

Overview

3716-EK2 is a high quality evaluation and reference board based on SAM3716 (HIGH PERFORMANCE MIDI SYNTH AND EFFECT PROCESSOR) dedicated to high range MIDI sound modules with effects.

Beside the SAM3716, 3716-EK2 hardware includes:

- 1 Audio DAC: AKM AK4384(24-bit DR:106dB, THD+N:-94dB)
- 256Mbit Flash Memory: NUMONYX M29W256GL70NB (compatibility with 64Mbit and 128Mbit models)
- 1 x SRAM 64kx16 CYPRESS CY62126EV30LL for High quality effects (Optional)

Operating Mode

3716-EK2 operates on two modes:

- **Debug and Program mode:**
The board is connected to a PC COM port through the Dream DBG-IF3 adaptor.
Debug: If firmware is not bigger than 16kx16, it can be downloaded and debugged into internal flash memory with Dream SamVS-C emulation tool.
Program: Firmware can be programmed into internal flash, and into external flash if bigger than 16kx16, with ProgSam PC Dream tool
- **Stand-alone mode:**
In this mode, SAM3716 executes the program from its internal (and external Flash memory). In this mode soundbank can be programmed or updated through MIDI port (31.25kb/s) or PC serial COM port (communication established at 38.4kb/s then transfer at 115.2kb/s). Updating through PC COM port needs COM adapter (could be DBG-IF3).

Connectors Configuration

Name	Reference	Type	Description
MIDI OUT	J1	5-pin, 180° DIN	Standard MIDI OUT at 31.25kb/s
MIDI IN	J2	5-pin, 180° DIN	Standard MIDI IN at 31.25kb/s
DEBUG / PROGRAM / MIDI	J3	1*2	Reset for debug and program
DEBUG / PROGRAM / MIDI	J4	1*6	Connection for debug and program
9V DC 0.5A	J5	DC Plug	Power Supply, +9V/0.5A, minus on dip
9V DC 0.5A	J6	1*2 (Not Mounted)	Power Supply, +9V/0.5A, minus on pin 1
OUT LEFT	J7	RCA	Left audio output
OUT RIGHT	J8	RCA	Right audio output
Audio OUT	J9	1*3 (Not Mounted)	Stereo Audio Output

Jumper Configuration

Reference	Default Setting	Description
JMP1	Open	Select serial baud rate (sensed at power-up) <ul style="list-style-type: none"> • Open: MIDI baud rate, 31.25kb/s • Closed: COM baud rate, 38.4kb/s
JMP2	Open	Connect RX signal to MIDI IN interface. <ul style="list-style-type: none"> • Closed if RX comes from MIDI IN • Open if RX comes from J4
JD1	A Closed B Open	Crystal frequency select: <ul style="list-style-type: none"> • JD1 A-Closed/B-Open, JD2 A-Closed/B-Open: 12.288 MHz • JD1 B-Closed/A-Open, JD2 A-Closed/B-Open: 11.2896 MHz • JD1 A-Closed/B-Open, JD2 B-Closed/A-Open: 9.6 MHz • JD1 B-Closed/A-Open, JD2 B-Closed/A-Open: 12 MHz
JD2	A Closed B Open	

LED Meaning

Reference	Name	Description
LED1	POWER	Light on when VD33 power supply is present

Layout

(Size: 80 x 90 mm)



