

Jackal Developer Board Datasheet

Revision 1.3

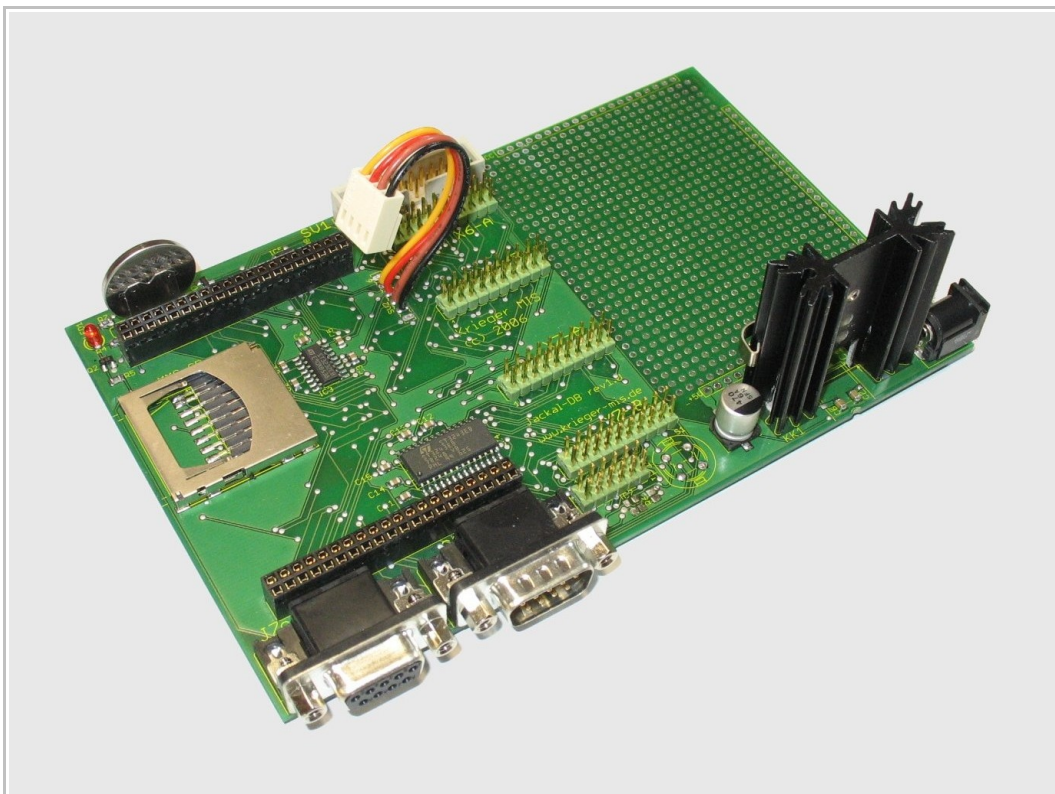


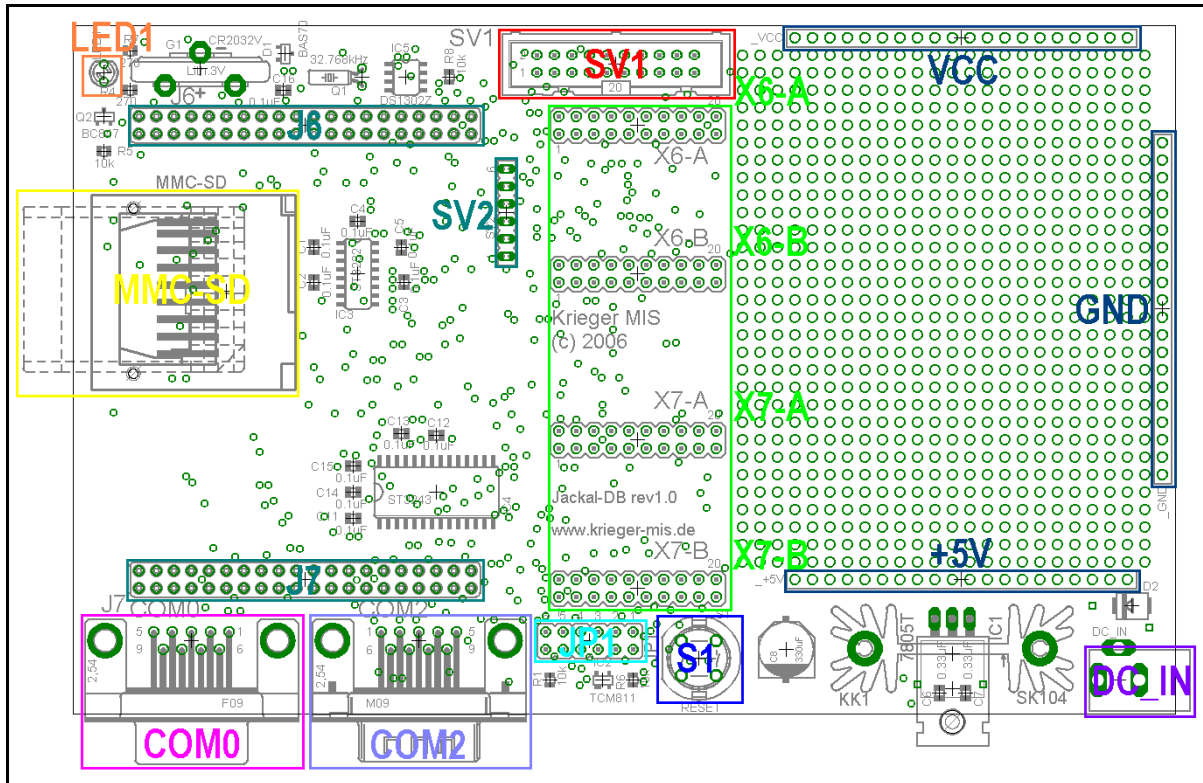
Table of Content

Introduction.....	3
Jackal Developer Board Overview.....	4
FOX CPU Board Socket J6, J7 SV2.....	5
Power Supply Input DC-IN.....	5
Console Port COM0.....	5
Serial Port COM2 and JP1.....	6
LCD Connector SV1.....	7
Expansion connector X6-A X6-B X7-A X7-B.....	8
X6-A and X6-B.....	8
X7-A and X7-B.....	9
MMC/SD Card Connector.....	10
Signal LED1.....	10
Real Time Clock and Backup Battery.....	10
Document History.....	11

Introduction

The Jackal Developer Board datasheet describes the functionality of each circuit group. It also describes the pin usage for all connectors which are available for the user. It does not cover the functionality of the FOX CPU Board for details of this have a look at ACME Systems.

Jackal Developer Board Overview



- J6, J7, SV2: The sockets for reception of the FOX CPU Board
- SV1: Connector for LCD display
- X6-A, X6-B, X7-A, X7-B: Expansion connector for Prototype area
- MMC-SD: Connector for MMC or SD memory cards
- COM0: Console port for configuration and debugging
- COM2: Serial port can be used for any purpose
- JP1: Jumper for COM2 configuration
- S1: Not mounted due to coexistence with reset on FOX CPU Board
- LED1: LED can be used for any purpose e.g. status indication
- Real Time Clock with lithium ion battery
- DC-IN: Standard DC connector with a 2.5 mm pin

FOX CPU Board Socket J6, J7 SV2

