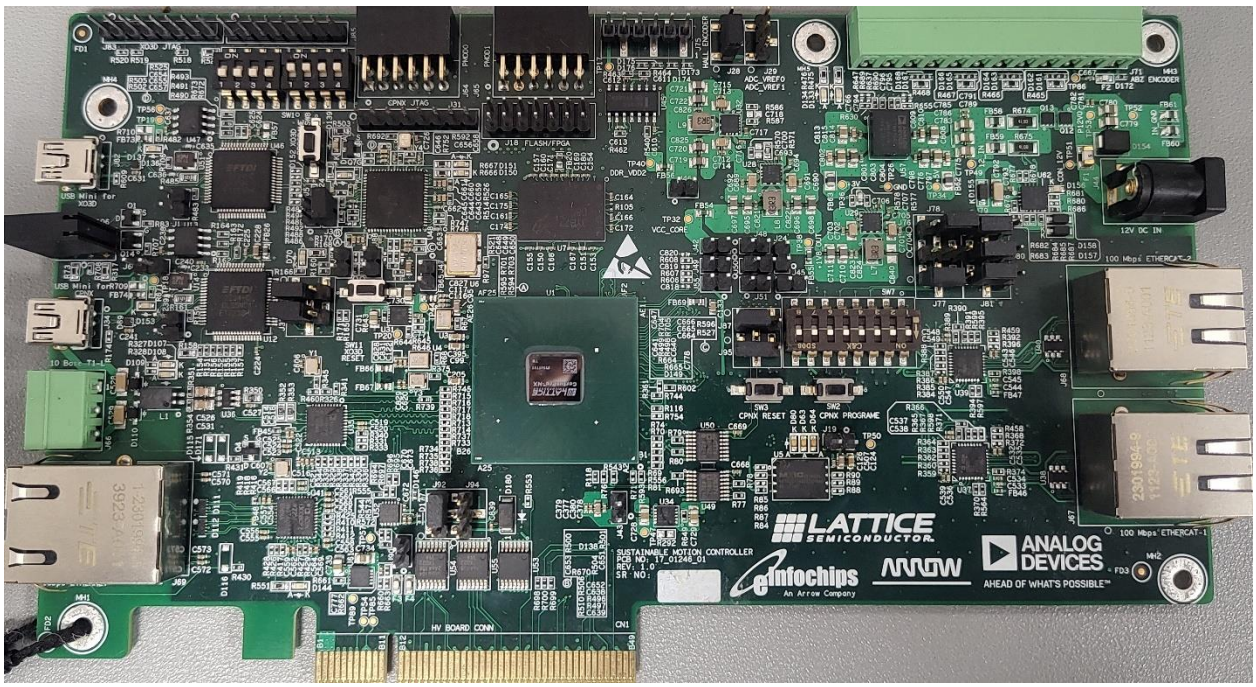
Five Years Out

Motion Control Board
Quick Start Guide



Version	1.0
Status	Baseline
Date	15-Oct-2024

Confidentiality Notice

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FIGURES

TABLES

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1 DOCUMENTATION DETAILS

1.1 Document History

Version	Author		Reviewer		Approver	
	Name	Date (DD-MM-YYYY)	Name	Date (DD-MMM-YYYY)	Name	Date (DD-MM-YYYY)
Draft 0.1	Shrey Bechara	12-Mar-24	Ziyauddin Dhukka	20-Mar-2024	Ashish Agarwal	01-Oct-2024
Baseline 1.0	Ziyauddin Dhukka	15-Oct-24	Ashish Agarwal	15-Oct-24	Kalpesh Balar	16-Oct-24

Version	Description of Change
Draft 0.1	Initial draft version created.
Baseline 1.0	Internal reviewed and approved.

Table 1: Document History

1.2 References

No.	Document	Version	Remarks
1	Versa Board Quick Start Guide	QS068 V1 July 2022	

Table 2: References

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2 DETAILED VIEW OF MOTOR CONTROL BOARD

