

1. Introduction

This document introduces the hardware architecture of the BDE-SOM62x-EB, a low-cost evaluation board built around the BDE-SOM62 SoM. The BDE-SOM62x-EB is a high-performance standalone development platform that enables users to evaluate the SoM and develop their applications in a straight-forward and easy way with the help of the production-ready Board Support Packages (BSPs) design services.

The BDE-SOM62x-EB is with rich interface resources, such as USB2.0, Micro SD, Ethernet, MIPI CSI, LVDS LCD, HDMI, AUDIO, CAN-FD, JTAG, RS485, RS232, TTL, M.2 and GPIOs with specific connectors and extension pinouts. Users can use this board to evaluate all the available interfaces and features that the SoM provides, such as the excellent dual display capabilities achieved through HDMI (via DPI) and LVDS, as well as industrial communication solutions using serials, Ethernet, USB, and so on.

With the ability to drive the display with resolutions up to 2K on HDMI monitors or external LVDS display panels, the BDE-SOM62x-EB is suitable for evaluation of those applications that need high-quality screen such as Single Board Computer (SBC), Human-Machine Interfaces (HMI) and control panels. The SoM is powered by a high-performance Quad-A53 ARM cores running at up to 1.4GHz, with a variety of industrial interfaces providing required control and communication functionalities, the board is also the best choice for industrial control applications, such as Programmable Logic Controllers (PLC), automation, and monitoring systems, etc. Additionally, the BDE-SOM62x-EB comes with a M.2 card slot, by plugging in with a Wi-Fi and Bluetooth M.2 card that BDE provides as an accessory, users can also enable wireless connectivity to the system.

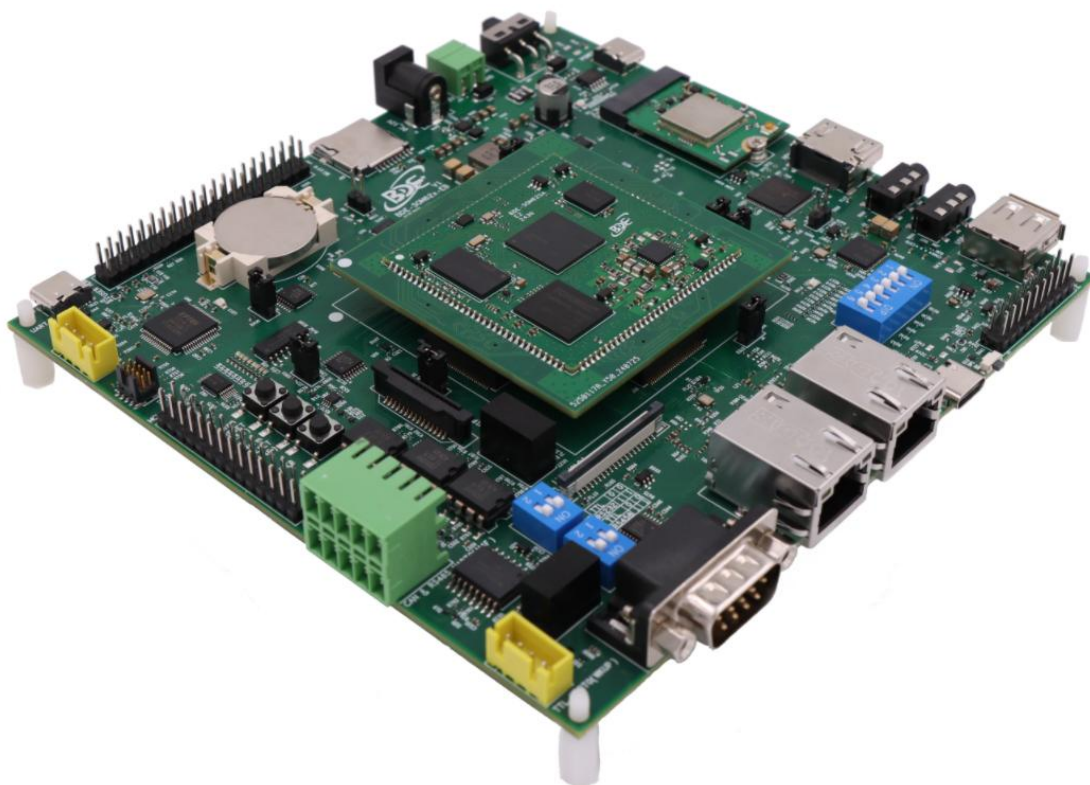


Figure 1. The Photo of BDE-SOM62x-EB

2. Applications

- Human Machine Interfaces (HMI)
- Retail automation
- Driver Monitoring System (DMS/OMS) / In-Cabin Monitoring (ICM)
- Telematics Control Unit (TCU)
- 3D point cloud
- Vehicle to Infrastructure / Vehicle to Vehicle (V2X / V2V)
- 3D re-configurable automotive instrument cluster
- Appliance user interface and connectivity
- Medical equipment

