



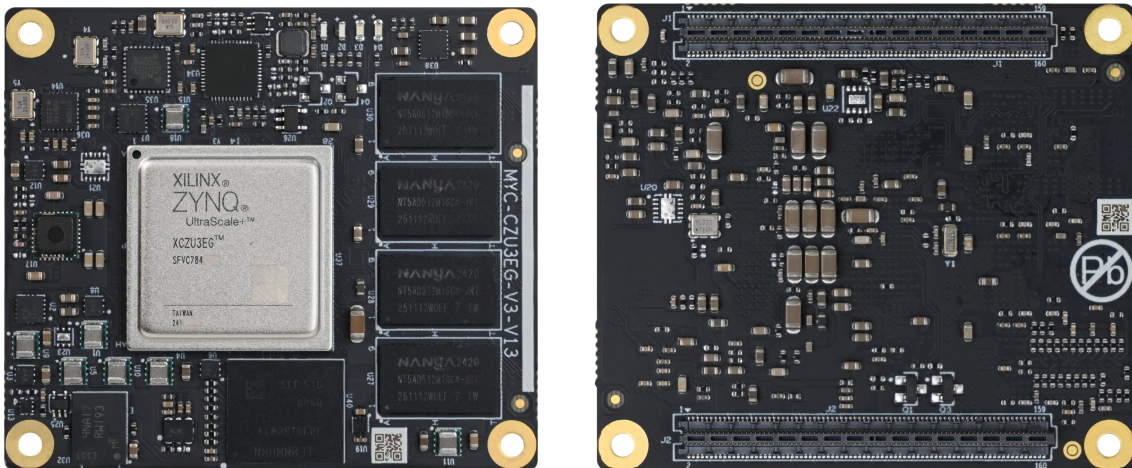
MYC-CZU3EG-V3 System-On-Module Overview



- ✓ AMD Zynq UltraScale+ ZU3EG based on 1.2GHz Quad Arm Cortex-A53 and 600MHz Dual Arm Cortex-R5F Cores
- ✓ Graphics Processing Unit Arm Mali-400 MP2 up to 667 MHz
- ✓ 4GB DDR4 SDRAM (64 bit, 2400MHz)
- ✓ 8GB eMMC Flash, 64MB QSPI Flash
- ✓ On-board Gigabit Ethernet PHY, USB PHY, Power Module and Clock Generator
- ✓ PCIe 2.0 x4, USB 3.0, SATA 3.1, Gigabit Ethernet, DisplayPort
- ✓ Two Samtec 0.5mm pitch 160-pin Razor Beam High-Speed Headers
- ✓ Ready-to-Run Linux 6.6.40 (PetaLinux 2024.2)

