



Product Overview

JACKSON

Orin Nano/NX Carrier Board

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1. DESCRIPTION

Jackson is an Orin Nano / Orin NX module-based board with rich graphics and camera input capability. This base board converts the module into a complete embedded system by providing interface circuitry, I/O connectors for all the major features of the module, camera interface, power supply and additional I/O capabilities.

This Base Board redefines possibility; a combination of performance, power efficiency, integrated deep learning capabilities and rich I/O remove the barriers to a new generation of low-cost products.

The base board also contains M.2 x4 lane PCIe SSD as storage options along with interfaces like HDMI, USB3.2, CSI, Ethernet, CAN, Serial ports, Utility connector

1.1 Mechanical, Electrical, Environmental

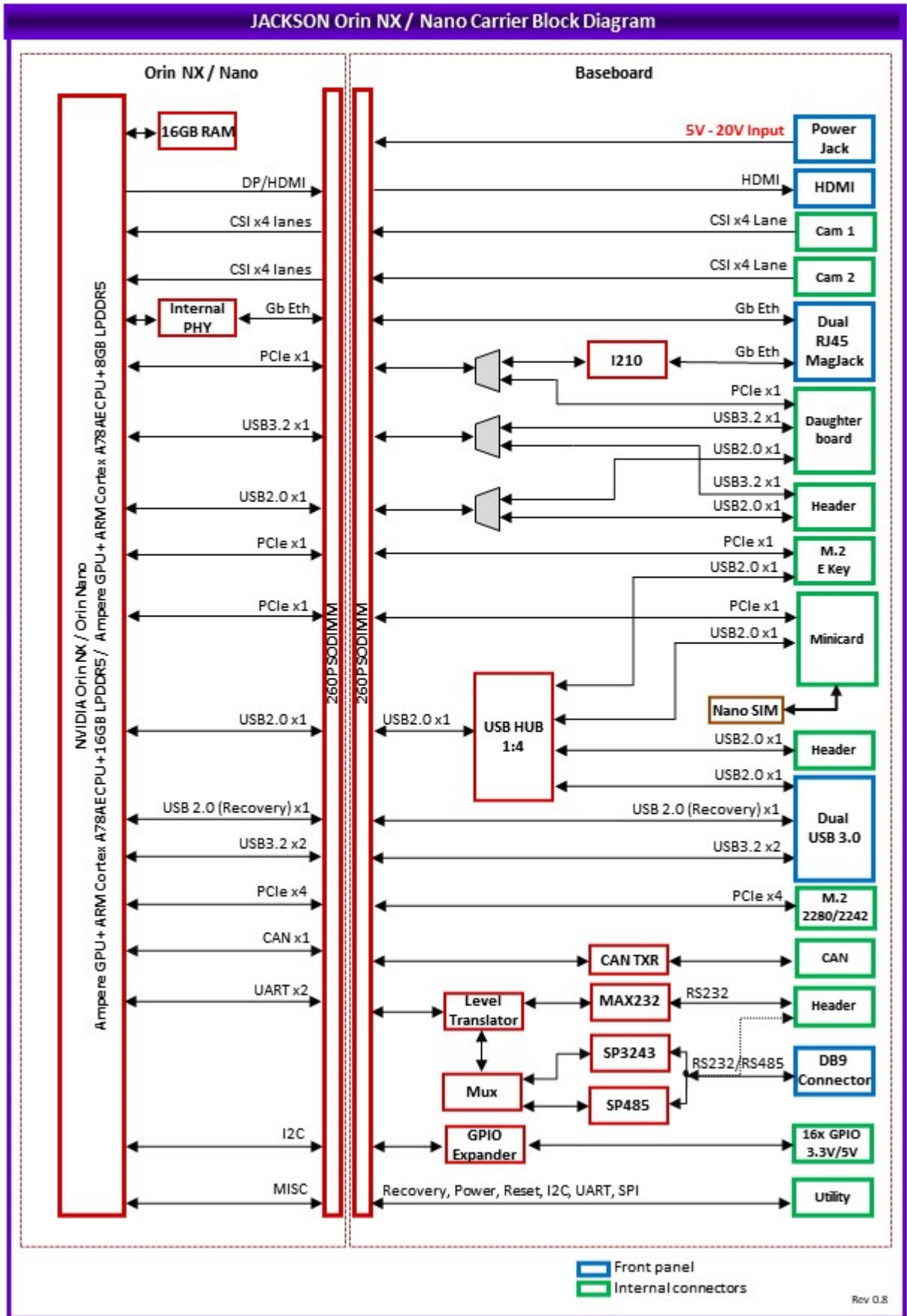
- ◆ Form factor 85mm x 110mm
- ◆ Cooling Fan sink
- ◆ Power input 7V – 20V
- ◆ Operating Temp -25°C to +80°C ambient