3. System Overview

3.1. Functional Block Diagram

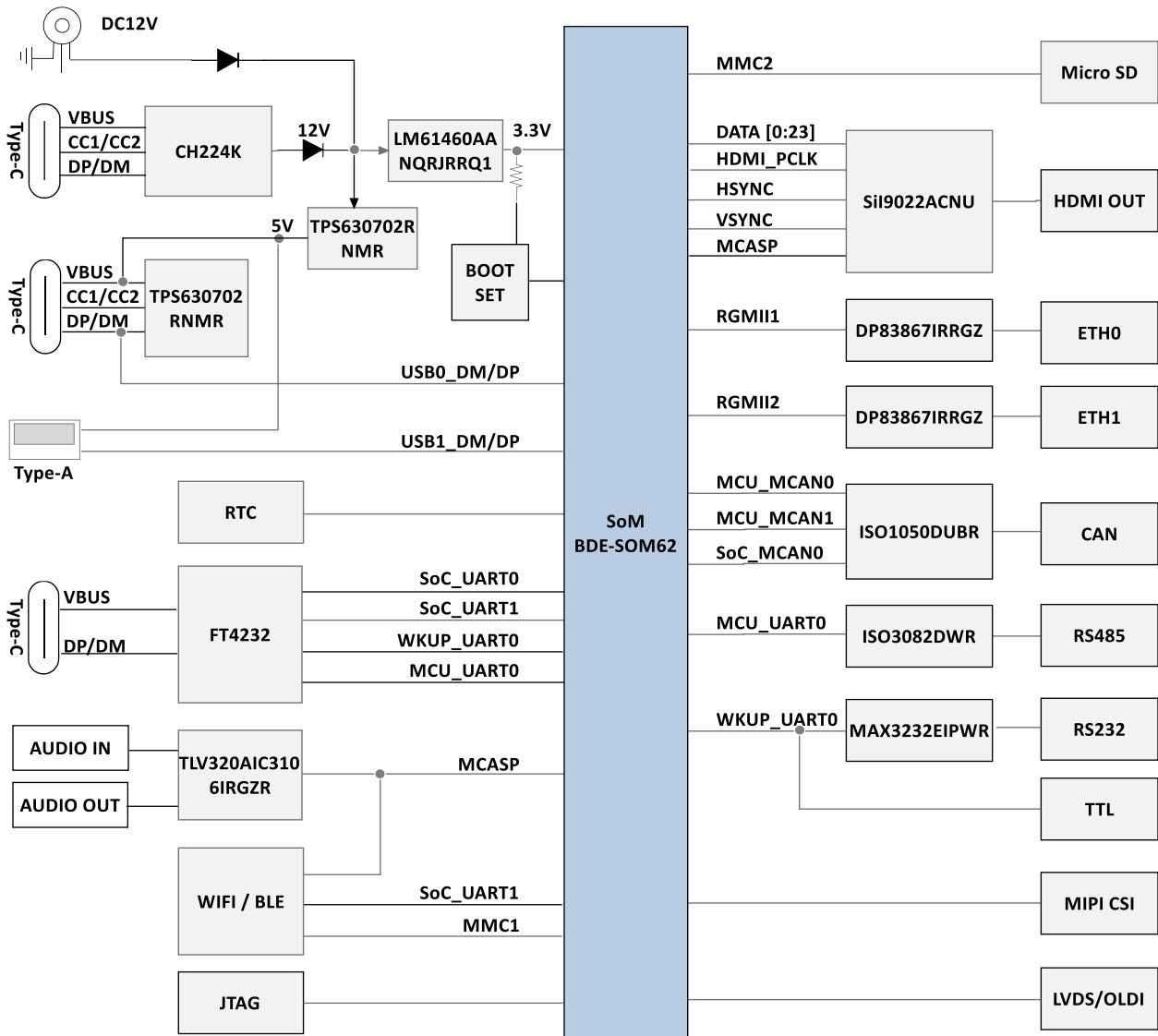


Figure 2. Functional Block Diagram of BDE-SOM62x-EB

3.2. Board Overview

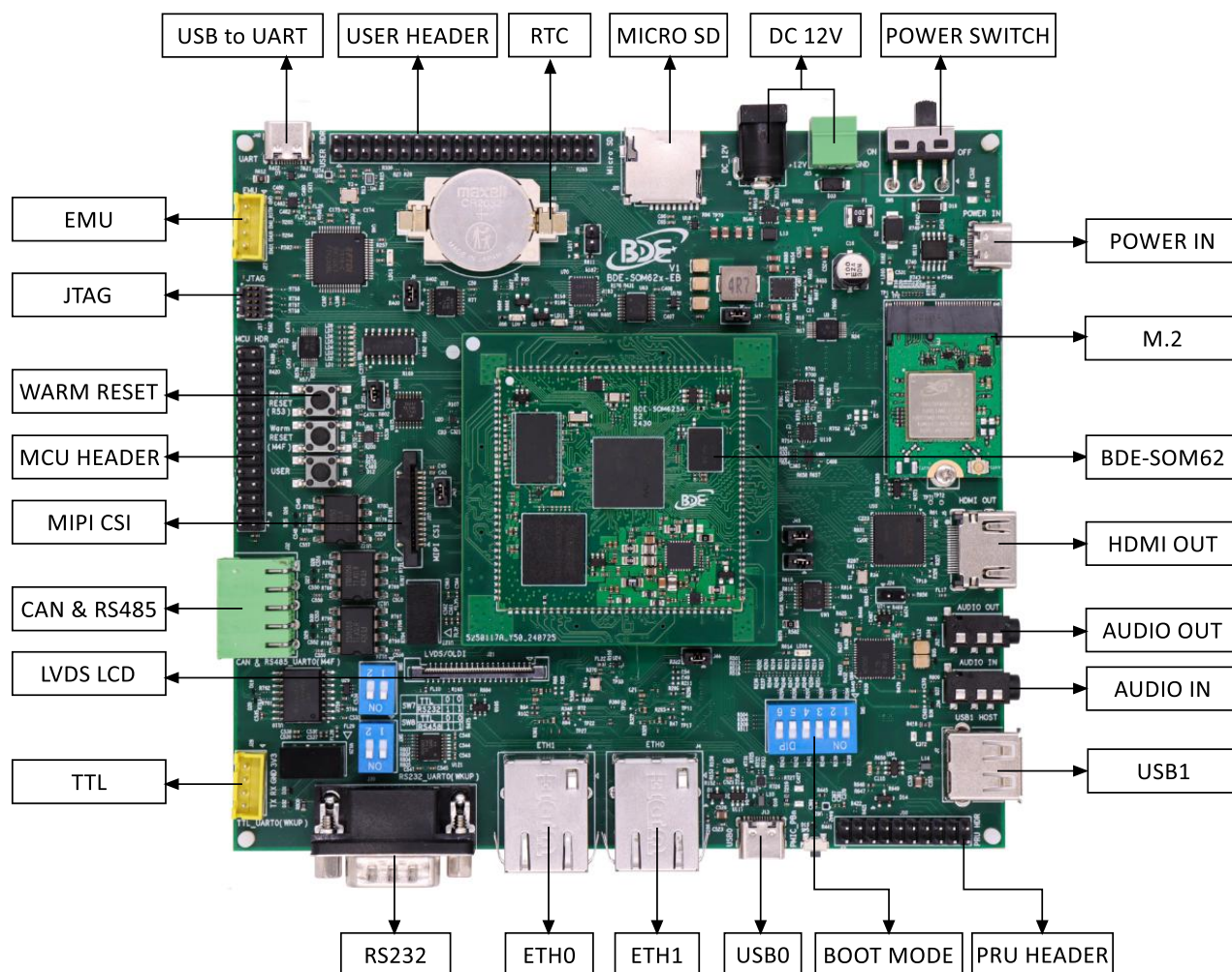


Figure 3. Board Overview of BDE-SOM62x-EB

3.3. Hardware Parameters

Table 1. Hardware Parameters

CPU	Up to 4x ARM Cortex-A53 (64bit), frequency up to 1.4GHz
	1x Cortex-M4F, frequency up to 400MHz
	1x Cortex-R5F, frequency up to 400MHz
	Dual-core PRUSS, frequency up to 333MHz
ROM	8/16GByte EMMC
	32MB QSPI flash
	8KB EEPROM
RAM	1/2Gbyte DDR4
Hardware Interfaces	1x OLDI/LVDS (dual channel)
	1x 24-bit RGB Parallel Interface
	1x GPMC
	1x MIPI CSI
	2x Gigabit Ethernet
	2x USB2.0
	3x CAN-FD
	6x I ² C
	9x UART
	5x SPI
	2x MMC/SDIO
	3x MCASP
	1x JTAG
	3x EPWM (Enhanced Quadrature Encoder Pulse)
	3x ECAP (Enhanced Capture)
	3x EQEP (Enhanced Quadrature Encoder Pulse)
	GPIOs