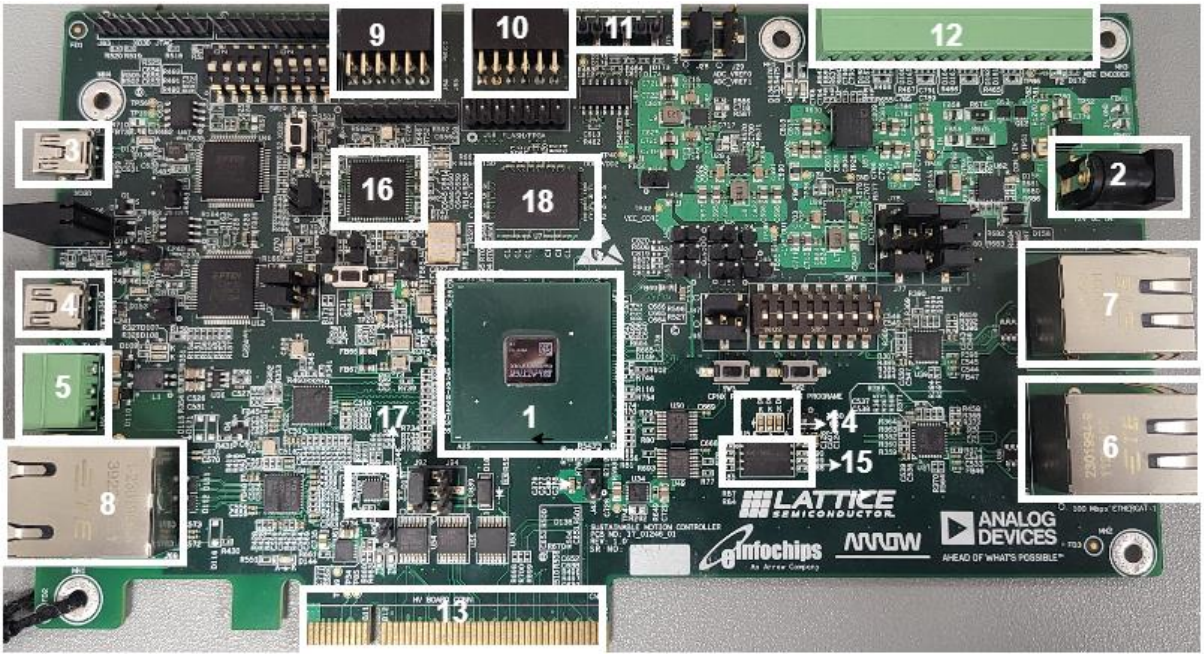

Figure 1 Detailed View of MCB

Sr. No.	Components
1	Lattice CertusPro-NX FPGA
2	12V DC/2A Power Adapter jack
3	Mini-USB port for MachXO3D
4	Mini-USB port for CertusPro-NX
5	10BaseTL port for ADIN1100
6	RJ45 Ethernet port for ADIN1200_1
7	RJ45 Ethernet port for ADIN1200_2
8	RJ45 Ethernet port for ADIN1300
9	PMOD0
10	PMOD1
11	HALL Encoder connector
12	ABZY Encoder connector
13	PCIe Connector for HV Board
14	Debug LEDs
15	Winbond QSPI
16	Lattice MachXO3D FPGA
17	MAXQ1065
18	LPDDR4