1.2 Feature List

Feature	Description	Connector Type
Power	7V - 20V wide input supply	DC barrel jack or Terminal Block
RTC	3V power input for RTC functionality	1x2 connector
Fan	1x Fan connector to support active thermal solution	1x4 SMD connector
Ethernet	1x 10/100/1000Mbps from the Orin NX module *1x 10/100/1000Mbps from the I210 controller	1x Dual port RJ45
Display	1x HDMI 2.0a/b directly from the module with audio	1x Vertically stacked HDMI connector
Camera	2x4 lane CSI-2 Camera Interface	2x 22-pin FPC cable connector
Serial ports	1x port that is jumper configurable RS-232/485 through either MAX232 or SP485 transceivers. 1x RS232, 1xRS232/RS485 port through MAX232	1 x DB9 Connector 2x5 Header
USB	2x USB 3.2 / USB 2.0 1x USB2.0 *1x USB3.2 / USB2.0	1x USB3 Dual port RA 1x4 Header 2x5 Header
Mass storage/I/O	1x M.2 PCIe SSD socket with PCIe x4 1x M.2 E key with PCIe x1, USB2.0 x1	M.2 2280/2242 M.2 2230
Expansion Connector	*1x USB3.2, 1x USB2.0 and PCIe x1 lane expansion	FFC 40pin
Minicard	Minicard expansion with x1 PCIe and x1 USB2.0 with SIM connector	Mini Card Connector
Digital IOs	16x Digital IOs 3.3V/5V realized using I2C GPIO expander	2x10 Header
CAN	1x CAN interface	1x4 SMD connector
Utility	FORCE RECOVERY, PWR_BTN, RESET, I2C, SPI, DEBUG UART, FORCE OFF,	2x10 Header

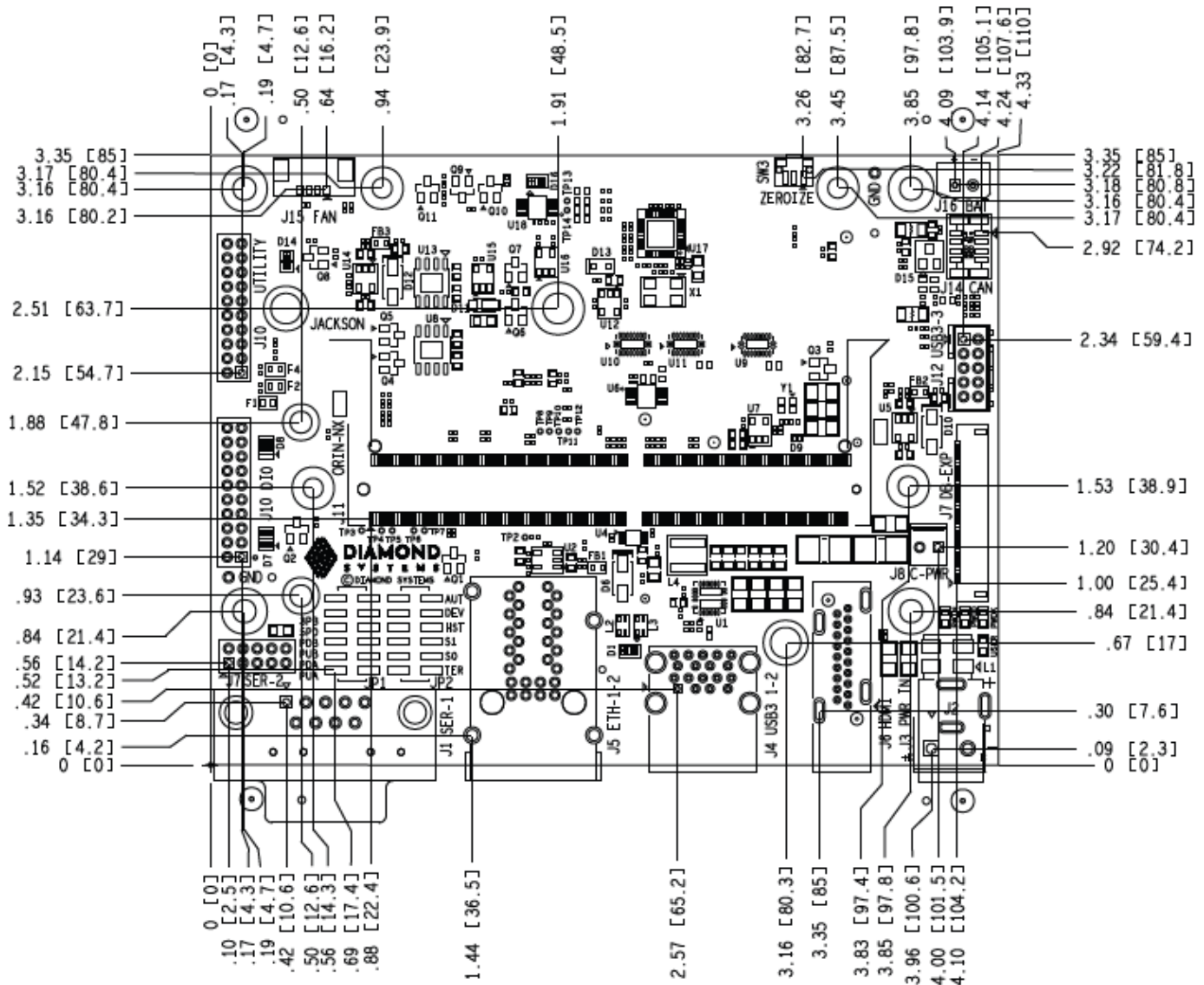
*1x Ethernet (from I210) and 1x USB3.2 / USB2.0 (on 2x10 header) will be not supported when expansion cards are used.

