

Nit6_SoloX

User Manual

Contents

1 Revision History 3

2 Overview 4

3 Electrical Characteristics 5

4 Connector Details..... 6

5 Physical Dimensions 11

1 Revision History

Date	Revision	Description
4-27-2015	1.0	First Draft

Revision 1.0

2 Overview

The Nit6_SoloX is a multi-purpose single board computer based on the i.MX6 SoloX processor from Freescale. The hardware specifications for the Nit6_SoloX board are as follows:

- i.MX 6SoloX ARM Cortex-A9/ARM Cortex-M4(Cortex-A9 @ 1GHZ, Cortex-M4 @200MHZ)
- 1GB of 32-bit wide DDR3 @ 532 MHz
- 2MB Serial Flash
- LVDS Display Port
- SIM Card Reader
- Analog (Headphone/Microphone)
- 2W Stereo Amplified 2-Channel Speaker Output
- Dual 10/100/1000 Ethernet Jack
- 10-pin JTAG interface
- USB Double Stack Host + 1 USB OTG
- UART Interface
- 4GB eMMC
- 1 microSD card
- RTC with battery backup
- PCIE
- Dual CAN Bus
- Up to 20-bit CSI Camera Interface (via Daughter board)
- WiFi+BT (via Daughter board)
- SPI + UART + I2C + GPIO (via Daughter board)
- Analog NTSC Camera Input (via Daughter board)
- RGB (via Daughter board)
- ADC (via Daughter board)

3 Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Main Input Voltage	TBD	5	TBD	V
Power Consumption*	-	-	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 & 2 show the details of each connector.