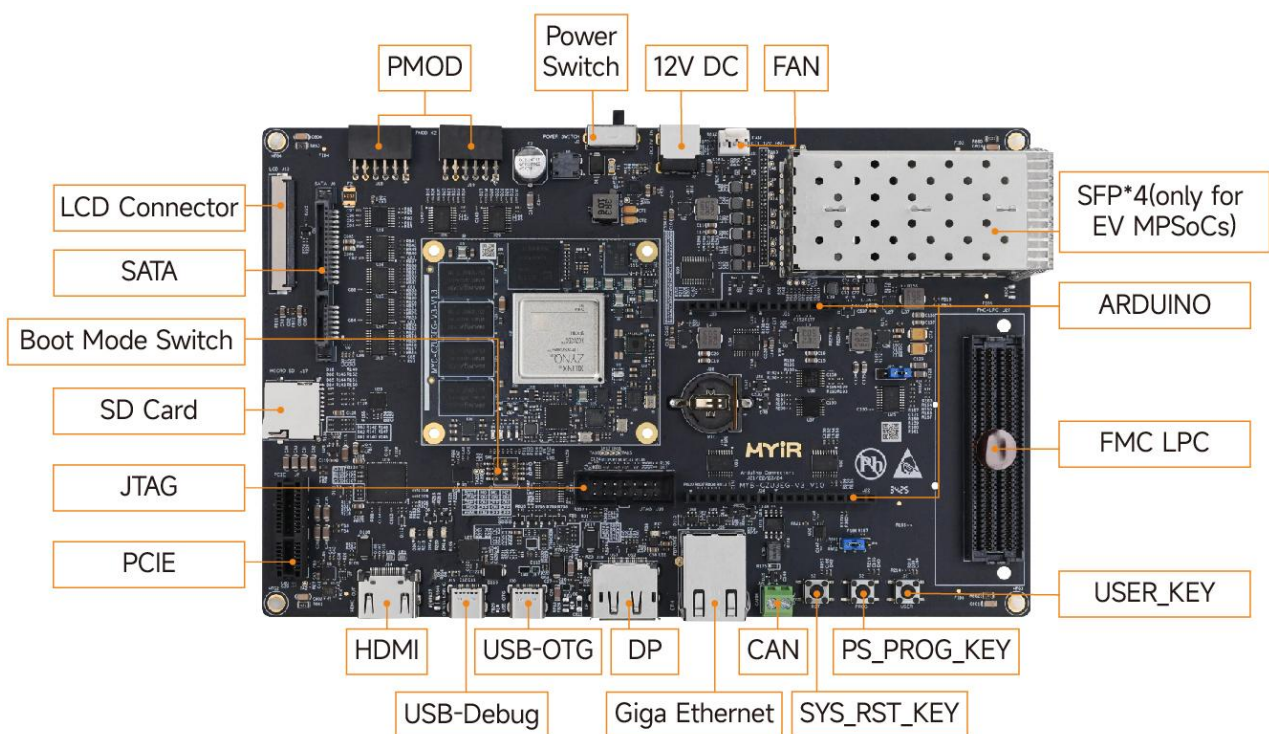


The MYC-CZU3EG-V3 SOM is a powerful MPSoC System-on-Module (SoM) based on AMD Zynq UltraScale+ MPSoC XCZU3EG which features a 1.2 GHz quad-core ARM Cortex-A53 64-bit application processor, a 600MHz dual-core real-time ARM Cortex-R5F processor, a Mali400 MP2 embedded GPU and 16nm FinFET+ Programmable Logic. It has 4GB DDR4, 8GB eMMC and 64MB QSPI Flash default memory configuration on board as well as integrated Ethernet PHY, USB PHY and Power Module to provide control and processing capabilities as a minimum embedded system. It is ready to run Linux 6.6.40, which comes with detailed documentations and software package.

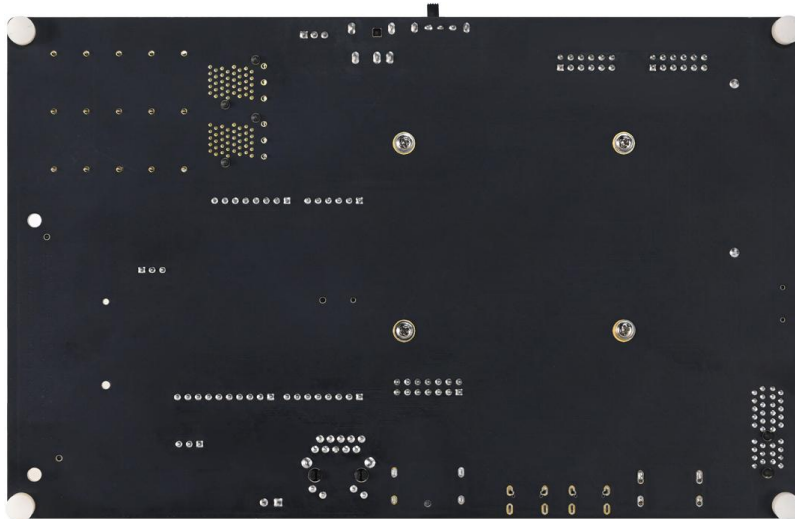


MYC-CZU3EG-V3 System-On-Module (Top-view and Bottom-view)

Developers can simply design their own base board using the MYC-CZU3EG-V3 as the embedded controller which can help save time and reduce cost. MYIR has a reference base board design for customer evaluation and prototype. The whole development board MYD-CZU3EG-V3 takes full features of the AMD Zynq UltraScale+ MPSoC XCZU3EG to have explored a robust set of peripherals for a wide variety of applications including test and measurement, instrumentation, industrial cameras, and high-end industrial control.



