

USB Host Player Module USB-Audio-M01

- **USB Host Module for MP3, WMA and AAC.**
- Master (stand-alone) and slave versions available.
- Master version: accepts direct user commands (push buttons,) status LEDs.
- Slave version: accepts I2C commands from an external controller, see chip datasheet.
- Plays audio from a USB stick and/or Micro SDHC card.
- Dimensions: 56 x 59 x 25 mm.
- Weight: 25 grams.
- High quality digital audio out: **optical S/PDIF and I2S out** (slave version only,) and a line out connector.

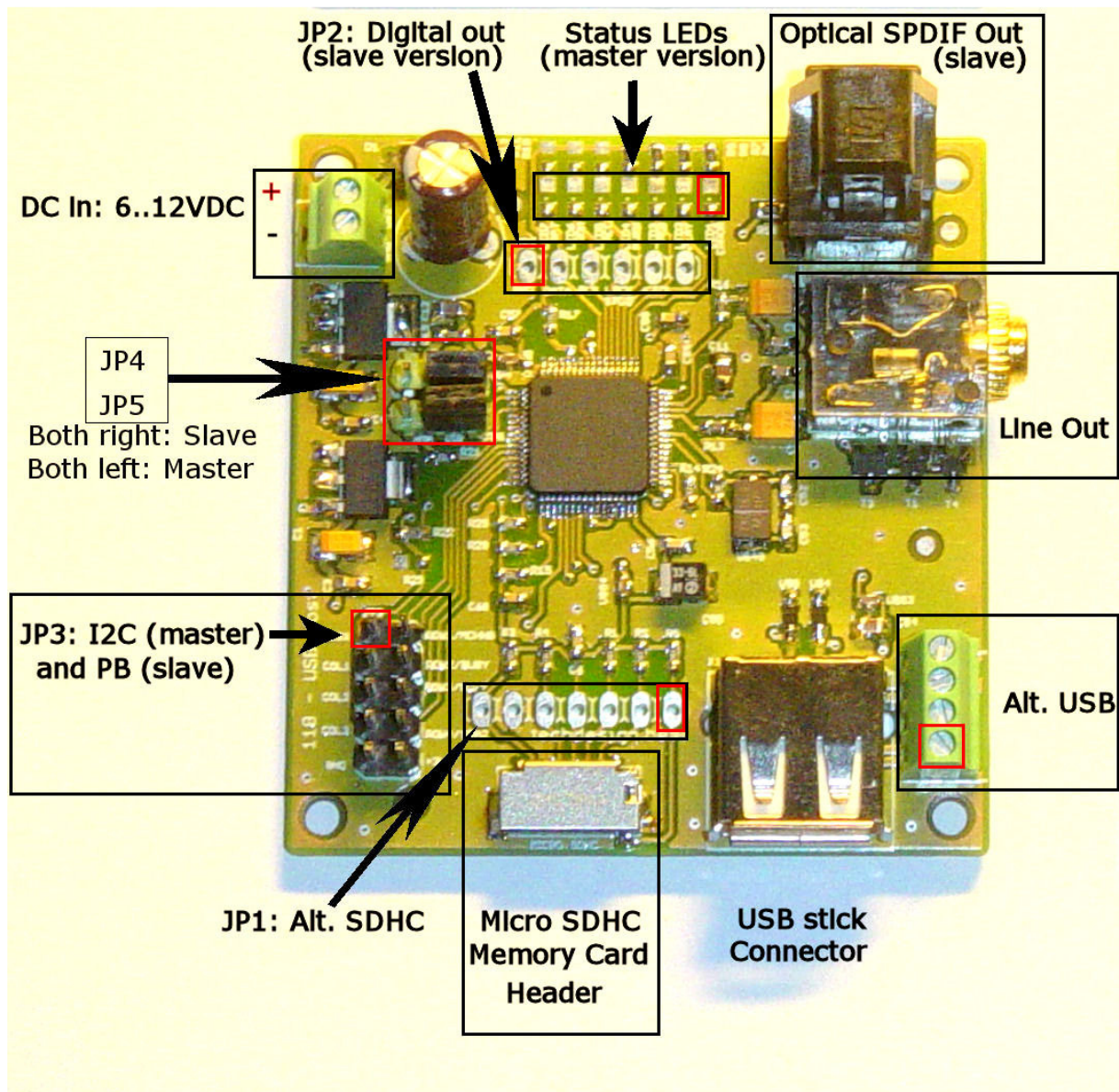


Fig. 1: USB Host Player Module: Connection overview.

Line out (audio): 3,5 mm stereo socket for 3,5 mm stereo jack.

Optical SPDIF out and I2S out (digital audio, slave only): 48 kHz, 16-bit right-justified.

DC in +6...12V: power supply in.

Status LEDs: (master version only) 7 LEDs.

User Buttons: (master version only) Column/Row array with direct user controls.