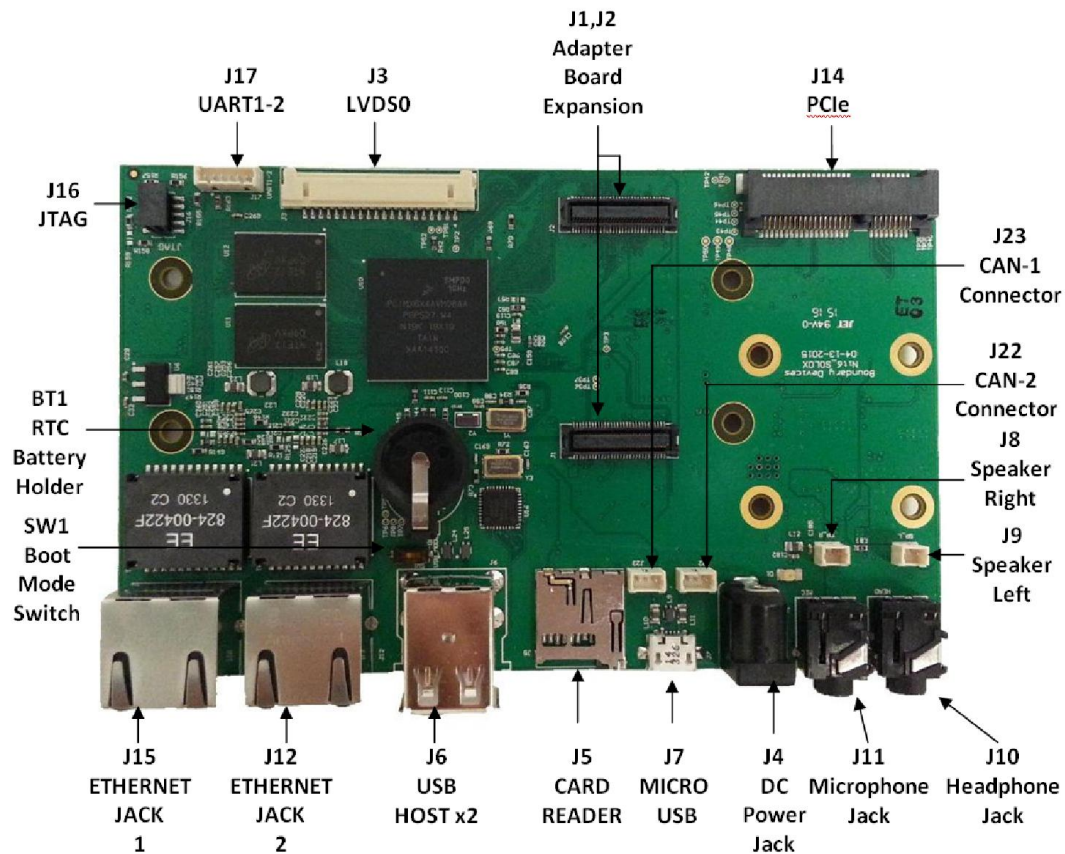


Figure 1

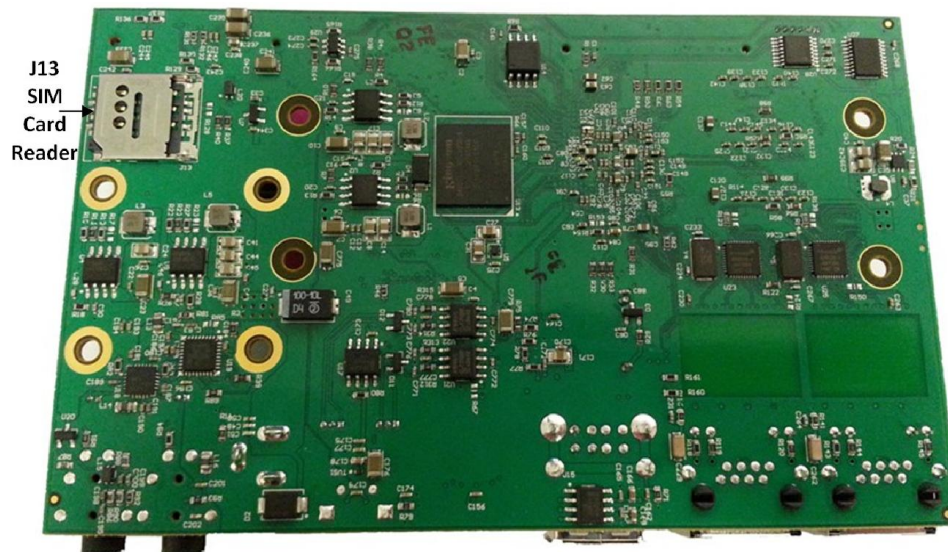


Figure 2

Revision 1.0

4.1 Standard Connectors

Industry standard connectors with known pin outs:

Ref Designator	Function
J12,J15	10/100/1000 Ethernet Jack
J4	DC Power Jack
J6	USB Host
J7	USB OTG
J10	Headphone Jack
J11	Microphone Jack
J5	SD Card Slot
J13	SIM Card Reader
J9	PCIE Connector

4.2 Custom Connectors

The Nitrogen Solo-X board has a wide variety of peripheral interfaces available via custom connectors:

J3: LVDS (Hirose DF14-20P-1.25H)

Pin#	Function
1	VDD_SNVS
2	VDD_SNVS
3	GND
4	GND
5	LVDS0 TX0_N
6	LVDS0 TX0_P
7	GND
8	LVDS0 TX1_N
9	LVDS0 TX1_P
10	GND
11	LVDS0 TX2_N
12	LVDS0 TX2_P
13	GND
14	LVDS0 CLK_N
15	LVDS0 CLK_P
16	GND
17	LVDS0 TX3_N
18	LVDS0 TX3_P
19	LCD1_ENABLE
20	PWM4

J8: Right Speaker (Molex 53047-0210)

Pin#	Function
1	Speaker Right Plus
2	Speaker Right

J9: Left Speaker (Molex 53047-0210)

Pin#	Function
1	Speaker Left
2	Speaker Left Plus

J16: JTAG (FCI 20021121-00010T4LF)

Pin#	Function
1	VDD_SNVS
2	JTAG_TMS
3	GND
4	JTAG_TCK
5	GND
6	JTAG_TDO
7	JTAG_MOD
8	JTAG_TDI
9	JTAG_TRST_E
10	BRESET_N

J17: UART 1-2 SERIAL CONNECTOR (MOLEX 53047-0610)

Pin#	Function
1	UART1_TXD
2	+5V
3	GND
4	UART2_TXD
5	UART2_RXD
6	UART1_RXD

J22,J23: CAN Connectors (Molex 53047-0310)

Pin#	Function
1	CANH
2	GND
3	CANL

J1: (Molex 54167-0608)

