

Overview

The ATSAM33BGA-EK is a high-quality, stand-alone evaluation board based on ATSAM2133B-G (Integrated Digital Instrument) dedicated to low-cost and low-power sound synthesis applications. The ATSAM2133B-G is a version of ATSAM2133B in an LFBGA package.

Besides the ATSAM2133B-G, the ATSAM33BGA-EK hardware includes:

- One audio DAC: AKM 4352VT (18-bit 94 dB SNR)
- 32-Mbit Flash memory: Atmel 49BV322AT (2M*16). 1M*16, 512k*16 and 256k*16 size can be used instead of the 2M*16.

Operating Mode

The ATSAM33BGA-EK operates on two modes:

• Debug mode

The board is connected to a PCI08-DK development board, and the firmware can be downloaded into Flash memory. The software tools can be used to program the Flash memory for stand-alone mode.

• Stand-alone mode

In this mode, the ATSAM2133B-G executes the program from the Flash memory and can talk with external devices via the MIDI connectors.

In stand-alone mode using standard firmware, the MIDI baud rate can be chosen:

- If pin DBDATA (pin 4, J4) is LOW, the baud rate is the standard MIDI baud rate of 31.25 kbit/s.
- If pin DBDATA (pin 4, J4) is HIGH, the baud rate is 38.4 kbit/s.

Table 1. Connectors Configuration

Connector	Reference	Type	Name
MIDI	J1	Din	MIDI IN
	J3	Din	MIDI OUT
POWER SUPPLY	J2	DC Plug	3.5/9 V DC
AUDIO	J5	Mini Jack	Stereo Output
DEBUG/MIDI BAUD RATE	J4	1*4	Baud Rate Select
MPU	J6	2*10	MPU Port

Note: J4 connector is also used to connect the PCI08-DK board for remote debugging.

Table 2. Jumper Configuration

Reference	Default Setting	Description
JMP1	1–2	Mode select (1–2 = Normal, 2–3 = Debug)
JMP2	2–3	Select Flash memory power source
JMP3	2–3	Select DAC power source
JMP4	Placed	Allow consumption measure

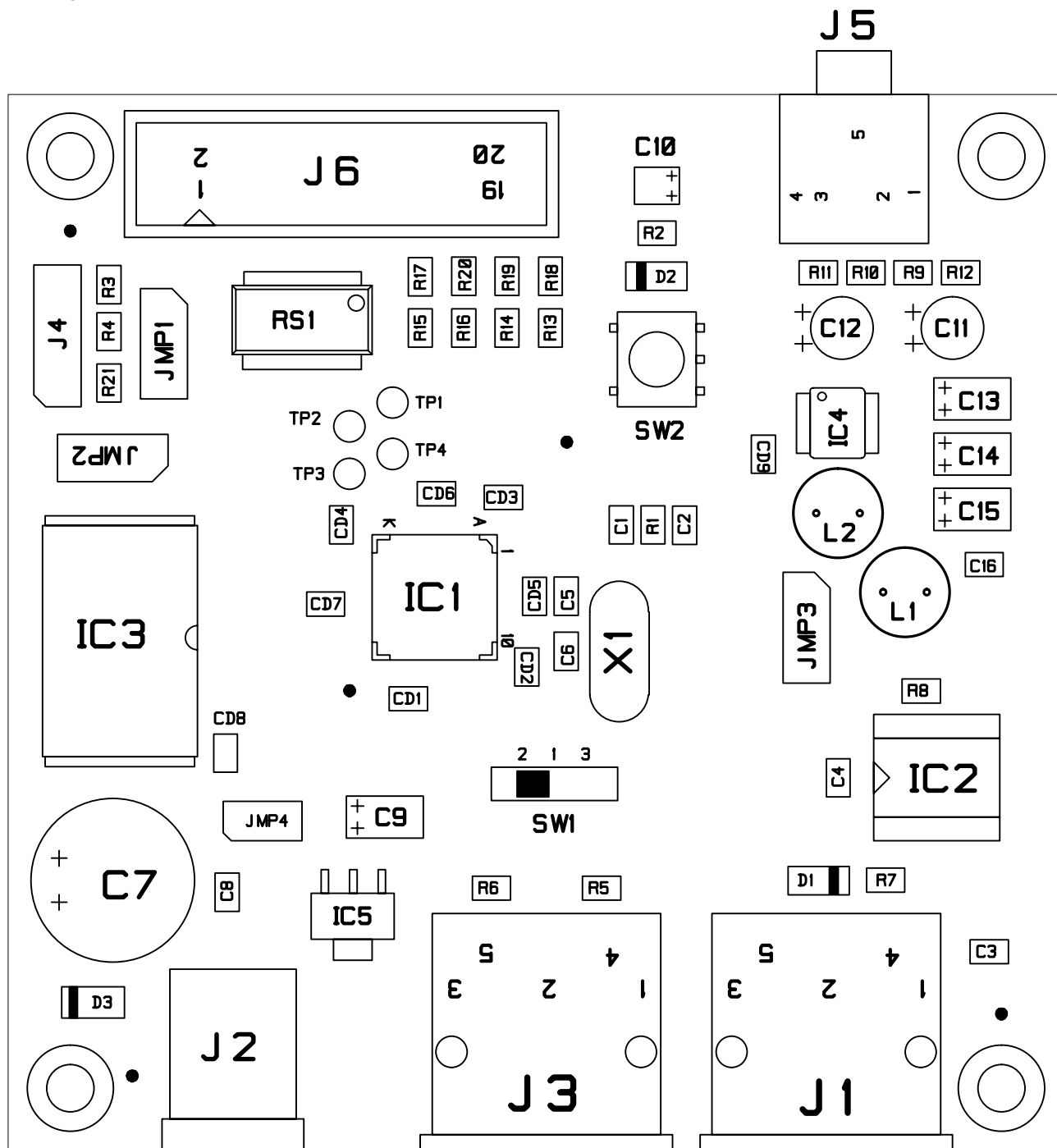


Evaluation Kit for ATSAM2133B-G

ATSAM33BGA-EK



Figure 1. Layout



Bill of Material

ATSAM2133B LFBGA - EVALUATION BOARD
33BGA-EK.SCH

Revised: July 2, 2003
Revision: 0

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Item	Quantity	Reference	Part
1	1	R1	470
2	2	R5, R6	150
3	4	R7, R8, R11, R12	220
4	4	R13, R14, R15, R16	1.5k
5	4	R17, R18, R19, R20	4.7k
6	4	R2, R3, R4, R21	10k
7	2	R9, R10	27k
8	1	RS1	8x1.5k
9	2	C5, C6	22 pF
10	1	C1	1 nF
11	1	C2	10 nF
12	3	C3, C4, C8, C16	100 nF
13	1	C10	1 μF
14	6	C9, C11, C12, C13, C14, C15	10 μF
15	1	C7	470 μF
16	2	D1, D2	1N4148
17	1	D3	1N4002
18	2	L2, L1	470 μH - 22R474
19	1	IC1	ATSAM2133B-G
20	1	IC2	6N138
21	1	IC3	AT49BV322AT-80TI
22	1	IC4	AK4352
23	1	IC5	LD1117S28
24	1	X1	11.2896 MHz
25	1	SW1	POWER DOWN
26	1	SW2	RESET
27	1	JMP4	STRAP1P
28	3	JMP1, JMP2, JMP3	STRAP2P
29	2	J1, J3	DIN_5
30	1	J2	DC PLUG
31	1	J4	HEAD_4
32	1	J6	HEAD_10X2
33	1	J5	JACK 3.5
34	4	TP2, TP1, TP3, TP4	TEST POINT





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