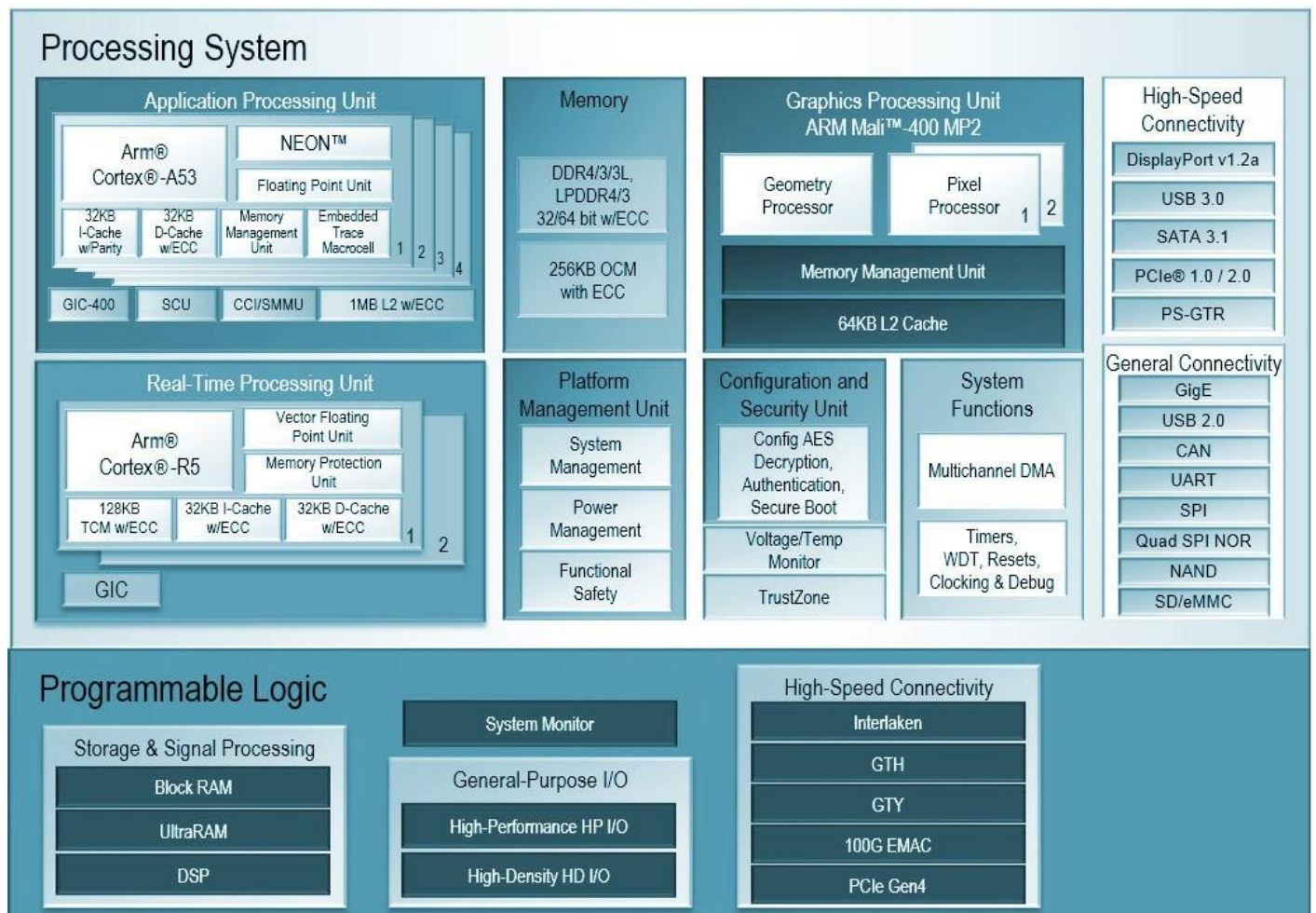
MYD-CZU3EG-V3 Development Board (Top- view)



MYD-CZU3EG-V3 Development Board (Bottom-view)

Hardware Specification

AMD Zynq™ UltraScale+™ MPSoC devices provide 64-bit processor scalability while combining real-time control with soft and hard engines for graphics, video, waveform, and packet processing. Built on a common real-time processor and programmable logic equipped platform, three distinct variants include dual application processor (CG) devices, quad application processor and GPU (EG) devices, and video codec (EV) devices.



AMD Zynq™ UltraScale+™ EG Processor Block Diagram



The MYC-CZU3EG-V3 SOM is powered by the AMD Zynq UltraScale+ XCZU3EG. The main features for the MPSoC device are summarized as below.