Pin#	Function	44	SD3 WP
1	ADC2 IN0	45	GND
2	PWM3	46	GND
3	ADC2 IN1	47	NAND CE0 GPIO
4	UART5 TXD	48	QSPI1A DAT0
5	ADC2 IN2	49	I2C2 SDA
6	GND	50	QSPI1A DAT1
7	ADC2 IN3	51	I2C2 SCL
8	UART5 RXD	52	QSPI1A DAT2
9	GND	53	GND
10	GND	54	QSPI1A DAT3
11	ADC1 IN3	55	HSIC DATA
12	CSPI5 CLK	56	GND
13	ADC1 IN2	57	HSIC STROBE
14	CSPI5 MISO	58	5VIN
15	ADC1 IN1	59	GND
16	CSPI5 MOSI	60	5VIN
17	ADC1 IN0		
18	CSPI5 CSO		
19	GND		
20	GND		
21	VADC IN0		
22	SD3 CLK		
23	VADC IN3		
24	SD3 CMD		
25	VADC IN2		
26	SD3 DAT0		
27	VADC IN1		
28	SD3 DAT1		
29	GND		
30	SD3 DAT2		
31	NAND READY GPIO		
32	SD3 DAT3		
33	NAND WP GPIO		
34	SD3 DAT4		
35	NAND WE GPIO		
36	SD3 DAT5		
37	NAND RE GPIO		
38	SD3 DAT6		
39	NAND CLE GPIO		
40	SD3 DAT7		
41	NAND ALE GPIO		
42	SD3 RST B		
43	NAND CE1 GPIO		

J2: (Molex 54167-0608)

Pin#	Function	44	GND
1	RESET N	45	DISP0 DAT21
2	I2C3 SCI	46	DISP0 RESET
3	GND	47	DISP0 DAT20
4	I2C3 SDA	48	PWM2
5	DISP0 CLK	49	DISP0 DAT19
6	GND	50	UART3 TXD
7	GND	51	DISP0 DAT18
8	DISP0 HSYNC	52	UART3 RXD
9	DISP0 DAT7	53	DISP0 DAT17
10	DISP0 VSYNC	54	GND
11	DISP0 DAT6	55	DISP0 DAT16
12	DISP0 DRDY	56	5VIN
13	DISP0 DAT5	57	GND
14	GND	58	5VIN
15	DISP0 DAT4	59	GND
16	CSI PIXCLK	60	5VIN
17	DISP0 DAT3		
18	GND		
19	DISP0 DAT2		
20	CSI MCLK		
21	DISP0 DAT1		
22	GND		
23	DISP0 DAT0		
24	CSI VSYNC		
25	DISP0 DAT15		
26	CSI HSYNC		
27	DISP0 DAT14		
28	CSI DAT00		
29	DISP0 DAT13		
30	CSI DAT01		
31	DISP0 DAT12		
32	CSI DAT02		
33	DISP0 DAT11		
34	CSI DAT03		
35	DISP0 DAT10		
36	CSI DAT04		
37	DISP0 DAT9		
38	CSI DAT05		
39	DISP0 DAT8		
40	CSI DAT06		
41	DISP0 DAT23		
42	CSI DAT07		
43	DISP0 DAT22		

Top view of the N16_30L0X PCB. The board is rectangular with overall dimensions of 5.11 inches in width and 3.14 inches in height. Key dimensions include a top section width of 4.80 inches, a central section width of 1.29 inches, and a bottom section width of 1.13 inches. The left edge has a total height of 3.14 inches, with individual segments of 1.01, 1.53, 1.96, and 2.43 inches. A small dimension of 0.17 inches is noted near the top left corner. The layout includes various components such as ICs (U1, U2, U3, U4, U5, U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U18, U19, U20, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U31, U32, U33, U34, U35, U36, U37, U38, U39, U40, U41, U42, U43, U44, U45, U46, U47, U48, U49, U50, U51, U52, U53, U54, U55, U56, U57, U58, U59, U60, U61, U62, U63, U64, U65, U66, U67, U68, U69, U70, U71, U72, U73, U74, U75, U76, U77, U78, U79, U80, U81, U82, U83, U84, U85, U86, U87, U88, U89, U90, U91, U92, U93, U94, U95, U96, U97, U98, U99, U100), resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), and other components like diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100), transistors (T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56, T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98, T99, T100), and connectors (J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100). The text 'Boundary Devices N16_30L0X 04-13-2015' is printed on the board. A small circular feature is located near the bottom center. The board is populated with numerous components, including integrated circuits, resistors, capacitors, and connectors, arranged in a structured layout.

Downloaded from Arrow.com.