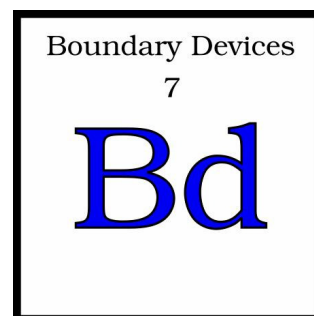


# SABRE Lite Hardware User Manual

## Revision History

Date	Revision	Description
10-27-2011	1.0	First Draft
11-07-2011	1.1	Updated Section 2/Modified Picture



# 1 Contents

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## 2 Overview

Freestyle and Boundary Devices are excited to announce the availability of the i.MX6x SABRE Lite Board, a low-cost development platform featuring the powerful i.MX 6Quad Application Processor. The hardware specifications for the Sabre Lite board are the following:

- Quad-Core ARM® Cortex A9 processor at 1GHz per core
- 1GByte of 64-bit wide DDR3 @ 532MHz
- Three display ports (RGB, LVDS, and HDMI 1.4a)
- Two camera ports (1xParallel, 1x MIPI CSI-2)
- Multi-stream-capable HD video engine delivering H.264 1080p60 decode, 1080p30 encode and 3-D video playback in HD
- Triple Play Graphics system consisting of a Quad-shader 3D unit, and a separate 2-D and separate OpenVG Vertex acceleration engine for superior 3D, 2D and user interface acceleration
- Serial ATA 2.5 (SATA) at 3Gbps
- Dual SD 3.0/SDXC card slots
- PCIe port (1 lane)
- Analog (headphone/mic) and Digital (HDMI) audio
- 10/100/Gb Ethernet
- 10-pin JTAG interface
- 3 High speed USB ports (2xHost, 1xOTG)
- 1xCAN2 port
- I2C
- General Purpose I/O for Device Control

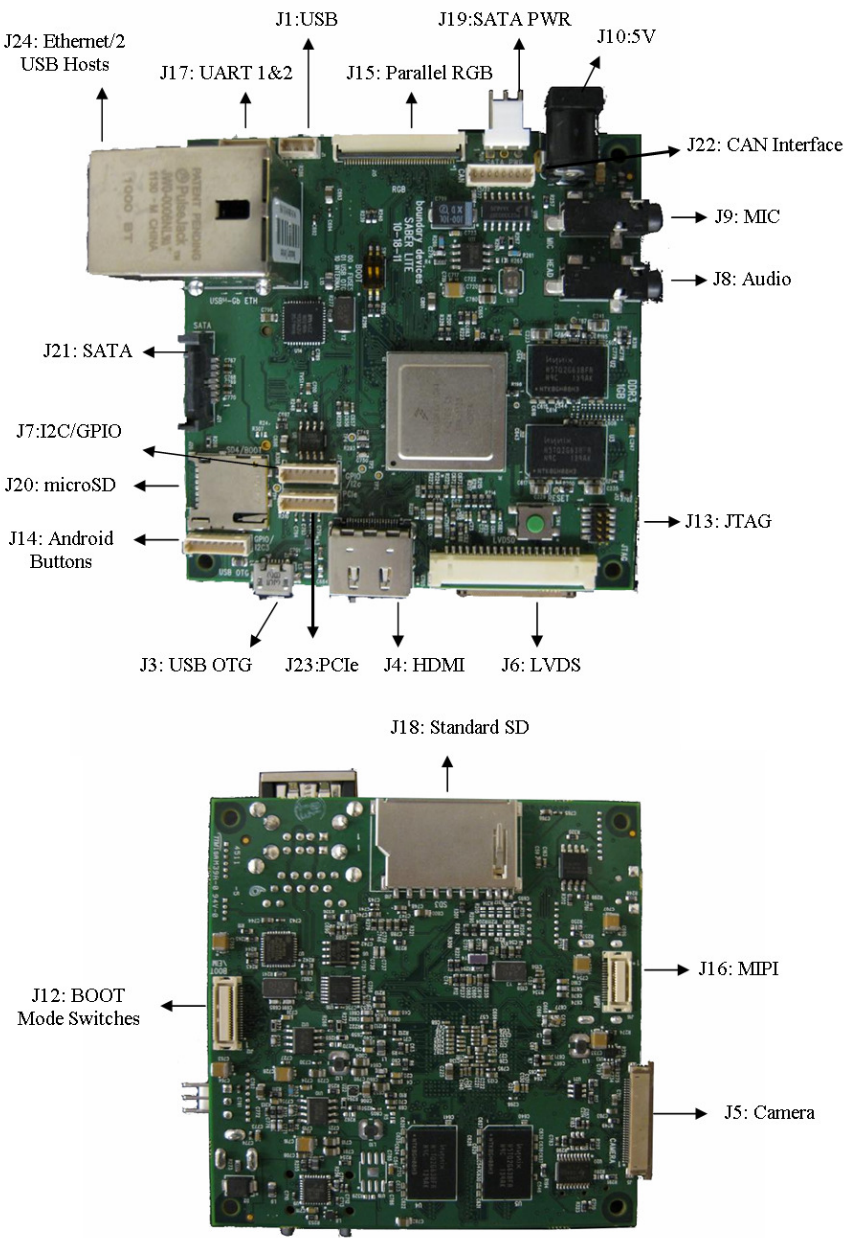
## 3 Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Main Input Voltage	TBD	5	TBD	V
Power Consumption*	-	5	TBD	W
CPU Clock	-	1.0	1.0	GHz

\*The Power Consumption refers to a single board with no other peripherals plugged in.