Bill of Material

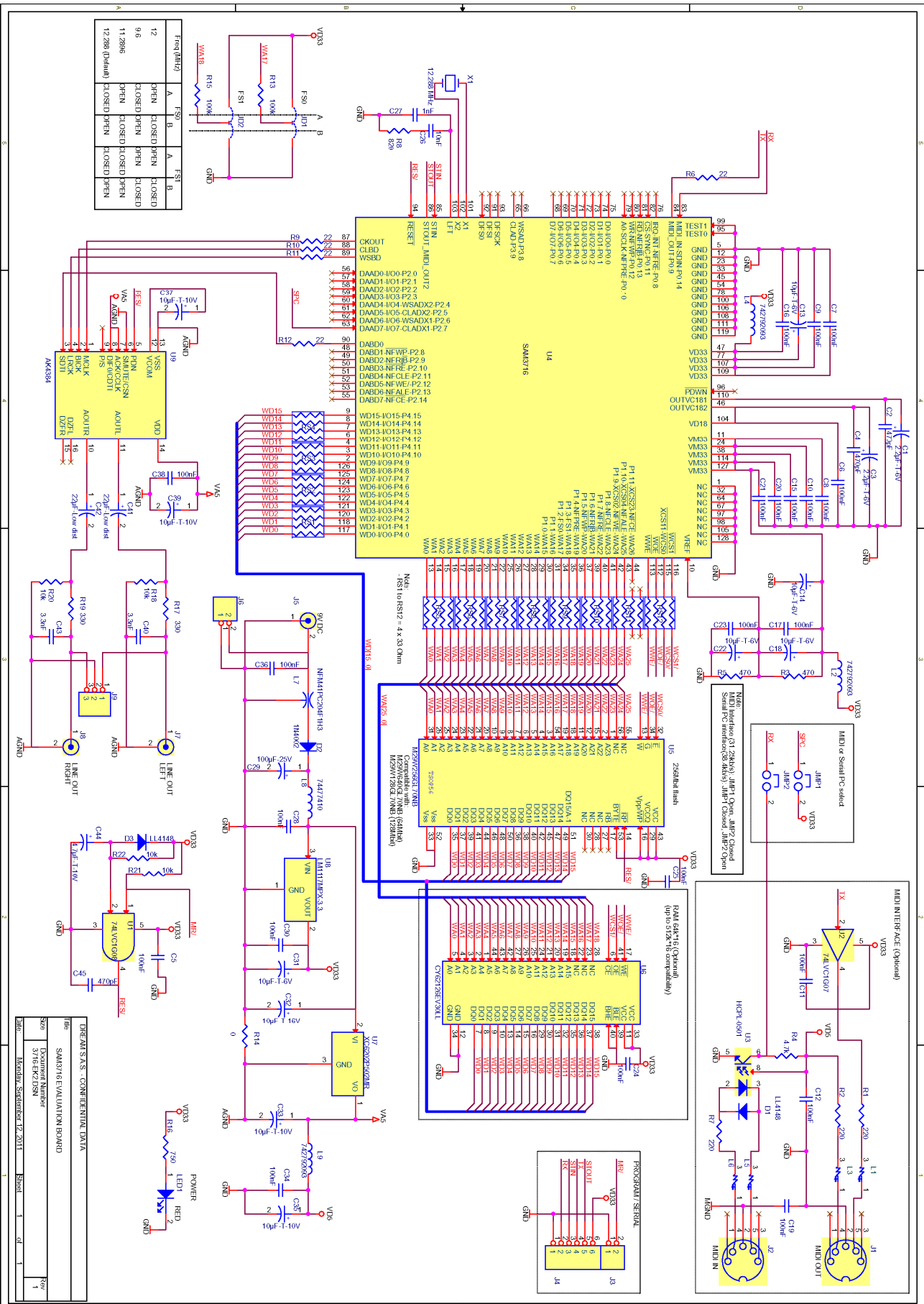
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Item	Quantity	Reference	Part	Manufacturer	Designation
1	2	C1, C3	2.2µF-T-6V		
2	3	C2, C4, C45	470pF		
3	22	C5, C6, C7, C8, C9, C10, C11, C12, C15, C16, C17, C19, C20, C21, C23, C24, C25, C28, C30, C34, C36, C38	100nF		
4	5	C13, C14, C18, C22, C31	10µF-T-6V		
5	1	C26	10nF		
6	1	C27	1nF		
7	1	C29	100µF-25V		
8	1	C32	10µF-T-16V		
9	4	C33, C35, C37, C39	10µF-T-10V		
10	2	C40, C43	3.3nF		
11	2	C41, C42	22µF-Low dist	PANASONIC	ECA1HAM220X
12	1	C44	4.7µF-T-10V		
13	2	D1, D3	LL4148	VISHAY	LL4148
14	1	D2	1N4002		
15	2	JD1, JD2	Jumper Disk2P		
16	2	JMP1, JMP2	Jumper1P		
17	2	J1, J2	MIDI_DIN		
18	1	J3	MLSS100-02	ITW PANCON	MLSS100-2
19	1	J4	MLSS100-06	ITW PANCON	MLSS100-6
20	1	J5	DC PLUG	3E	LD02.02
21	1	J6	N.M.		
22	2	J7, J8	RCA_JACK	3E	10.575N
23	1	J9	N.M.		
24	1	LED1	TLMS1000-Vishay	VISHAY	TLMS1000-GS08
25	4	L1, L3, L5, L6	NFM21CC102R1H3	MURATA	NFM21CC102R1H3
26	3	L2, L4, L9	742792093	WURTH	742792093
27	1	L7	NFM41PC204F1H3	MURATA	NFM41PC204F1H3
28	1	L8	74477410	WURTH	74477410
29	12	RS1, RS2, RS3, RS4, RS5, RS6, RS7, RS8, RS9, RS10, RS11, RS12	4x33 CAY10		
30	3	R1, R2, R7	220		
31	2	R3, R5	470		
32	1	R4	4.7k		
33	5	R6, R9, R10, R11, R12	22		
34	1	R8	820		

Item	Quantity	Reference	Part	Manufacturer	Designation
35	2	R13, R15	100k		
36	1	R14	0		
37	1	R16	750		
38	2	R17, R19	330		
39	4	R18, R20, R21, R22	10k		
40	1	U1	74LVC1G08	TI	74LVC1G08DCK
41	1	U2	74LVC1G07	TI	74LVC1G07DCK
42	1	U3	HCPL-0501		
43	1	U4	SAM3716	DREAM	SAM3716
44	1	U5	M29W256GL70NB	NUMONYX	M29W256GL70NB
45	1	U6	CY62126EV30LL	CYPRESS	CY62126EV30LL
46	1	U7	XC6202P502MR	TOREX	XC6202P502MR
47	1	U8	LM1117MPX-3.3	NS	LM1117MPX-3.3
48	1	U9	AK4384	AKM	AK4384VT
49	1	X1	12.288 MHz		

Schematic Diagram



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