Table 3: Components of MCB

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3 QUICK START GUIDE

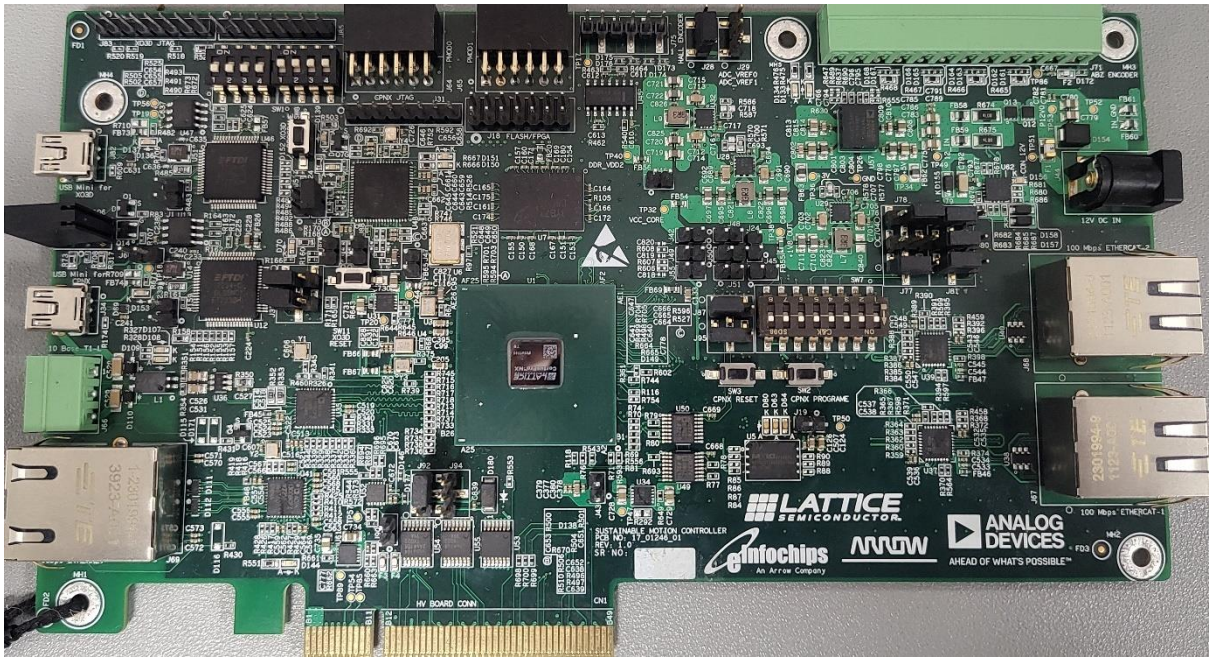

Figure 2 Top View of Motion Control Board

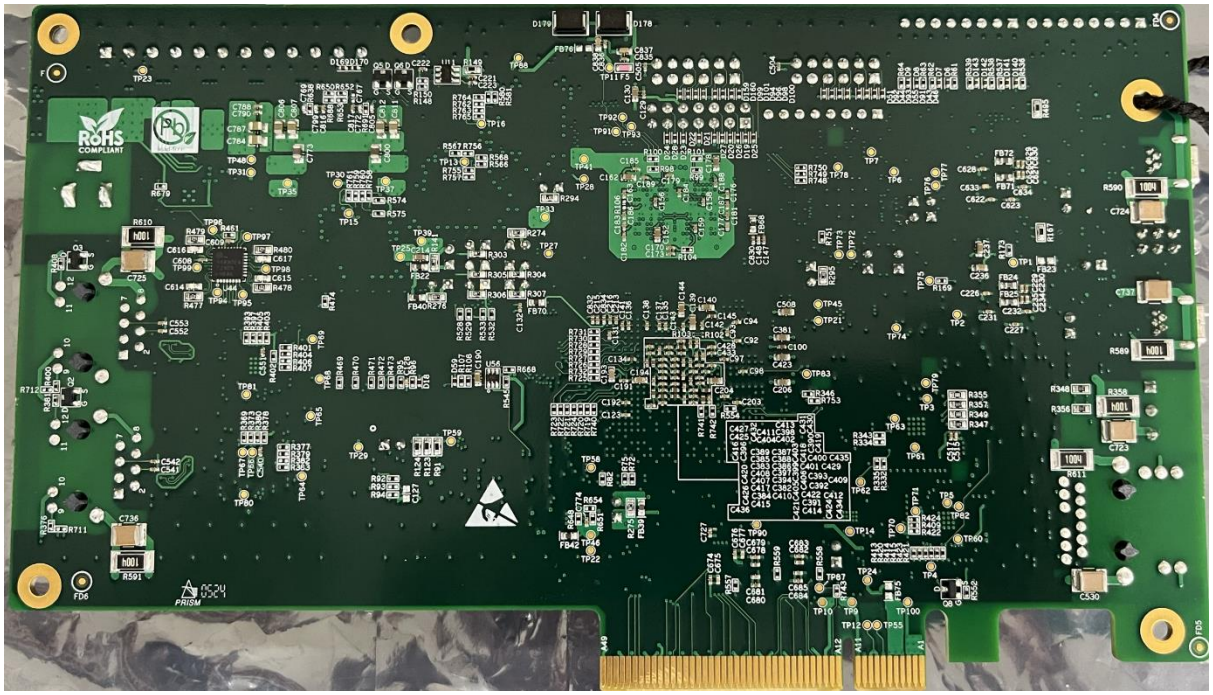

Figure 3 Bottom View of Motion Control Board

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3.1 Check Kit Contents

The **Motion Control Board** kit contains the following items:

- Motion Control Board based on Lattice CertusPro-NX with ADI PHYs.
- 12V DC/2A Adapter.
- USB Cable for Programming via PC (USB-A to Mini-B).
- Copy of Quick Start Guide.

3.2 Using Motor Control Board based on Lattice CertusPro-NX with ADI PHYs

- The Motion Control Board is pre-loaded with a demo firmware.

3.3 Installing the Software

- To develop your own solutions, download and use the Lattice Radiant design software. (version 3.2 or later), download from Lattice Radiant | FPGA Design Software | Lattice Semiconductor.
- If you only need to re-program the board, you can use the Lattice Propel (version 3.2 or later), download from Lattice Propel | FPGA Design Software | Lattice Semiconductor.

  Note: For more information, refer to **Guide for How to Compile, flash and debug the firmware** document.

3.4 Powering the board and Observing the Demo Program

- Below is a list of jumpers to be closed.

Below are the jumper's designators	Function
J95 Short (1-2)	Connect QSPI with CPNX
J87 Short (1-2)	Connect QSPI with CPNX
J28 Short (1-2)	Connect V1P8_ADC_Refrence to ADC_REFP0
J29 Short (1-2)	Connect V1P8_ADC_Refrence to ADC_REFP1
J3 Short (1-2)	Enable MachXO3D JTAG Function
J92 Short (2-3)	Connect Board VCC_3.3V to MAXQ1065
J32 Short (1-2)	UART mode between FTDI & CPNX
J33 Short (1-2)	UART mode between FTDI & CPNX
J77 Short (1-2)	Configure A, B, Z, Y Channel as RS-422
J78 Short (2-3)	Configure A, B, Z, Y Channel as RS-422
J79 Short (1-2)	Configure A, B, Z, Y Channel as RS-422
J80 Short (2-3)	Configure DI2 Channel as Digital Input
J81 Short (2-3)	Configure DI3 Channel as Digital Input

Table 4: List of jumpers to be closed.

- D106-1-->> DONE LED for CPNX will be switched on once we successfully program the CPNX.
- D106-2-->> LED will be switched ON, if we give 12V to board & it will convert 12V to 5V successfully.