) connected to the FPGA
11	512-Mbit Spansion Flash memory (S29GL521P-FBGA64) connected

	to the FPGA
12	512-Mbit Spansion Flash memory (S29GL521P-FBGA64) connected to the microcontroller
13	1-Mbit IIC EEPROM (Microchip 24LC1025-I/SM) connected to the microcontroller
14	3.3 V power connector (Tyco MATE-N-LOK3 2x2MH)
15	10-pin LED connector
16	20-pin connector (Samtec SHF-110-01-L-D-TH) for data (e.g. Transport Stream) input (connected to the FPGA)
17	10-pin control (e.g. SPI, IIC, user defined serial bus) connector (Samtec SHF-105-01-L-D-TH, connected to the FPGA)
18	200 MHz oscillator (Si530FA) connected to the FPGA (to drive IODELAY)

2. Layer stackup

The PCB of the StreamMaster has 6 layers. The recommended layer stackup is the following:








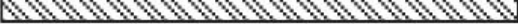



STREAMMASTER		6 Layers ~1.3 mm	
MATERIAL		THICKNESS [mm]	LAYER
Basic copper		0.0175	TOP
Prepreg 2125 (2)		0.2	
Basic copper		0.0175	GND
FR4		0.35	
Basic copper		0.0175	INT1
Prepreg 2125 (2)		0.2	
Basic copper		0.0175	INT2
FR4		0.35	
Basic copper		0.0175	PWR
Prepreg 2125 (2)		0.2	
Basic copper		0.0175	BOT

Figure 2. Layer stackup