2. BLOCK DIAGRAM

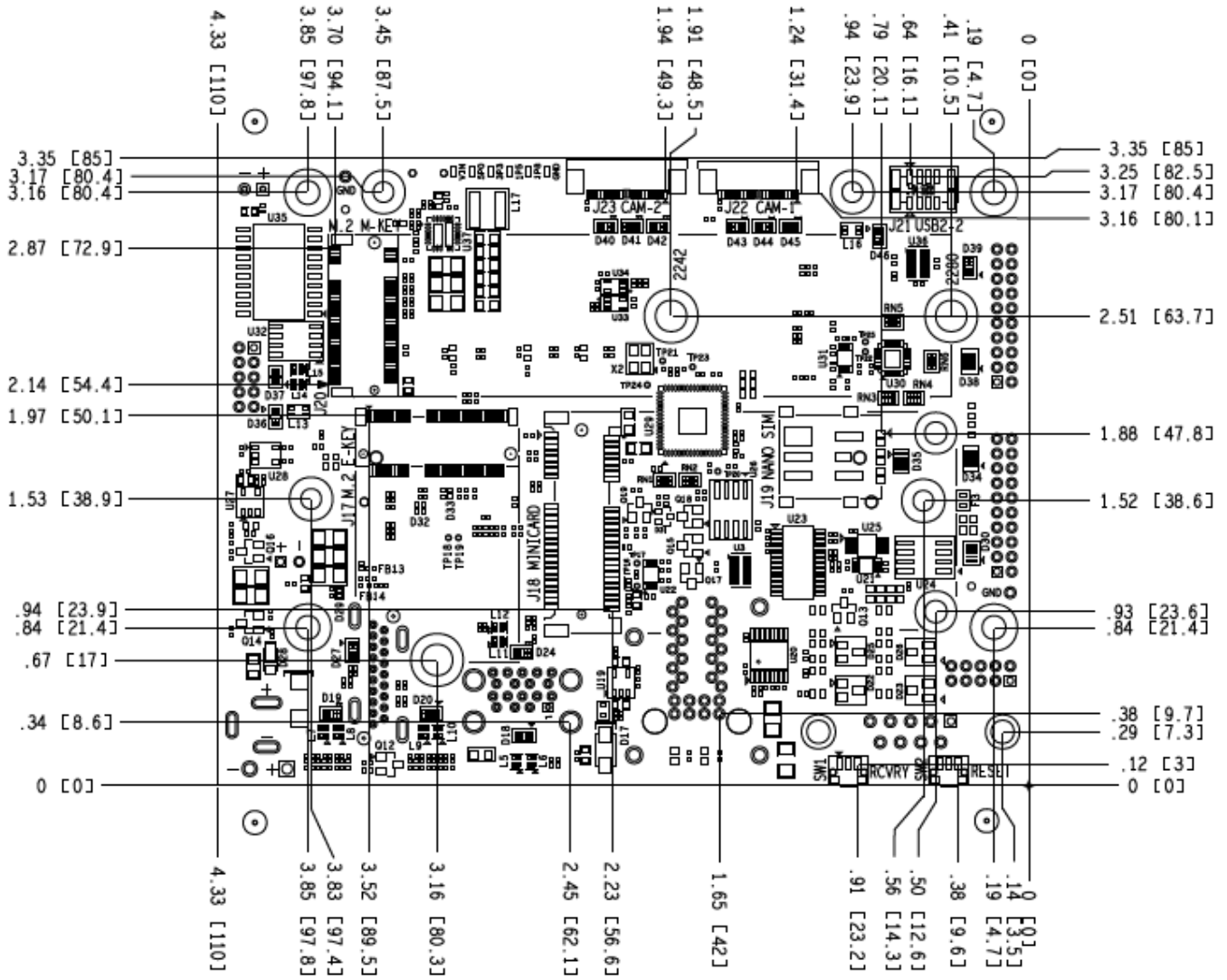


3. DIMENSION DRAWINGS

Below figures represent the board dimension drawing.