Socket J6, J7 and SV2 are placed on the Jackal Developer Board for easy Plug and Play mounting. In combination with the FOX CPU Board GOLD, which is equipped with gold plated connectors for long-run corrosion protection, users have just to mount the CPU Board and can start right away with developing their own application. SV2 is linked to COM0 for providing easily access to the serial consol of the FOX CPU Board. The connectors J6 and J7 are gold plated for providing long-run corrosion protection and compatible to standard 0,635 mm x 0,635 mm square connectors in 2,54 mm raster.

SV2/PIN	Description
1	No cable
2	RTS, Request To Send / black cable (not connected)
3	TxD, Transmit Data / brown cable
4	RxD, Receive Data / red cable
5	CTS, Clear To Send / yellow cable (not connected)
6	No cable

Power Supply Input DC-IN

The DC_IN power connector has been performed as an standard DC connector with an 2,5 mm pin, therefore a Standard wall socket DC power supply can be used for supplying DC power to the Jackal Developer Board. The Jackal Developer Board has an onboard 5V regulator, which is protected against reverse input voltage polarity and short circuits. The inner pin of DC_IN have to be connected to the positive voltage level of the power supply. The voltage regulator has an input range between 7V and 35V DC and is able to deliver current up to 2A. For keeping power dissipation to minimum and achieving maximal output current input voltage should not exceed 9V DC when possible.

Note: Be aware when draw high current with high input voltage, power dissipation of voltage regulator can result in hot heat sink.

Console Port COM0

The console port COM0 has been carried out with an SUB-D9 female connector and is protected against electro static damage. The port can be driven by software configuration from 0,3 up to 230 kbps. Following signals are provided RxD, TxD and signal GND.