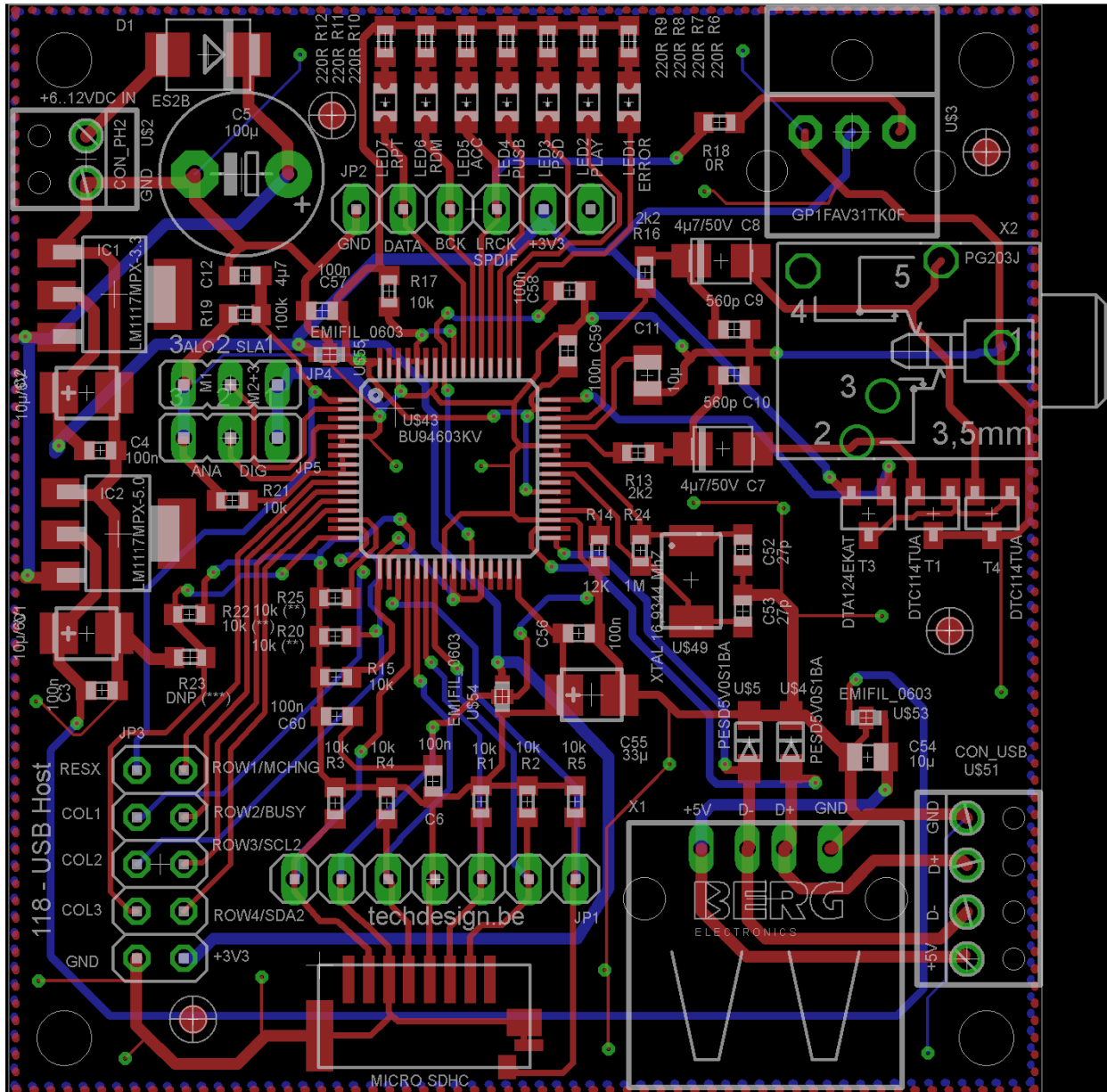


Fig. 2: USB Host Player Module: PCB top, overview.

Technical Data:

Parameter	Min .	Typ.	Max.	Unit
Module Power consumption	60	70	100	mA @12V DC supply
Optical SPDIF output		48		Ks/S sample rate
Power on to normal operation	2	4		Sec. (depends on USB/SDHC total files.)

Table 1: Technical Data.

Module Function Block	Chip or Component
Power supply regulators	LM1117MPX linear regulators
USB Host and Audio Decoder chip	BU94603KV
SPDIF Transmitter	GP1FAV31TK0F

Table 2: Chip Data.

JP1: pin#	Alternate SDHC connector
1	CD (Fig. 2, red square)
2	/CS
3	DI
4	VDD
5	CLK
6	GND
7	DO

Table 3: JP1, Alt. SDHC: pinout.

JP2: pin#	I2S Digital out (slave version only)
1	GND (Fig. 2,red square)
2	DATA
3	BCK
4	LRCK
5	+3V3
6	leave open

Table 4: JP2, I2S Digital out: pinout.

JP3: pin#	I2C interface (slave version)	user command array (master version)
1	/RESETX (Fig. 2,red square)	/RESETX (reset module, active low)
2	MCHNG (select USB or SDHC)	ROW 1
3	leave open	COL 1
4	BUSY (out)	ROW 2
5	leave open	COL 2
6	I2C SCL	ROW 3
7	leave open	COL 3
8	I2C SDA	ROW 4
9	GND	GND
