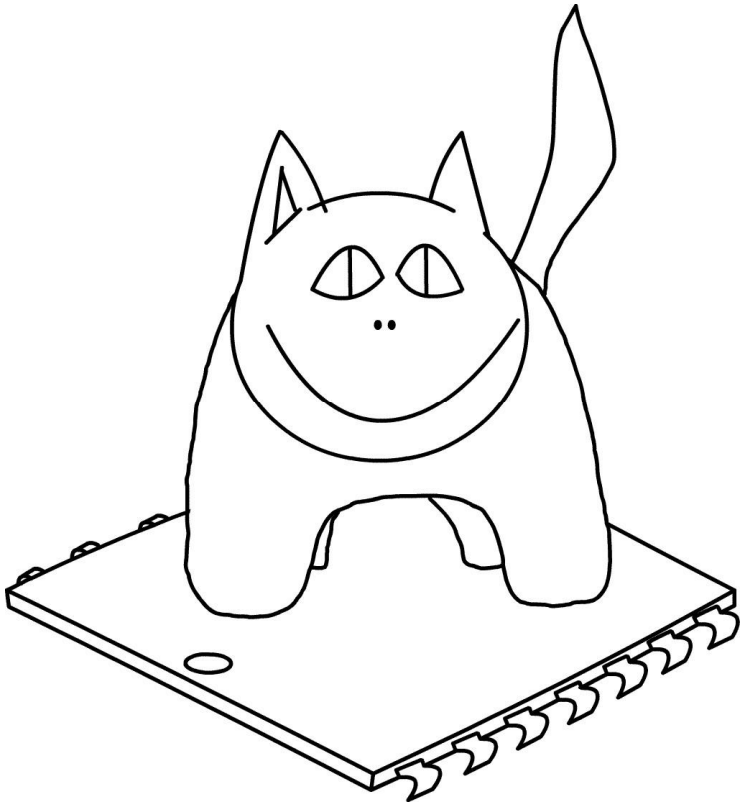
Turbo Sound FM
Music expansion device
for computers equipped with
AY-3-8910/12 or YM2149.

NedoPC group. 2007

(unofficial English translation by Szk@2021)



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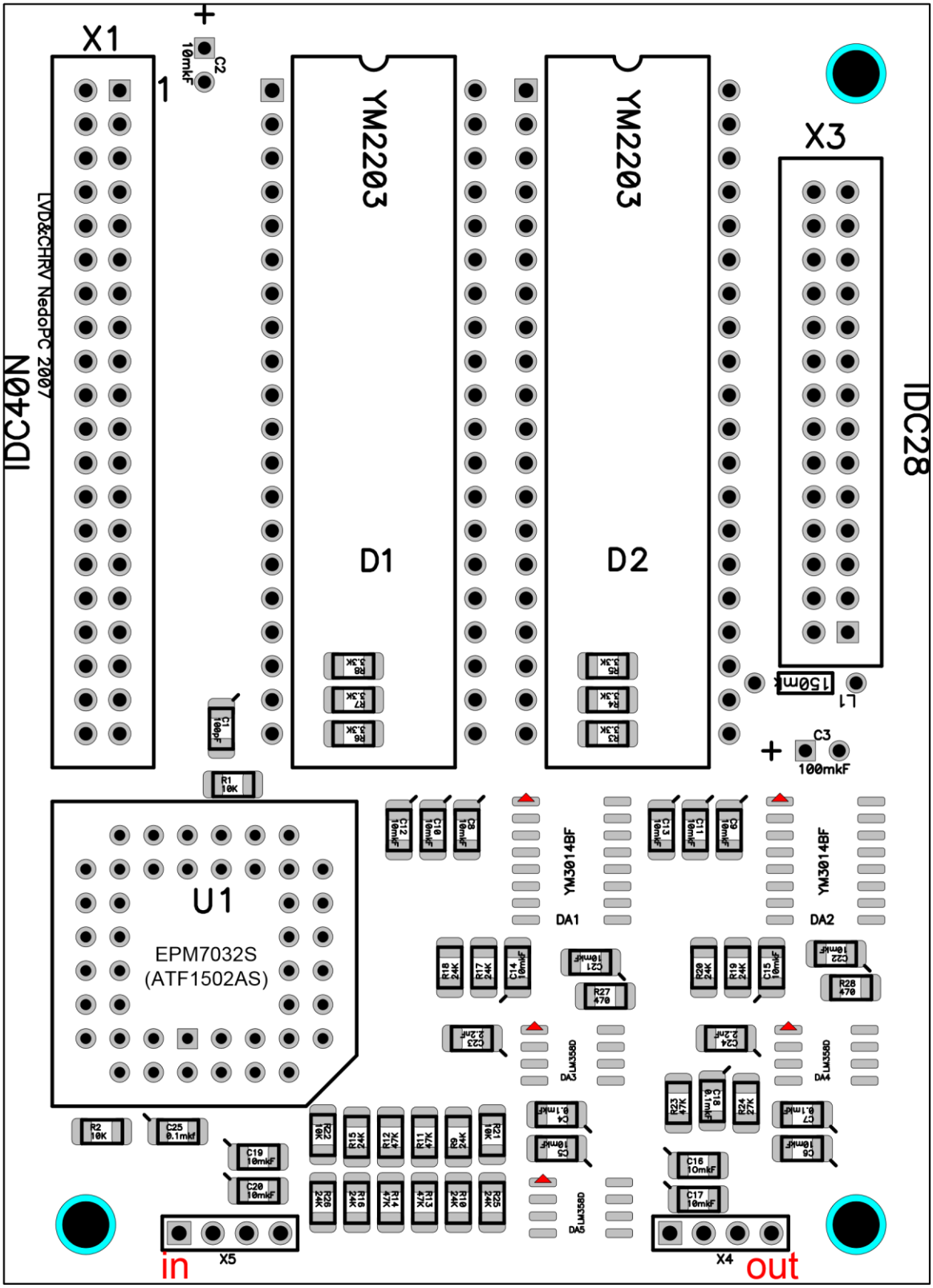
Description of the device.