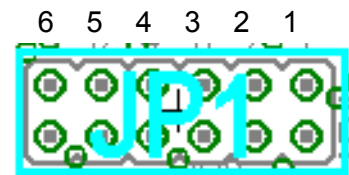
COM0/PIN	Description
2	TxD, Transmit Data
3	RxD, Receive Data
5	SGND, Signal Ground

Serial Port COM2 and JP1

The serial port COM2 has been carried out with an SUB-D9 male connector and is protected against electro static damage. The port can be driven by software configuration from 0,3 up to 230 kbps. For COM2 a full featured RS232 serial interface has been implemented to achieve all RS232 signals jumpers on JP1 have to be set accordingly. Bit 4,5,6 and 7 of port A can be used for any purpose by removing jumpers on JP1. Additionally the Linux Kernel configuration for COM2 has to be set accordingly.

COM2/PIN	Description
1	DCD, Data Carrier Detect (configurable via JP1 / POS 1)
2	RxD, Receive Data
3	TxD, Transmit Data
4	DTR, Data Terminal Ready (configurable via JP1 / POS 4,5,6)
5	SGND, Signal Ground
6	DSR, Data Set Ready (configurable via JP1 / POS 3)
7	RTS, Request To Send
8	CTS, Clear To Send
9	RI, Ring Indicator (configurable via JP1 / POS 2)

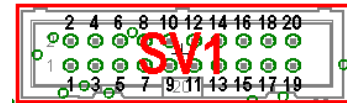
JP1/POS	Description
1	DCD -> Port A7
2	RI -> Port A5
3	DSR -> Port A6
4	DTR -> GND
5	DTR -> Port A4
6	DTR -> VCC



LCD Connector SV1

The functional pin assignment of SV1 is depending on the type of LCD which will be used. Therefore the description for each pin is covered for each LCD separately in their documentation. Only the physical wiring is described here. If no LCD is used the specific I/O pins can be used for any purpose.

SV1/PIN	Description
1	GND
2	+5V
3	RESET\
4	OG1
5	OG2
6	OG3
7	OG4
8	OG29
9	IOG8
10	IOG9
11	IOG10
12	IOG11
13	IOG12
14	IOG13
15	IOG14
16	IOG15
17	IG2
18	IG3
19	IG4
20	IG5

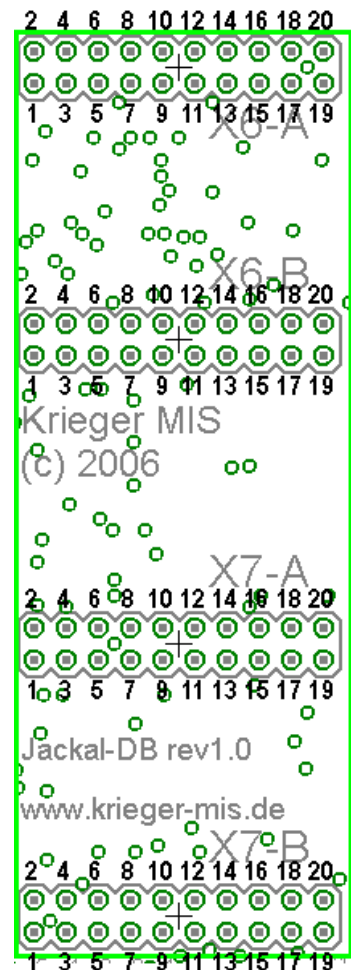


Expansion connector X6-A X6-B X7-A X7-B

The expansion connector offers hardware developers a very simple to user interface to all pins available on the FOX-CPU Board connector J6 and J7. Attention have to be paid for functionality which is shared either with the FOX CPU Board or the Jackal Developer Board. Note „not configurable“ means that circuits have to be remove from Jackal Developer Board in order to use the corresponding pin for another purpose.