PS/PL	Features	Device Name	ZU3EG
Processing System (PS)	Application Processor Unit	Processor Core	Quad-core Arm® Cortex®-A53 MPCore up to 1.5 GHz
		Memory w/ECC	L1 Cache 32 KB I / D per core, L2 Cache 1 MB, on-chip Memory 256 KB
	Real-Time Processor Unit	Processor Core	Dual-core Arm Cortex-R5F MPCore up to 600 MHz
		Memory w/ECC	L1 Cache 32 KB I / D per core, Tightly Coupled Memory 128 KB per core
	Graphic & Video Acceleration	Graphics Processing Unit	Mali -400 MP2 up to 667 MHz
		Memory	L2 Cache 64 KB
	External Memory	Dynamic Memory Interface	x16: DDR4 w/o ECC; x32/x64: DDR4, LPDDR4, DDR3, DDR3L, LPDDR3 w/ ECC
		Static Memory Interfaces	NAND, 2x Quad-SPI
	Connectivity	High-Speed Connectivity	PCIe® Gen2 x4, 2x USB3.0, SATA 3.1, DisplayPort , 4x Tri-mode Gigabit Ethernet
		General Connectivity	2xUSB 2.0, 2x SD/SDIO, 2x UART, 2x CAN 2.0B, 2x I2C, 2x SPI, 4x 32b GPIO
	Integrated Block Functionality	Power Management Memory	Full / Low / PL / Battery Power Domains
		Security AMS - System Monitor	RSA, AES, and SHA 10-bit, 1 MSPS – Temperature and Voltage Monitor
PS to PL Interface			12 x 32/64/128b AXI Ports
Programmable Logic (PL)	Programmable Functionality	System Logic Cells (K)	154
		CLB Flip-Flops (K)	141
		CLB LUTs (K)	71
	Memory	Max. Distributed RAM (Mb)	1.8
		Total Block RAM (Mb)	7.6
		UltraRAM (Mb)	-
	Clocking	Clock Management Tiles (CMTs)	3
	Integrated IP	DSP Slices	360
		PCI Express®	-
		150G Interlaken	-
		100G Ethernet MAC/PCS w/RS-FEC	-
		AMS - System Monitor	1
	Transceivers	GTH Transceivers	-
		GTY Transceivers	-
Speed Grades	Extended	-1-2-2L	
	Industrial	-1-1L-2	

Feature of ZU3EG MPSoC

The MYC-CZU3EG-V3 System-On-Module leverages the full capabilities of the AMD Zynq UltraScale+ MPSoC XCZU3EG processor, and exposes 320 pins for signals and power/ground via a connector, showcasing the following key features:



Mechanical Parameters

- Dimensions: 60mm x 52mm
- PCB Layers: 14-layer design
- Power supply: 3.3V
- Working temperature: 0~70 Celsius (commercial grade) or -40~85 Celsius (industrial grade)

MPSoC

- AMD Zynq UltraScale+ MPSoC EG processor (XCZU3EG-1SFVC784I)
 - Quad-core Arm Cortex-A53 MPCore™ up to 1.2 GHz
 - Dual-core Arm Cortex-R5F MPCore up to 600 MHz
 - 16nm FinFET+ Programmable Logic
 - Arm Mali-400 MP2 up to 667 MHz

Memory

- 4GB DDR4
- 8GB eMMC
- 64MB QSPI Flash

Peripherals and Signals Routed to Pins

- Gigabit Ethernet PHY (YT8531)
- USB PHY (USB3320C-EZK)
- Power Module
- Clock Generator
- Watchdog
- Four LEDs
 - One yellow LED for ERROR_STATUS indicator (indicate a secure lockdown state)
 - One yellow LED for ERROR_OUT indicator (Asserted for accidental power loss, hardware error)
 - One green LED for PS_Done indicator (indicate the pl configuration is done)
 - One green LED for PS_INIT indicator (indicate the ps is initialized after a power-on reset)
- Two 0.5mm pitch 160-pin Razor Beam High-Speed headers bring out:

PS-GTS Unit:

- PCIe 2.0 x4
- 1x SATA 3.1
- 1x DisplayPort 1.2a
- 1x USB 3.0
- 1x SGMII Ethernet

PS Unit:

- 1x USB 2.0
- 1x RGMII
- 1x SD/SDIO
- 2x UART
- 2x CAN 2.0B
- 2x SPI
- 2x I2C
- GPIO

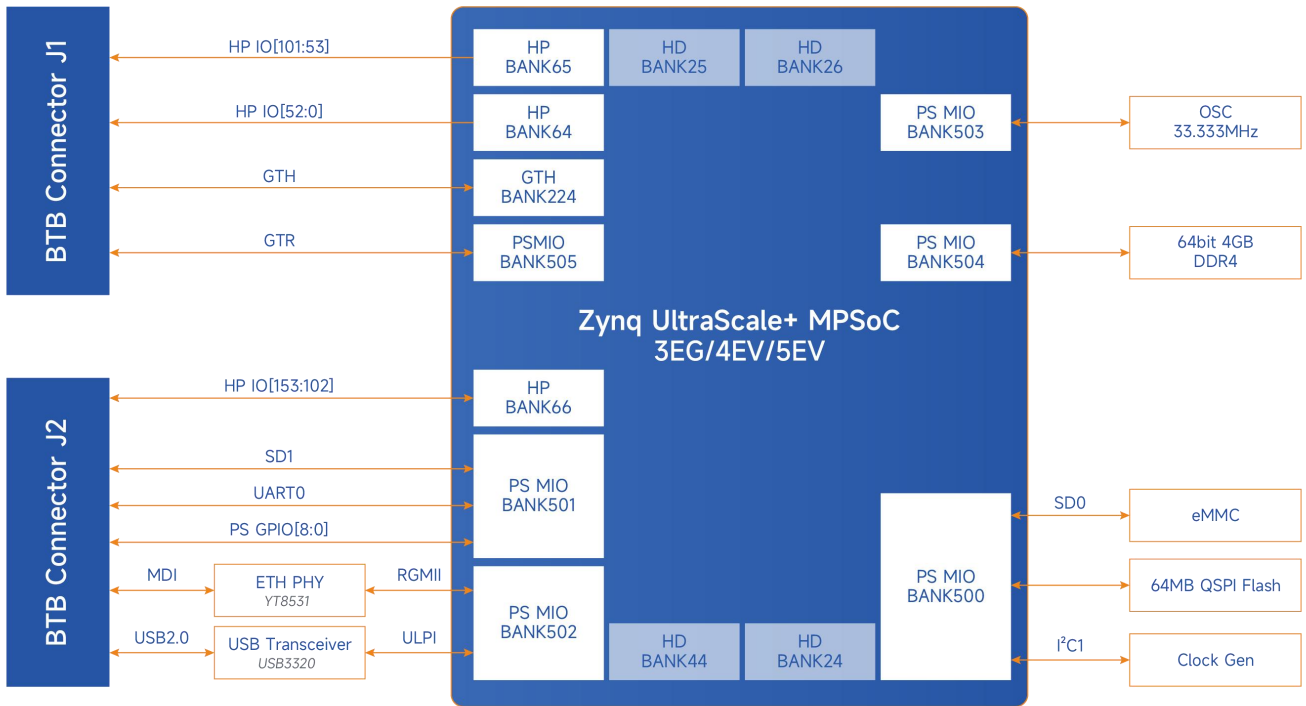
PL Unit:

- HP BANK64/65/66, IO voltage range supports 1.0~1.8V

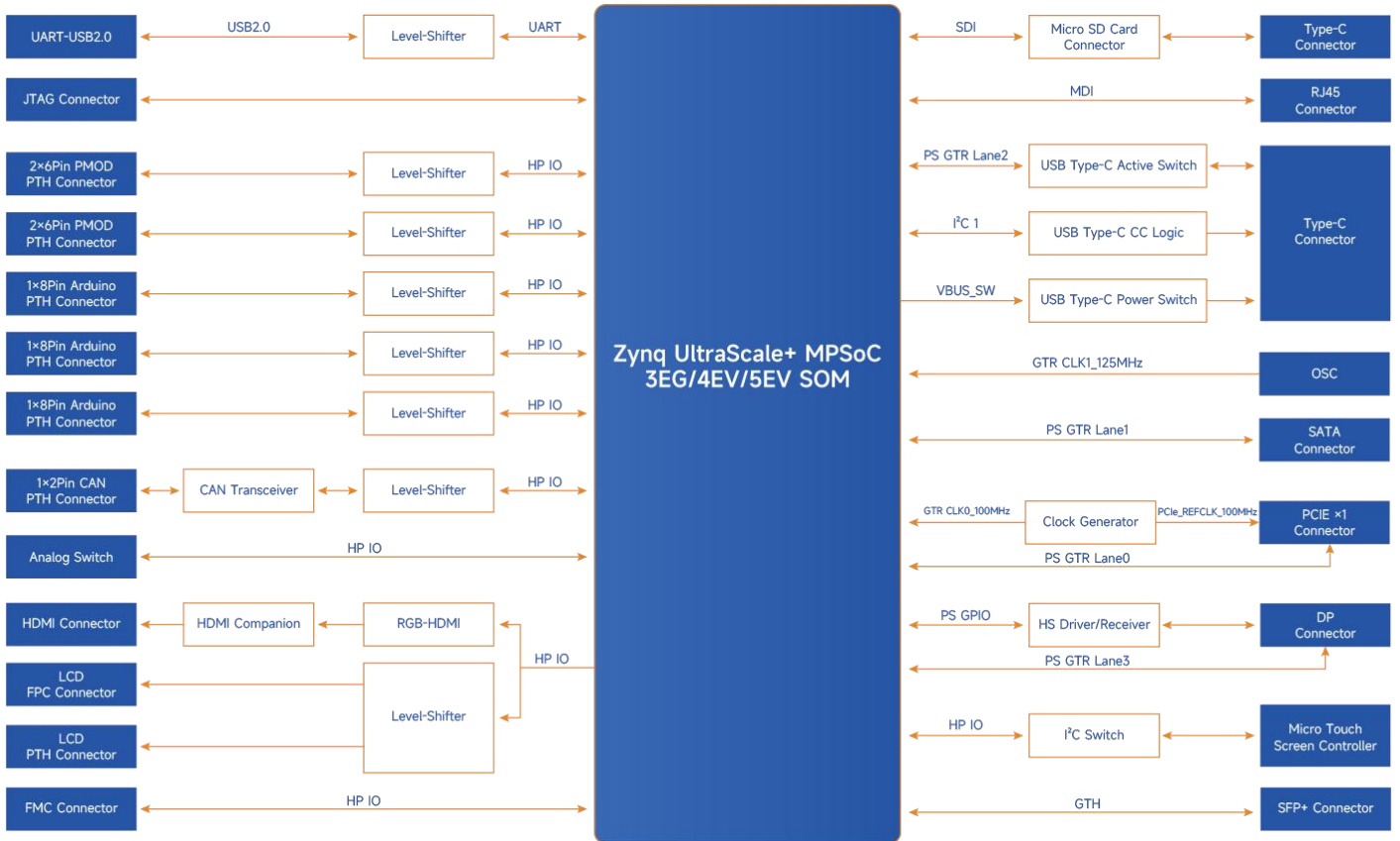
Note: the peripheral signals brought out to the expansion interface are listed in maximum number. Some signals are reused. Please refer to the processor datasheet and the SOM pinout description file.



Function Block Diagram



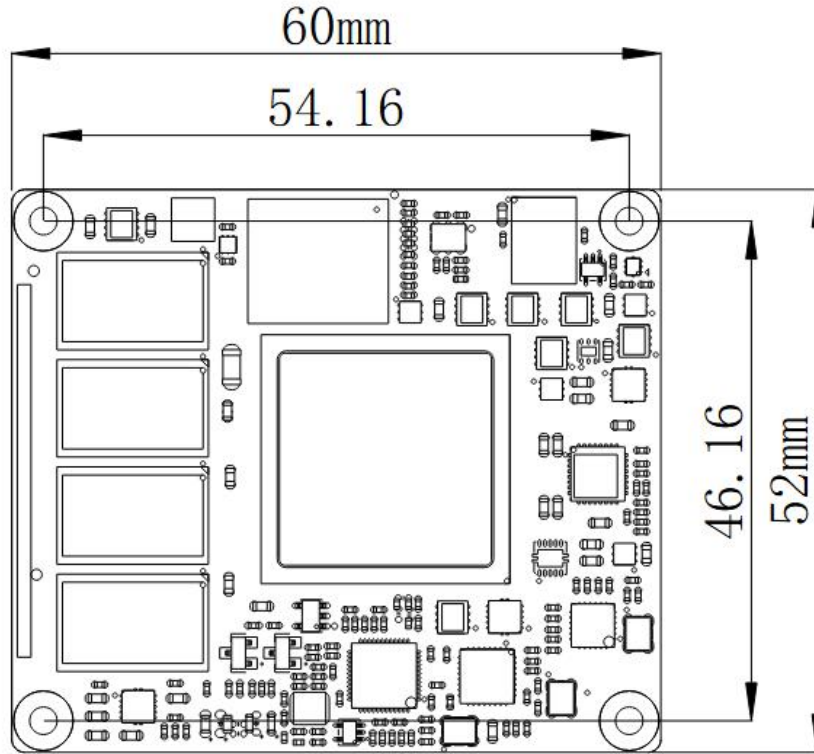
MYC-CZU3EG-V3 System-On-Module Function Block Diagram