4. Mechanical Specifications

4.1. Module Dimensions

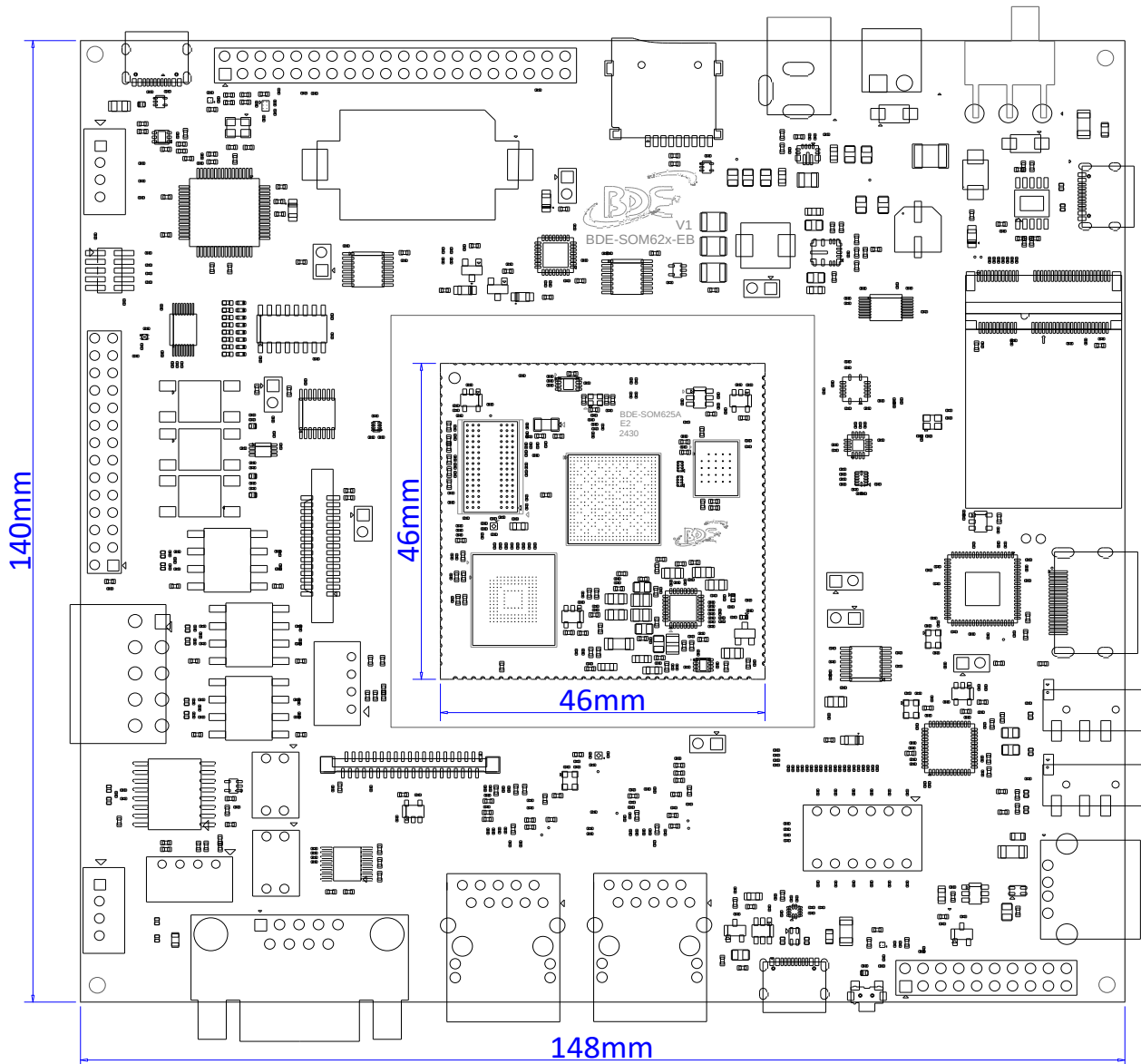


Figure 4. Mechanical Drawing of BDE-SOM62x-EB

5. Ordering Information

Table 2. Ordering Information

Orderable Part Number	SoC	Frequency	ROM (EMMC)	RAM (DDR4)	Temperature Range
BDE-SOM6254T8E1DIA-EB	AM6254	1.4GHz	8Gbyte	1Gbyte	-40°C~85°C
BDE-SOM6254T8E2DIA-EB	AM6254	1.4GHz	8Gbyte	2Gbyte	-40°C~85°C
BDE-SOM6254T16E1DIA-EB	AM6254	1.4GHz	16Gbyte	1Gbyte	-40°C~85°C
BDE-SOM6254T16E2DIA-EB	AM6254	1.4GHz	16Gbyte	2Gbyte	-40°C~85°C
BDE-SOM6232T8E1DIA-EB	AM6232	1.4GHz	8Gbyte	1Gbyte	-40°C~85°C