10	+3V3 out	+3V3 out

Table 5: JP3: pinout.

Command Array	COL 1	COL 2	COL 3
ROW 1	FB	VOL-	+10
ROW 2	PLAY/PAUSE	VOL+	REPEAT
ROW 3	STOP	FOL-	RANDOM
ROW 4	FF	FOL+	CHG_DEV

Table 6: JP3, command array overview (master version.)

JP4: Master/Slave selection jumper	
1-2 (left) master mode	2-3 (right) slave mode

Table 7: JP4: pinout.

JP5: Audio out: analog/digital selection jumper	
1-2 (left) analog audio outputs only	2-3 (right) digital audio outputs enabled

Table 8: JP5: pinout.

Status LEDs (right to left) Master version only	Function
LED 1 (Fig. 2, red square)	Error
LED 2	Play
LED 3	PSD (Play SD Card)
LED 4	PUSB (Play USB Stick)
LED 5	ACC (Memory Access)
LED 6	RDM (Random)
LED 7	RPT (Repeat)

Table 9: Status LEDs overview.

Datasheets:

- BU94603KV full function specification:
http://rohms.rohm.com/en/products/databook/datasheet/ic/audio_video/audio_processor/bu94601kv-e.pdf

Mechanical Data:

- Dimensions: 56 x 59 x 25 mm.
 - Weight: 25 grams.
 - 4 mounting holes, diameter: 3,0 mm. Each at X 3,0 and Y 3,0 mm from each corner.
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