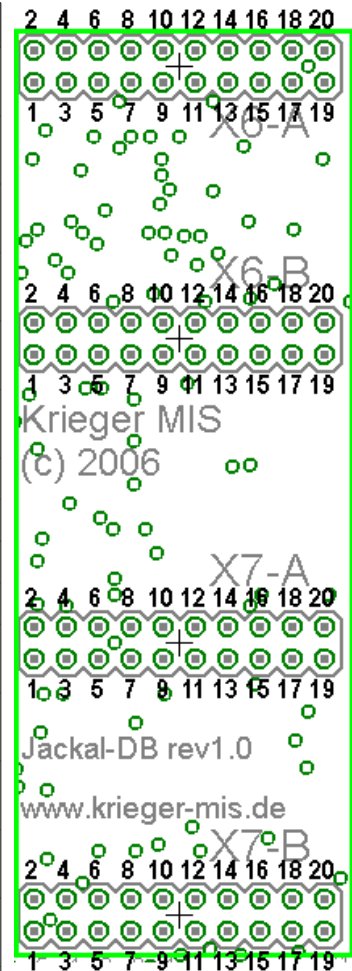
X6-A and X6-B

X6-A	J6	Description	X6-B	J6	Description
1	1	VCC	1	21	OG2 shared with LCD
2	2	VCC	2	22	OG5 shared with MMC CLK
3	3	OG31	3	23	OG1 shared with LCD
4	4	IG31	4	24	IG1
5	5	OG30	5	25	OG4 shared with LCD
6	6	IG31	6	26	OG3 shared with LCD
7	7	OG7 reserved for COM2-RTS (not configurable)	7	27	IG4 shared with LCD
8	8	IG6 reserved for COM2-RXD (not configurable)	8	28	IG3 shared with LCD
9	9	OG6 reserved for COM2-TXD (not configurable)	9	29	IG2 shared with LCD
10	10	IG7 reserved for COM2-CTS (not configurable)	10	30	IG5 shared with LCD
11	11	NMI\	11	31	PB1
12	12	+5V	12	32	PB0
13	13	I0G9 shared with LCD	13	33	PB3 reserved for USB1 on FOX Board
14	14	I0G8 shared with LCD	14	34	PB2 reserved for USB1 on FOX Board
15	15	I0G11 shared with LCD	15	35	PB5 reserved for USB1 on FOX Board
16	16	I0G10 shared with LCD	16	36	PB4 reserved for RTC (RTS\ not configurable)
17	17	I0G13 shared with LCD	17	37	PB7 reserved for RTC (CLK not configurable)
18	18	I0G12 shared with LCD	18	38	PB6 reserved for RTC (DATA not configurable)
19	19	I0G15 shared with LCD	19	39	GND
20	20	I0G14 shared with LCD	20	40	GND



X7-A and X7-B

X7-A	J7	Description	X7-B	J7	Description
1	1	GND	1	21	IOG24 shared with MMC MISO
2	2	GND	2	22	IOG0 shared with MMC MOSI
3	3	IOG22	3	23	COM1-RTS reserved for USB1 on FOX Board
4	4	IOG23	4	24	COM1-RXD reserved for USB1 on FOX Board
5	5	IOG20	5	25	COM1-TXD reserved for USB1 on FOX Board
6	6	IOG21	6	26	COM1-CTS reserved for USB1 on FOX Board
7	7	IOG18	7	27	RESET\
8	8	IOG19	8	28	INTA\
9	9	IOG16	9	29	+5V
10	10	IOG17	10	30	IRQ\
11	11	OG26 reserved for USB2 on FOX Board	11	31	PA7 shared with COM2 CD
12	12	OG29 shared with LCD	12	32	PA6 shared with COM2 DSR
13	13	OG25 shared with MMC CS	13	33	PA5 shared with COM2 RI
14	14	IG25 reserved for USB2 on FOX Board	14	34	PA4 shared with COM2 DTR
15	15	OG28 reserved for LED1 (not configurable)	15	35	PA3
16	16	OG27 reserved for USB2 on FOX Board	16	36	PA2
17	17	IG28 reserved for USB2 on FOX Board	17	37	PA1
18	18	IG27 reserved for USB2 on FOX Board	18	38	PA0
19	19	IG26 reserved for USB2 on FOX Board	19	39	VCC
20	20	IG29 reserved for USB2 on FOX Board	20	40	VCC



MMC/SD Card Connector

The MMC / SD card connector is featured with push-in push-out functionality for easy mounting and unmounting of MMC and SD cards. It accepts all memory cards in standard MMC and SD card format. With the means of this connector and the available software driver users can extend easily the non volatile storage for their applications. If no memory card is used the specific I/O pins can be used for any purpose.

MMC/SD Card PIN	Description
1	Signal CS, FOX OG25
2	Signal MOSI, FOX IOG0
3	Signal GND, FOX GND
4	Signal VCC, FOX VCC
5	Signal CLK, FOX OG5
6	Signal GND, FOX GND
7	Signal MISO, FOX IOG24
8	N/A
9	N/A

Signal LED1

The signal LED is assigned to pin OG28 of the FOX CPU Board and can be controlled by software from users application e.g. status indication. No special Linux Kernel configuration have to be done to achieve that.

Real Time Clock and Backup Battery

The real time clock is buffer with a lithium ion battery for system timekeeping in case of power less. The Linux system time will be set automatically with the RTC time during the boot process.

Note: Port B bit 4, 6 and 7 has been used for interfacing the RTC circuit.

Document History

Revision	Date	Remarks
1.0	2006-03-18	First issue
1.1	2006-04-05	Updated product image, SV2 made with cable
1.2	2006-05-02	Add additional information to section DC-IN
1.3	2006-05-11	Removed reset circuit due to coexistence with reset on FOX CPU Board

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