TurboSound FM allows you to use six audio channels instead of the standard three channels of the AY-3-8910/12 or YM2149. And, additionally, six program channels with FM sound generation.

The device is installed through the corresponding adapter on the AY-3-8910/12 seat.

Wiring diagram.

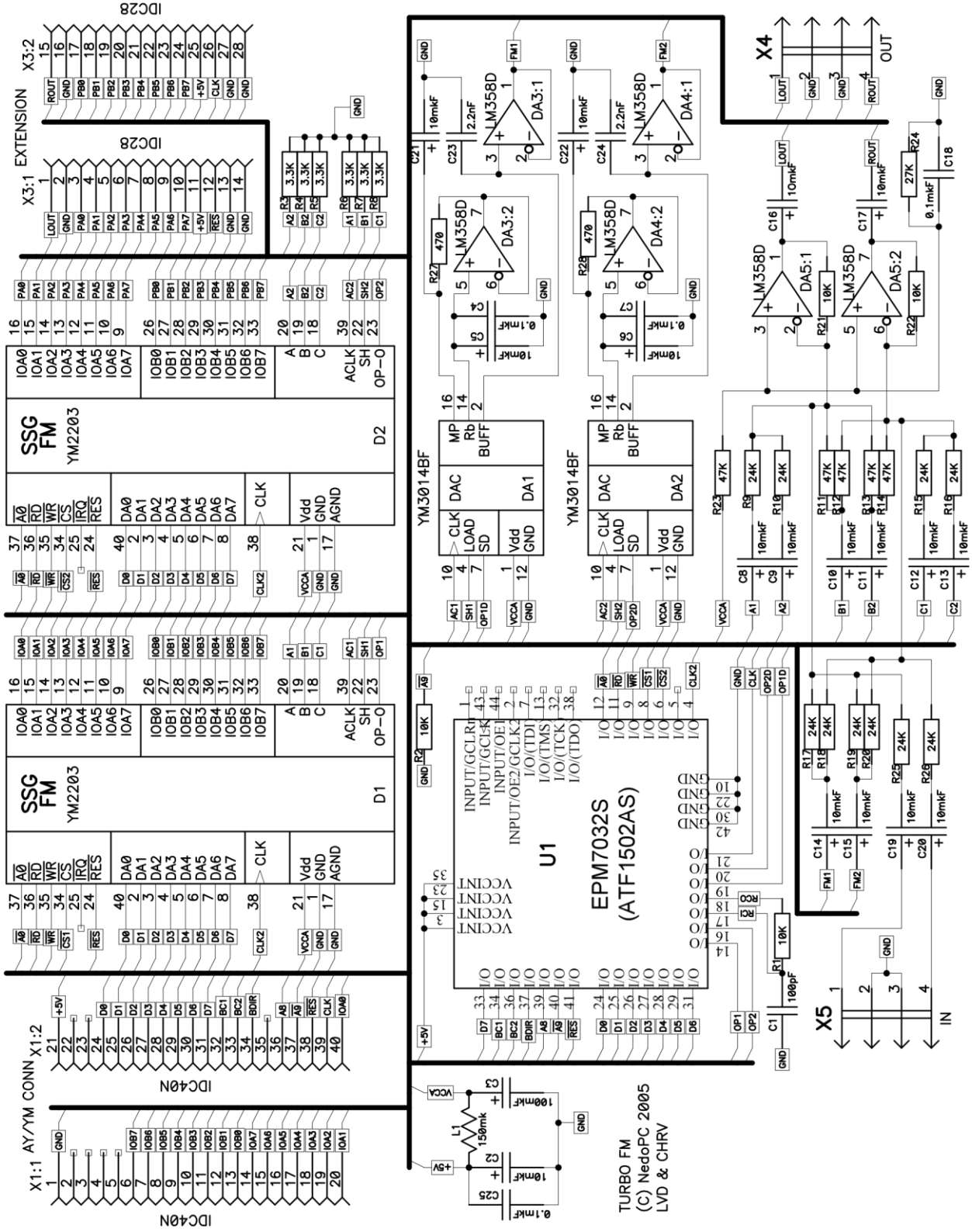
Images of the board from the side of installation of elements in the figure below:



Connectors.

Number	Purpose
X1	Connector for connecting to a computer.
X3	Expansion connector
X4	Sound output.
X5	Additional audio input (for example, for connecting CDROM).

Schematic diagram.



Setting up and connecting the device

The device is delivered pre-assembled. A pre-amplifier is assembled on the device, to which you can connect either headphones or computer speakers.

Principle of operation

Turbo Sound FM uses two sound chips for audio output, but only one chip is available for port programming. The choice of the current chip is done by setting the address of the internal port not used by the sound chip.

Address pattern (most significant bit from the left): **11111**<**fm**><**stat**><**sel**>
fm: 1= block FM generation / 0= enable FM generation;
stat: 1= output of the contents of the SSG / 0= output of the status register;
sel: 0= select D1 chip for work / 1= select D2 chip for work.

When a reset signal is received, it is automatically set to:
- blocking FM generation;
- output the contents of the SSG register;
- choice of D1 chip to work.

Attention: When playing three-channel music, everything will be played on one sound chip. That is, compatibility with software that does not fully utilize the capabilities of Turbo Sound FM remains.

Loop pin correspondence table

Signal		AY8910 (40pin)	AY8912 (28pin)	Signal		AY8910 (40pin)	AY8912 (28pin)
+5v	1	40	3	DA7	21	30	21
gnd	2	1	6	IOB2	22	11	
test1	3	39	2	BC1	23	29	20
	4	2		IOB1	24	12	
ch.C	5	38	1	BC2	25	28	19
ch.B	6	3	4	IOB0	26	13	
DA0	7	37	28	BDIR	27	27	18
ch.A	8	4	5	IOA7	28	14	7
DA1	9	36	27	test2	29	26	
	10	5		IOA6	30	15	8
DA2	11	35	26	A8	31	25	17
IOB7	12	6		IOA5	32	16	9
DA3	13	34	25	A9	33	24	
IOB6	14	7		IOA4	34	17	10
DA4	15	33	24	reset	35	23	16
IOB5	16	8		IOA3	36	18	11
DA5	17	32	23	clock	37	22	15
IOB4	18	9		IOA2	38	19	12
DA6	19	31	22	IOA0	39	21	14
IOB3	20	10		IOA1	40	20	13

Warranties and service

The boards are delivered assembled and debugged.
The boards are checked on an ATM-Turbo 2+ home computer.

Our address

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