MYD-CZU3EG-V3 Development Board Function Block Diagram



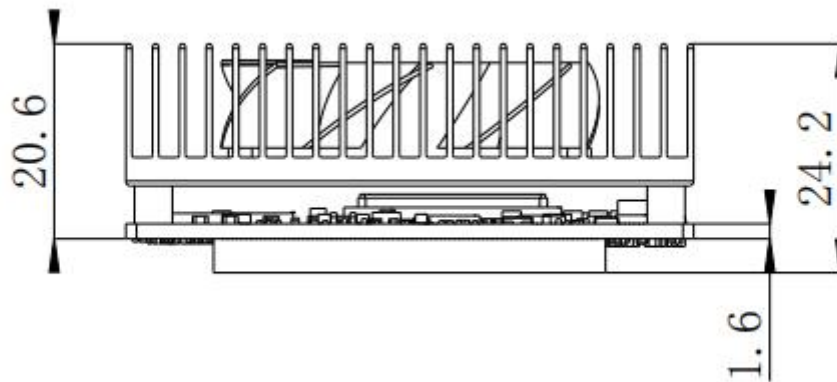
Dimension Chart (Unit: MM)



Dimensions of MYC-CZU3EG-V3 (Top-view)



Dimensions of MYC-CZU3EG-V3 (Side-view, without heatsink)



Dimensions of MYC-CZU3EG-V3 (Side-view, with heatsink)



Software Features

The MYC-CZU3EG-V3 is provided with abundant software resources to assist customers in quickly commencing their development. Users can obtain the complete SDK and a comprehensive software development manual from MYiR’s developer center. The software package features as below:

Item	Features	Description	Source Code
Bootloader	U-boot	uboot 2024.01	YES
Kernel	Linux 6.6.40	MYD-CZU3EG-V3 Customized Kernel	YES
Drivers	PMOD	PMOD driver	YES
	Arduino	Arduino driver	YES
	CAN	CAN driver	YES
	HDMI	HDMI driver	YES
	LCD	LCD driver	YES
	Micro SD	Micro SD driver	YES
	I2C	I2C driver	YES
	SATA	SATA driver	YES
	PCIE	PCIE driver	YES
	DP	DP driver	YES
	Ethernet	Ethernet driver	YES
	Watchdog	Watchdog driver	YES
File System	myir-image-czu3eg-hdmi	HDMI/DP display image built with Petalinux	YES
	myir-image-czu3eg-lcd	LCD display image built with Petalinux	YES

MYC-CZU3EG-V3 Software Features


Order Information

Item	Packing List
MYC-CZU3EG-V3 System-On-Module (Part No.: MYC-CZU3EG-V3-8E4D-1200-I)	✓ One MYC-CZU3EG-V3 SOM
MYC-CZU3EG-V3 System-On-Module (Part No.: MYC-CZU3EG-V3-8E4D-1200-C)	
MYD-CZU3EG-V3 Development Board (Part No.: MYD-CZU3EG-V3-8E4D-1200-I)	✓ One MYD-CZU3EG-V3 Development Board (including the base board and SOM with installed active heatsink) ✓ One USB Type-C cable ✓ One Micro USB Cable ✓ One HDMI Cable ✓ One RJ45 Ethernet Cable ✓ One 32GB Micro SD Card ✓ One 12V/2A Power adapter ✓ One Quick Start Guide
MYD-CZU3EG-V3 Development Board (Part No.: MYD-CZU3EG-V3-8E4D-1200-C)	
MY-TFT070CV2 LCD Module (Part No.: MY-TFT070CV2)	✓ One 7-inch LCD Module with capacitive touch screen


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