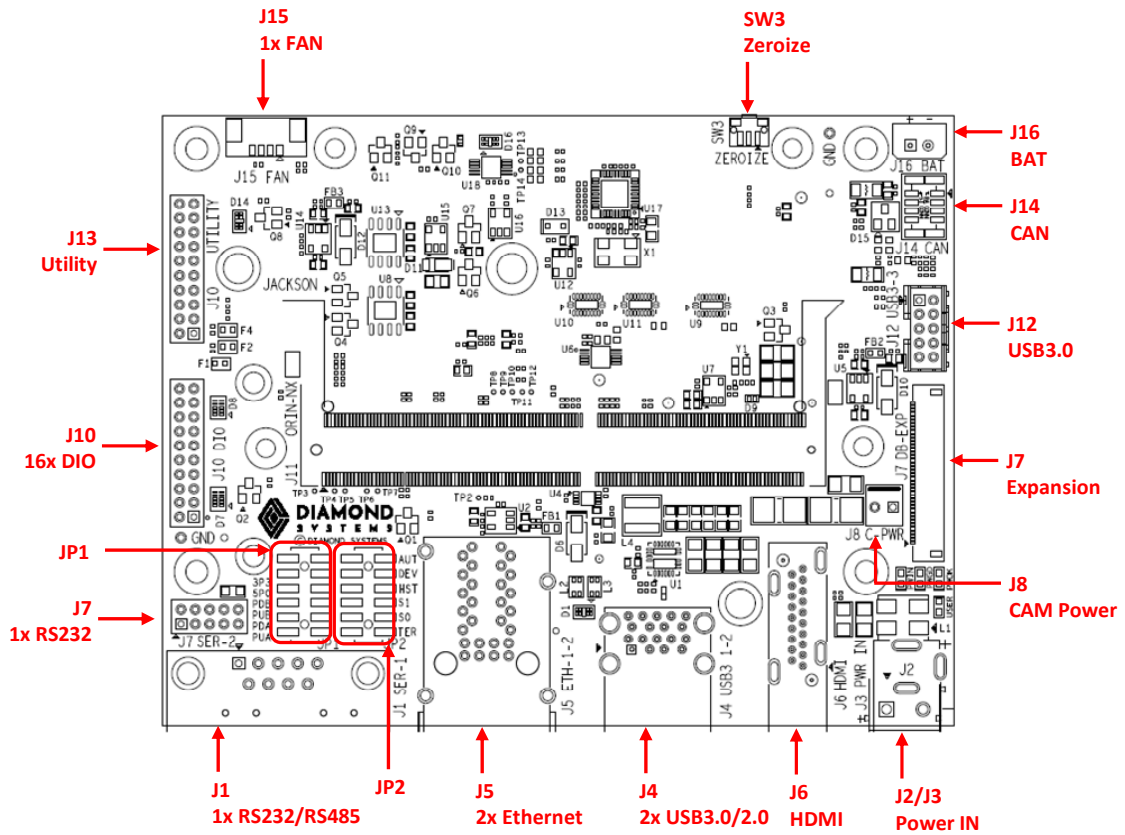


Top View

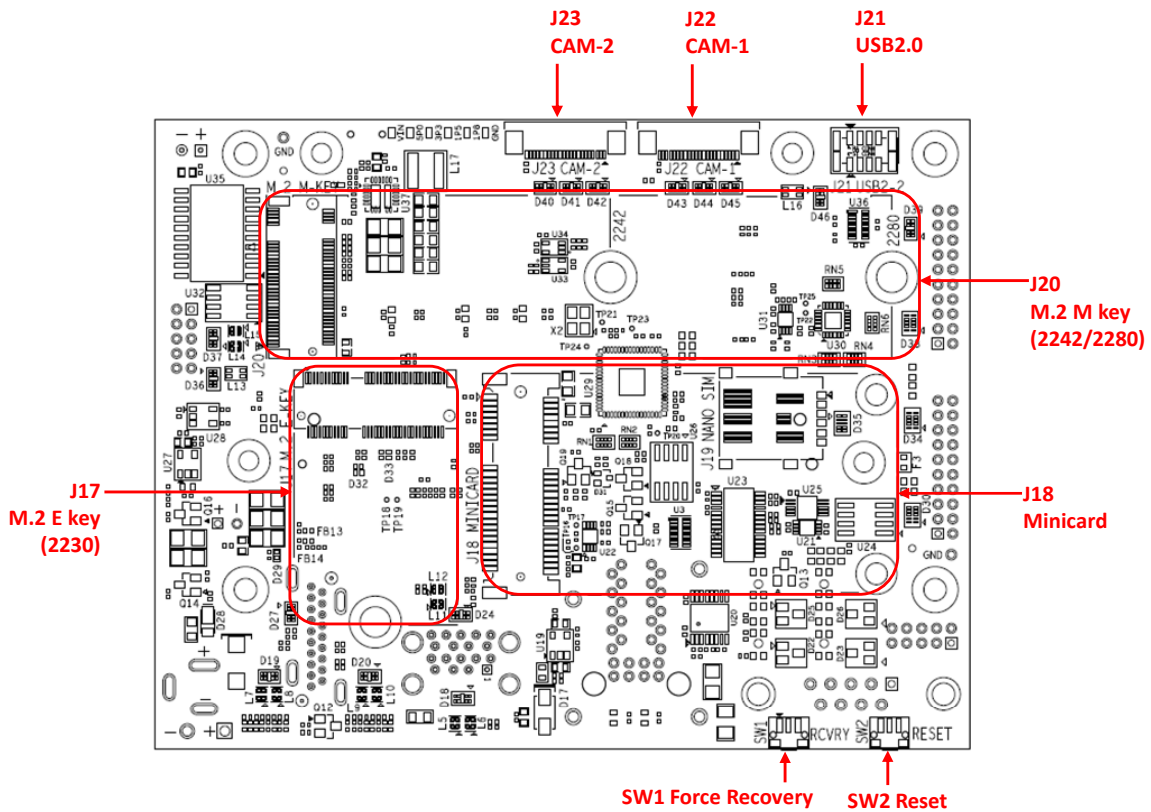


Bottom View

4. PRODUCT FEATURE DRAWINGS



Top View



Bottom View

5. I/O CONNECTOR TABLE

The following table provides a summary of all I/O connectors on the board.

Function	Manufacturer	Part no.	Description	DSC Mating Cable
Power In	CUI Inc.	PJ-202BH	CONN PWR JACK 2.5X5.5MM SOLDER	TBD
RTC battery	Molex	0022035025	CONN HEADER VERT 2POS 2.5MM	6980524
Fan	Molex	0533980471	CONN HEADER SMD 4POS 1.25MM	NA
GbE	Link PP	LPJG17561BHNL	DUAL PORT RJ45 CONNECTOR	Standard
HDMI	Foxconn	QJ3119C-WFB1-4F	UP RIGHT HDMI CONNECTOR	Standard
Camera (x2)	TE	2-1734592-2	22-PIN FPC RA SMD	FFC cable
Serial Ports	Molex	0877581016	CONN HEADER VERT 10POS 2MM	6981075