# 4 Connector Details

Figure 1 shows the details of each connector.



## 4.1 Standard Connectors

The list of industry standard connectors with known pin outs is the following:

Ref Designator	Function
J3	USB OTG
J4	HDMI (DVI Signals)
J8	Headphone Jack
J9	Mic IN
J10	DC Power Jack
J18	Standard SD Slot
J20	microSD Slot
J21	SATA
J24	10/100 Ethernet/2xUSB Host

## 4.2 Custom Connectors

The SABRE Lite board has a wide variety of peripheral interfaces available via custom connectors.

### J1: USB (Molex 53047-0410)

Pin#	Function
1	+5V
2	USBDN_DM3
3	USBDN_DP3
4	GND

### J5: Camera (AVX 086210033340800)

Pin#	Function
1	GND
2	D19
3	D18
4	D17
5	D16
6	D15
7	D14
8	D13
9	D12
10	D11
11	D10
12	D9
13	D8
14	SCL
15	SDA

16	GND
17	GPIO_3_CLKO2
18	GND
19	2.5V
20	2.5V
21	2.5V
22	2.5V
23	GND
24	CSI0_DATA_EN
25	GND
26	CSI0_RST
27	CSI0_VSYNC
28	CSI0_HSYNC
29	GND
30	CSI0_PIXCLK
31	GPIO_6
32	GND
33	GPIO1_16

**J6: LVDS (Hirose DF14-20P-1.25H)**

Pin#	Function
1	3.3V
2	3.3V
3	GND
4	GND
5	TX0_N
6	TX0_P
7	GND
8	TX1_N
9	TX1_P
10	GND
11	TX2_N
12	TX2_P
13	GND
14	CLK_N
15	CLK_P
16	GND
17	TX3_N
18	TX3_P
19	DISP0_CONTRAST
20	PWM4

**J7: I2C/GPIO (Molex 53047-0710)**

Pin#	Function
1	+5V

2	+5V
3	+5V
4	GPIO9
5	I2C3_SDA
6	I2C3_SCL
7	GND

#### **J12: Boot Mode Switches (Molex 52991-0408)**

Pin#	Function
1	EIM_A23
2	EIM_DA0
3	EIM_A22
4	EIM_DA1
5	EIM_A21
6	EIM_DA2
7	EIM_A20
8	EIM_DA3
9	EIM_A19
10	EIM_DA4
11	EIM_A18
12	EIM_DA5
13	EIM_A17
14	EIM_DA6
15	EIM_A16
16	EIM_DA7
17	EIM_EB3
18	EIM_DA8
19	EIM_EB2
20	EIM_DA9
21	EIM_RW
22	EIM_DA10
23	EIM_EB1
24	EIM_DA11
25	EIM_EB0
26	GND
27	EIM_LBA
28	EIM_DA12
29	GND
30	DSI_D1M
31	EIM_WAIT
32	EIM_DA13
33	GND
34	GND
35	EIM_A24
36	EIM_DA14

37	+3.3V
38	GND
39	+3.3V
40	EIM_DA15

**J13: JTAG (FCI 20021121-00010T4LF)**

Pin#	Function
1	+3.3V
2	JTAG_TMS
3	GND
4	JTAG_TCK
5	GND
6	JTAG_TDO
7	JTAG_MOD
8	JTAG_TDI
9	JTAG_nTRST
10	BRESET_N

**J14: Android Buttons (Molex 53047-0810)**

Pin#	Function	IMX6 Pad Name
1	ON/OFF	
2	KEY_VOL_UP	GPIO_18
3	HOME	NANDF_D4
4	SEARCH	NANDF_D3
5	BACK	NANDF_D2
6	MENU	NANDF_D1
7	KEY_VOL_DN	GPIO_19
8	GND	

**J15: Parallel RGB (Omron XF2M-4015-1A)**

Pin#	Function
1	GND
2	GND
3	GND
4	DISP0_CNTRST
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1

15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	DISP0_CLK
31	GND
32	DISP0_HSYNC
33	DISP0_VSYNC
34	DISP0_DRDY
35	I2C3_SCL
36	I2C3_SDA
37	PWM1
38	+5V
39	+5V
40	+5V

**J16: MIPI (Molex 52991-0308)**

Pin#	Function
1	CSI_D0M
2	+5V
3	CSI_D0P
4	+5V
5	GND
6	I2C2_SDA
7	CSI_D1M
8	I2C2_SCL
9	CSI_D1P
10	PWM3
11	GND
12	MIPI_BAKLGT_ON
13	CSI_D2M
14	NANDE_D5
15	CSI_D2P
16	DSI_D0P

