

### Overview

5000DBG-IF is a small debug interface for connecting a board based on a member of the SAM5000, SAM3000 or SAM2600 series to a USB port of a PC. This connection through 5000DBG-IF allows the following operations:

- Firmware debugging in SAM internal memory (RAM or Flash) and/or in external RAM or Quad SPI Flash.
- Programming of the external memories used by the SAM (Nor Flash, Nand Flash, SPI Flash)
- Programming of the SAM5000 Fuses
- Programming of the embedded Flash for SAM3000 series (SAM3703, SAM3416, SAM3516, SAM3716, SAM3816)
- USB MIDI operations

### Operating Mode

5000DBG-IF operates on two modes:

- **Debug mode:** Select this mode for debugging or programming a target board. Detection of SAM2600 series target (SAM2634, SAM2635, SAM2653, SAM2655), SAM3000 series target (SAM3308, SAM3703, SAM3416, SAM3516, SAM3716, SAM3816) or SAM5000 series target (SAM5916, SAM5808, SAM5716, SAM5704) is done automatically by the 5000DBG-IF board. In case of SAM2600 and SAM3000 series the target board is connected on DBG-IF3 connectors J2 and J3. In case of SAM5000 series the target board is connected on 5000DBG connector J1. Software tools are SamVS for debug and ProgSam for programming.  
If no debug or programming is running, the board is switching automatically to serial COM interface mode running at 38.4kbaud. Serial TX/RX signals are available on the MIDI-IN/OUT pins of J3 connector.
- **USB MIDI mode:** Select this mode for using the 5000DBG-IF as USB MIDI interface. Target board is connected to MIDI-IN/OUT pins of J3.

### Connectors Configuration

Name	Reference	Type	Description
USB	J1	Mini USB Type B	USB COM port in Debug modes and USB MIDI port in MIDI mode .To be connected to a PC USB port with a Mini USB B to USB A cable.
DBG-IF3	J2	1*2	Pin 2 of this connector gives a reset from PC during debugging operation. In SAM3000 or SAM2600 Debug mode, Pin 2 should be connected to reset input of target IC.
DBG-IF3	J3	1*6	Connection to the SAM3000 or SAM2600 based board. In SAM3000 or SAM2600 Debug Mode, this connector should be pin to pin connected to the debug connector of the target board.
5000DBG	J4	JST PH Series, 1*5	Connection to the SAM5000. In SAM5000 Debug Mode, this connector should be pin to pin connected to the debug connector of the target board.
AVR	J5	1*6	Can be used for manual reset by shorting pin 1 (GND) and pin2 (AVR_RES/).

## Jumper Configuration

Reference	Default Setting	Description
JMP1	Open	Select firmware running on 5000DBG-IF <ul style="list-style-type: none"><li>• Open: Execute SAM5000, SAM3000 or SAM2600 debug firmware</li><li>• Closed: Execute USB MIDI firmware.</li></ul> Also enter AVR DFU Mode after manual Reset