USB 3.0/ USB2.0	Molex	484060003	USB 3.0 A TYPE, RA, T/H, 9 POS	Standard
USB 3.0/ USB2.0	Amphenol	98414-G06-10LF	CONN HEADER VERT 10POS 2MM	6980603
USB2.0	Amphenol	BM04B-GHS-TBT	CONN HEADER SMD 4POS 1.25MM	TBD
Expansion Connector	Hirose	FH55-40S-0.5SH	CONN FFC FPC 0.5MM SMD	FFC cable
M.2 SSD socket	Amphenol	10128798-005RLF	CONN FEMALE 67POS 0.020 GOLD	NA
M.2 PCIe E-Key	TE	2199230-4	CONN M.2 FEMALE 67POS 0.020 GOLD	NA
Minicard	TE	1759547-1	CONN PCI EXP MINI FEMALE 52POS	NA
Digital IO	Molex	0877582016	CONN HEADER ST 20POS, 2X10 2MM	TBD
CAN	JST	BM04B-GHS-TBT(LF)(SN)(N)	CONN HEADER SMD 4POS 1.25MM	6981182
Utility	Molex	0877582016	CONN HEADER ST 20POS, 2X10 2MM	TBD
Module Connector	TE	2309413-1	DDR4 SODIMM 260P 9.2H STD	NA