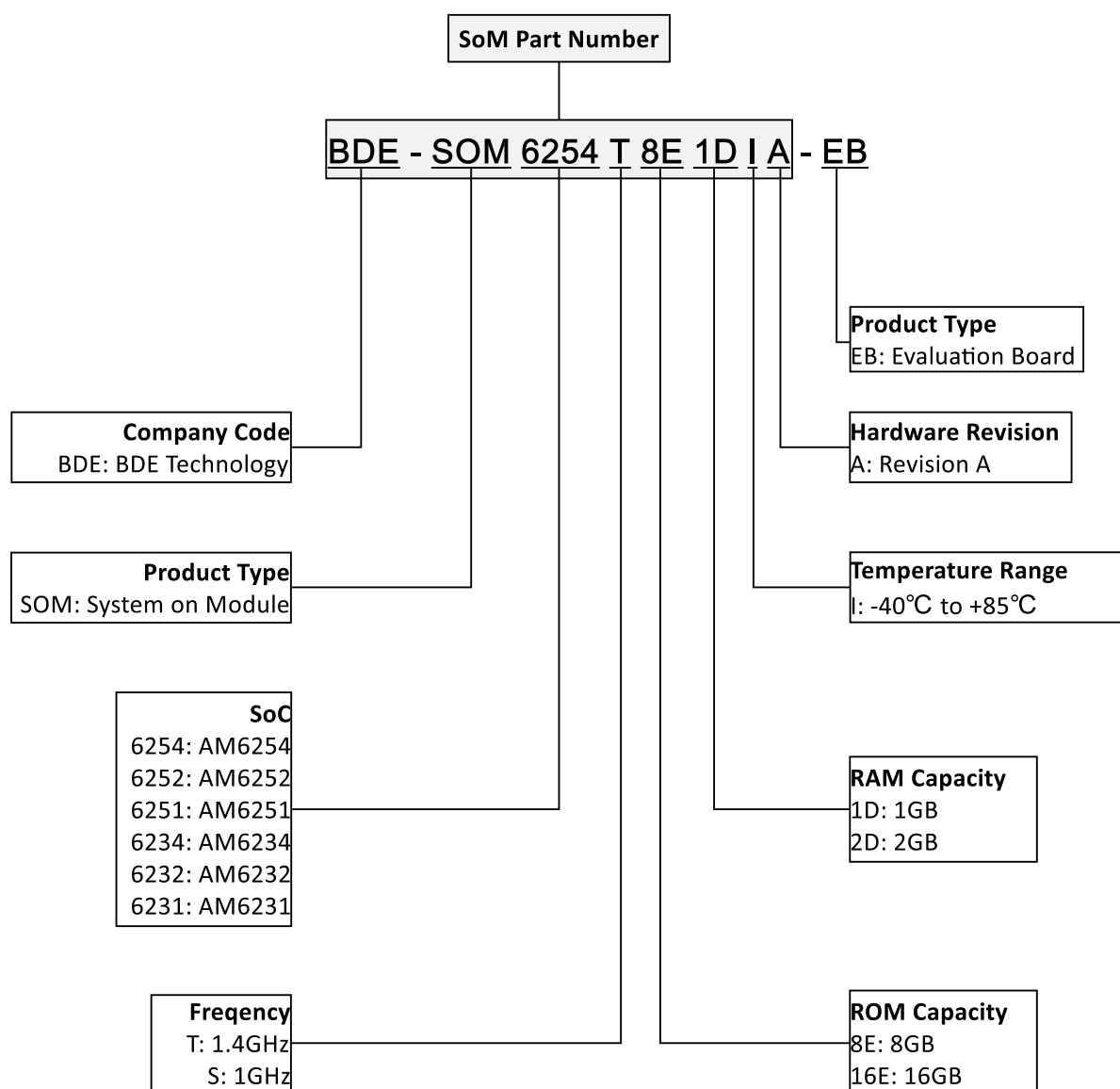


Figure 5. Naming Convention

6. Revision History

Table 3. Revision History

Revision	Date	Description
V1.0	2024-10-16	Initial Release
V1.1	2024-12-23	Updated Figure 1, Figure 2, Figure 3 and Figure 4

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