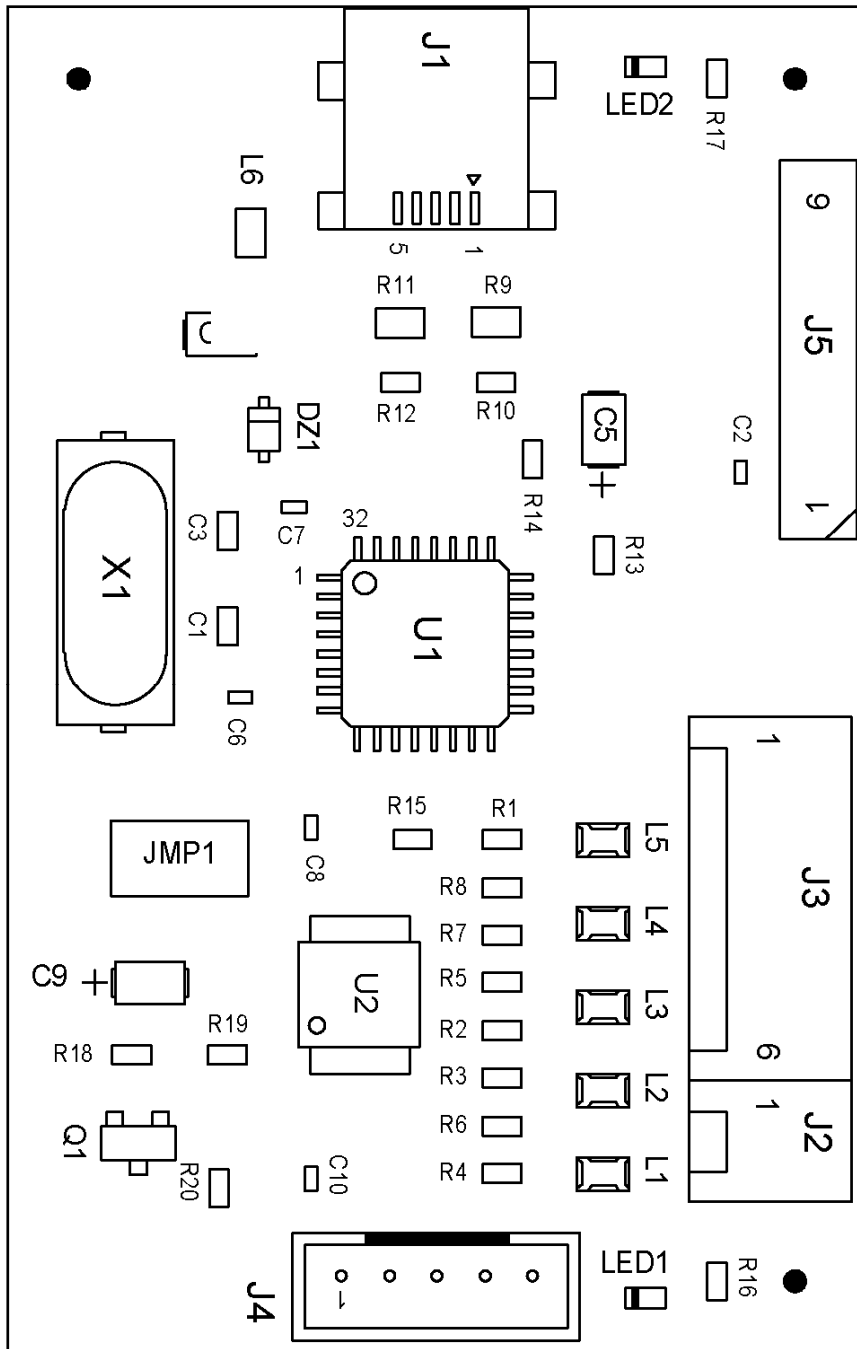
## Windows Drivers Install

Windows drivers for 5000DBG-IF are automatically installed when installing Dream ProgSam or SamVS software.

Be aware:

**ProgSam or SamVS must be installed in the PC prior connecting 5000DBG-IF to one of the PC USB socket!**

Layout

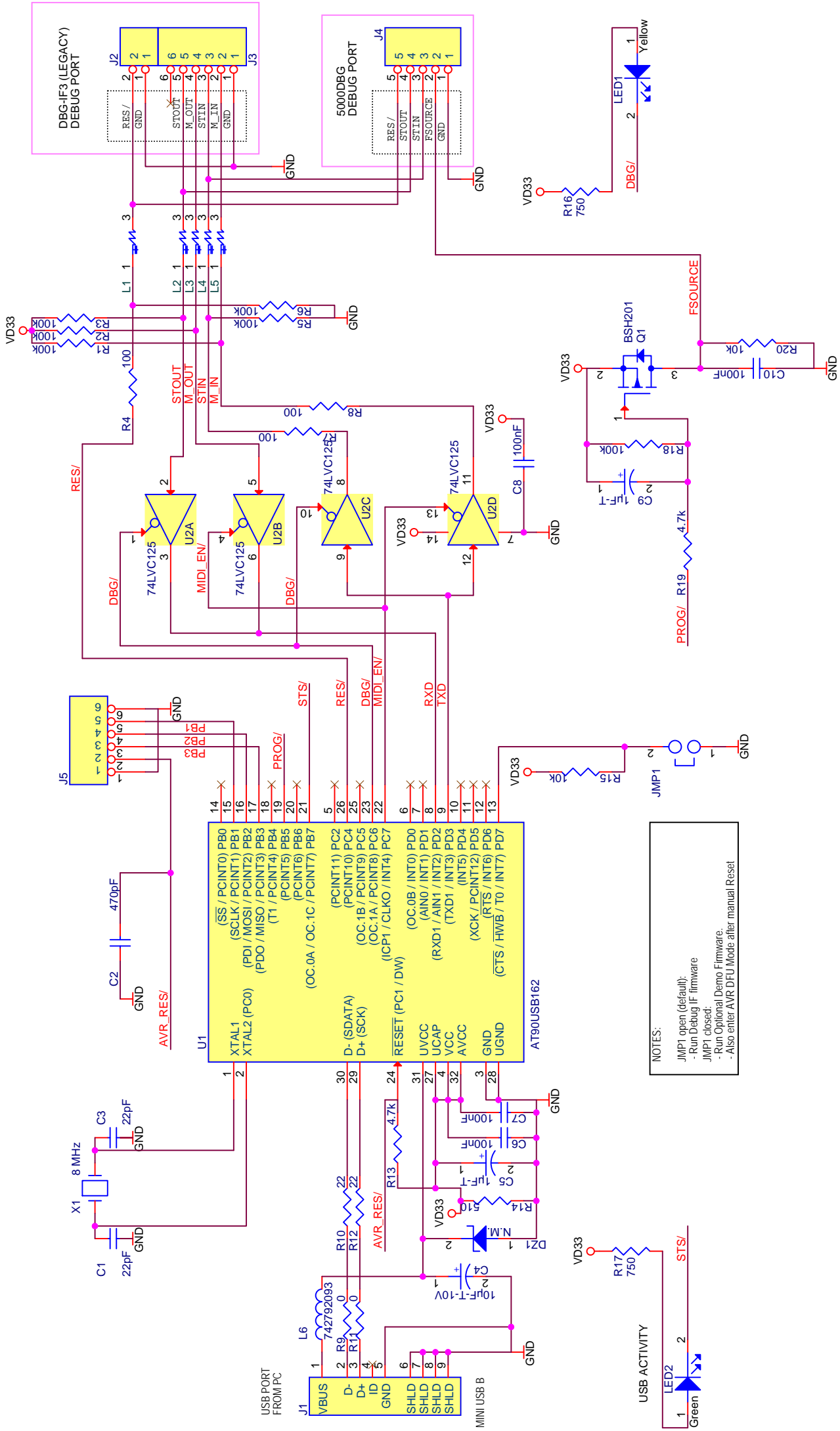


Bill of Material

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 Bill Of Materials  
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Revision: 0  
 Tuesday, March 18, 2014

Item	Quantity	Reference	Part	Manufacturer	Manufacturer Reference
1	2	C1, C3	22pF		
2	1	C2	470pF		
3	1	C4	10μF-T-10V		
4	2	C5, C9	1μF-T		
5	4	C6, C7, C8, C10	100nF		
6	1	DZ1	N.M.	ON SEMI	MM3Z5V6T1G
7	1	JMP1	Jumper1P	Generic	BA25-Male-7mm-Gold
8	1	J1	651 005 161 21	WERI	651 005 161 21
9	1	J2	MLSS100-02	ITW PANCON	MLSS100-02
10	1	J3	MLSS100-06	ITW PANCON	MLSS100-06
11	1	J4	B5B-PH-K-S	JST	B5B-PH-K-S
12	1	J5	HEAD_6	Generic	BA25-Male-7mm-Gold
13	1	LED1	TLMY1100	VISHAY	TLMY1100
14	1	LED2	TLMG1100	VISHAY	TLMG1100
15	5	L1, L2, L3, L4, L5	NFM21CC102R1H3	MURATA	NFM21CC102R1H3
16	1	L6	742792093	WURTH	742792093
17	1	Q1	BSH201		
18	6	R1, R2, R3, R5, R6, R18	100k		
19	3	R4, R7, R8	100		
20	2	R9, R11	0		
21	2	R10, R12	22		
22	2	R13, R19	4.7k		
23	1	R14	510		
24	2	R15, R20	10k		
25	2	R16, R17	750		
26	1	U1	AT90USB162	ATMEL	AT90USB162-16AU
27	1	U2	74LVC125	TI	74LVC125APW
28	1	X1	8 MHz		



NOTES:

- JMP1 open (default):  
- Run Debug IF firmware
- JMP1 closed:  
- Run Optional Demo Firmware.  
- Also enter AVR DFU Mode after manual Reset

## Dream Contact

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## Website

<http://www.dream.fr>

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