17	GND
18	DSI_D0M
19	CSI_D3M
20	GND
21	CSI_D3P
22	DSI_CLK0P
23	GND
24	DSI_CLK0M
25	CSI_CLK0M
26	GND
27	CSI_CLK0P
28	DSI_D1P
29	GND
30	DSI_D1M

**J17: COM1 & COM2 (Molex 53047-0610)**

Pin#	Function
1	UART1 TX
2	+5V
3	GND
4	UART2 TX
5	UART2 RX
6	UART1 RX

**J19: SATA Power (Tyco 640457-3)**

Pin#	Function
1	+3.3V
2	GND
3	+5V

**J22: CAN Interface (Molex 53047-0310)**

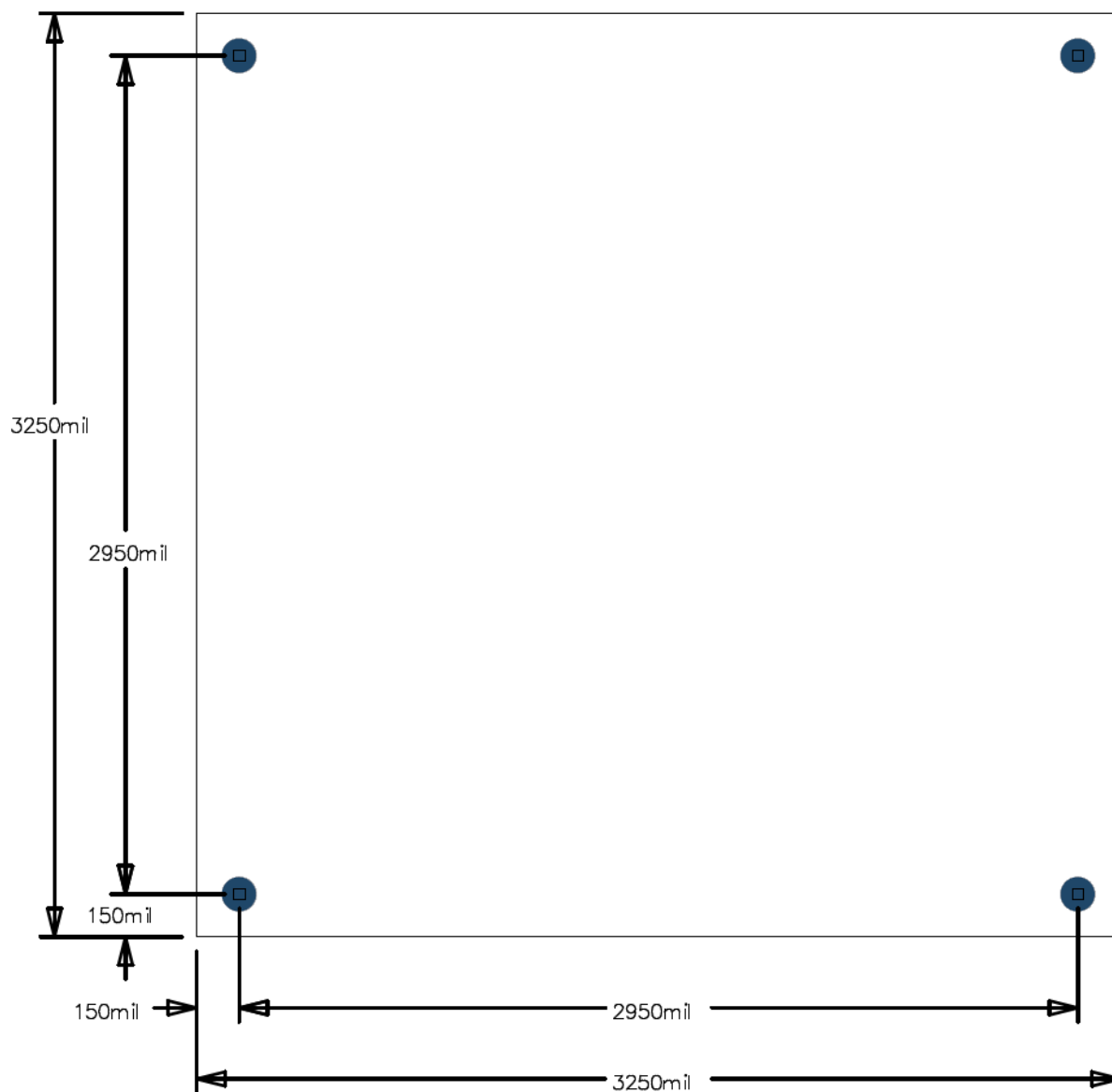
Pin#	Function
1	CANH
2	GND
3	CANL

**J23: PCIe (Molex 53047-0710)**

Pin#	Function
1	+3.3V
2	PCIE_RXM
3	PCIE_RXP
4	PCIE_TXM
5	PCIE_TXP
6	GND
7	GND

## 5 Mounting

The overall dimensions of the SABRE Lite board are 3.25"x3.25"



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