

DeepMentor AI tracking Module

N08-15-0xx-xx

Module board information

Product Overview

DeepMentor's AI board is a high-performance, low-power embedded computing platform based on the Qualcomm® QCS6490 processor, designed specifically for industrial IoT, edge AI, and smart devices.

This AI board is equipped with the Qualcomm QCS6490 SoC, featuring a “1+3+4” tri-cluster design (1× Kryo Prime @ 2.7GHz, 3× Kryo Gold @ 2.4GHz, 4× Kryo Silver @ 1.9GHz), balancing high performance with low power consumption; It integrates the Qualcomm® Adreno 643 GPU, VPU, and AI accelerator, offering advanced AI acceleration capabilities and multimedia processing capabilities.

Product Appearance



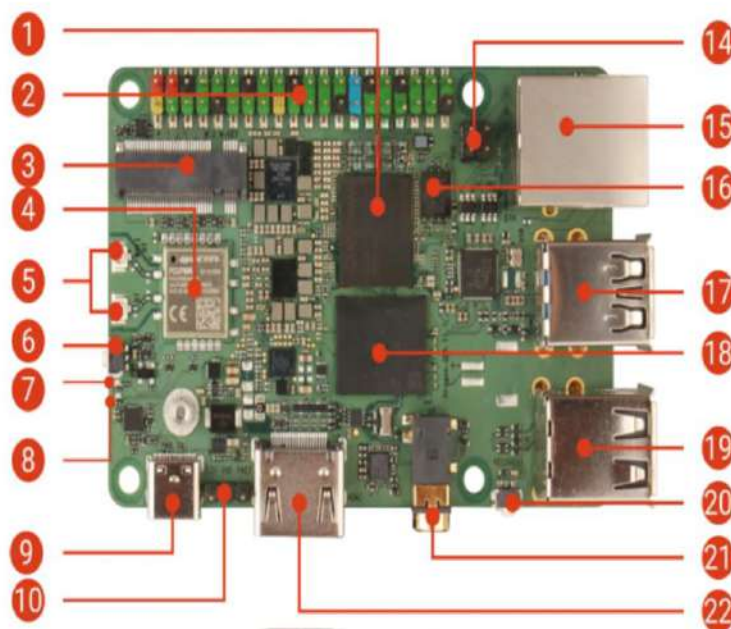
No.	View	No.	Side View	No.	Back View
①	DM AI Board Front	②	DM AI Board Side	③	DM AI Board Back

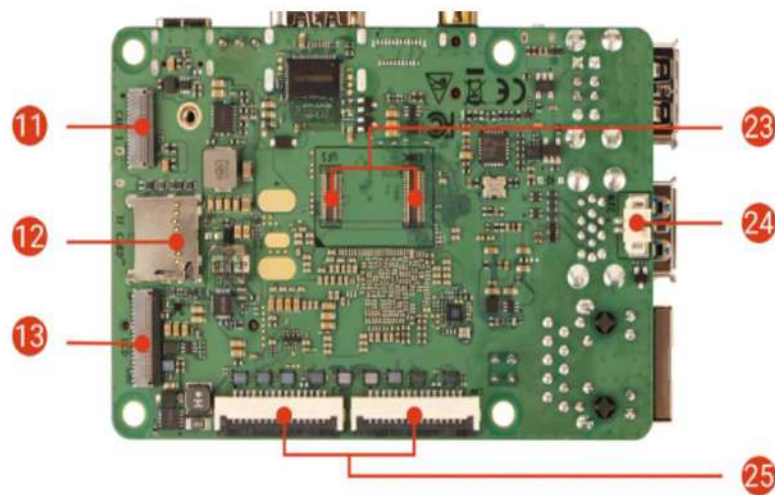
Product Specifications

Category	Specification Description
Core Platform	System-on-Chip (SoC): Qualcomm QCS6490 Central Processing Unit (CPU): 1x Kryo Gold Plus @2.7GHz + 3x Kryo Gold @2.4GHz + 4x Kryo Silver @1.9GHz Graphics Processing Unit (GPU): Qualcomm® Adreno 643, supporting OpenGL ES 3.2, Vulkan 1.3, OpenCL 2.2, DirectX 12 AI Accelerator: Hexagon DSP + Hexagon Tensor Accelerator, with a combined AI computing power of up to 12 TOPS Video Processing Unit (VPU): Supports up to 4K@60fps decoding (H.264/H.265/VP9) and 4K@30fps encoding (H.264/H.265), with HDR10/HDR10+ playback capability
Memory	LPDDR5, Options: 4GB / 6GB / 8GB / 12GB / 16GB
Storage	Boot Storage: Onboard 32MB QSPI Nor Flash Expandable Storage: Supports microSD card / eMMC module / UFS module / M.2 M Key 2230 NVMe SSD
Networking	Wired Connection: 1x Gigabit Ethernet port (PoE support requires an external PoE HAT) Wireless Connection: Wi-Fi 6, Bluetooth 5.4 (requires external antenna)
Video Output	HDMI: 1x HDMI port, supporting up to 4K@30Hz MIPI DSI: 1x 4-lane MIPI DSI
Camera	1x 4-lane MIPI CSI 2x 2-lane MIPI CSI
Audio	Audio Interface: 3.5mm 4-segment headphone jack, supporting microphone input Audio Output: Supports stereo output and can directly drive 32Ω headphones
USB	USB 3.1 : 1× Type-A HOST / OTG USB 2.0 : 3× Type-A HOST

Category	Specification Description
Expansion	40-Pin GPIO Header: Supports UART, SPI, I2C, etc. RTC battery connector: 1× 2-pin 1.25mm Buttons: Power button, EDL button
Power Supply	Supports USB Type-C 12V power input Supports external 12V pin power input Supports PoE power supply (requires an external PoE HAT)
Supported OS	Ubuntu Linux Qualcomm Linux (Based on Yocto Development) Android 15 (CS) or Android 16 (ES) System
Dimensions	85 mm x 56 mm

Interface Description





No.	Description	No.	Description	No.	Description
1	Qualcomm QCS6490	2	40-Pin GPIO Header	3	M.2 M Key slot
4	WiFi 6 / BT 5.4	5	Antenna connector	6	Power button
7	User LED	8	Power LED	9	Type-C power input

No.	Description	No.	Description	No.	Description
10	Power input header	11	MIPI CSI (4 Lane)	12	microSD card slot
13	MIPI DSI (4 Lane)	14	PoE header	15	Gigabit Ethernet
16	QSPI Nor Flash	17	USB 2.0 Type-A port (upper) USB 3.1 OTG Type-A port (lower)	18	LPDDR5 memory
19	2x USB 2.0 Type-A ports	20	EDL button	21	Headphone jack
22	Standard HDMI	23	eMMC & UFS combo module connector	24	RTC battery connector
25	2x MIPI CSI (2 Lane)				

Application Scenarios

Linux Beginners

As a Linux-based single-board computer, it can be used for learning Linux basics, advanced low-level and application-level development.

Drone Development

As the main controller for Drone development, it offers excellent performance and a wide range of hardware interfaces, making it easy for users to develop robot applications.

Embedded Development

Provides a rich set of GPIO interfaces, supporting communication protocols such as UART, SPI, and I2C, making it easy for users to drive various hardware devices.

AI Development

Built-in Hexagon DSP + Hexagon Tensor Accelerator, with a combined AI computing power of up to 12 TOPS, accelerating AI development.

System Platform

Based on Qualcomm QCS6490 SoC, supports multiple operating systems:

- Ubuntu Linux
- Qualcomm Linux (Based on Yocto development)
- Android 14