

SOM Modules

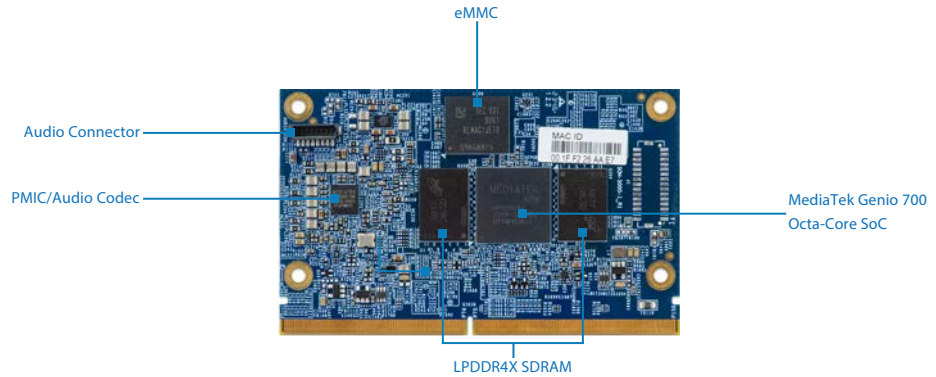
VIA SOM-5000

Fanless low-power platform for Edge AI applications with MediaTek Genio 700 Octa-Core processor

Features

- High-performance MediaTek Genio 700 Octa-Core SoC
- Powerful and efficient MediaTek Deep Learning Accelerator (MDLA) 3.0 and Cadence® Tensilica® Vision P6 NPU supporting up to 4 TOPS
- 4K hardware accelerated H.265/H.264 video processing
- Dual display and dual MIPI CSI-2 camera support
- Optional 4G LTE mobile broadband support with onboard M.2 and SIM card slots

Board Placement



Specifications

Model Name	SOM-5000
Processor	MediaTek Genio 700 Octa-Core Processor - Two Cortex-A78 @ 2.2GHz - Six Cortex-A55 @ 2.0GHz
System Memory	4GB/8GB LPDDR4X SDRAM (2 x LPDDR4X)
Storage	16GB eMMC Flash Memory
Graphics	ARM Mali-G57 MC3 High Performance GPU Graphics engine supporting OpenGL® ES 1.1/2.0/3.2, OpenCL ES 2.2, and Vulkan 1.0/1.1 hardware acceleration Supports H.265 and H.264 video decoding up to 4K@75fps and video encoding up to 4K@30fps
AI Processor	MediaTek Deep Learning Accelerator (MDLA) 3.0 and Cadence® Tensilica® Vision P6 NPU (supports up to 4 TOPS)
Audio DSP	Cadence® Tensilica® HiFi 5
Ethernet	Integrated Gigabit Ethernet Transceiver
PMIC/Audio Codec	MediaTek MT6365
HDMI	Integrated HDMI 2.0 Transmitter
Supported I/O through Golden Finger	1 4-Lane MIPI DSI 1 HDMI 2.0 1 Display Port 2 MIPI CSI-2 (1 4-Lane, 1 2-Lane) 1 USB 3.1 3 USB 2.0 1 GLAN 2 SPI 1 I2S 6 I2C (including I2C for HDMI) 3 UART 1 PCIe (1-Lane) 1 SDIO 11 GPIO 1 5V DC-in
Onboard I/O	1 Audio connector for Headphone out and MIC-in
Operating System	Android 13, Yocto 4.0, Debian 12
System Monitoring and Management	Watchdog Timer and System Management
Operating Temperature	-10°C ~ 60°C (wider range can be supported on request)
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)
Form Factor	SMARC 2.11 (82mm x 50mm, 3.22" x 2")
Compliance	CE, FCC, UKCA



SOMDB7 Carrier Board Front I/O



SOMDB7 Carrier Board Back I/O



SOMDB7 Carrier Board



Specifications

Model Name	SOMDB7 Carrier Board
LVDS	Chrontel CH7515 eDP/DP to LVDS Converter
Ethernet	Realtek RTL8153 GbE USB 3.0 Ethernet Network Interface Controller
USB	VIA VL817 USB 3.1 Gen1 Hub Controller
MCU	STMicroelectronics STM32L011F4P6 32-bit MCU
Onboard I/O	<ul style="list-style-type: none"> 1 4-Lane MIPI-DSI connector 2 LVDS dual-channel connectors (up to QSXGA 2560x2048@60Hz) 2 MIPI CSI-2 connectors (1 x 4-Lane, 1 x 2-Lane) 1 Capacitive touch panel connector 1 LVDS backlight connector 1 SIM card slot 1 M.2 B-key slot (supports USB 3.1/USB 2.0/USIM) 1 M.2 E-key slot (supports PCIe x1) 1 ADC/GPIO pin header (for multiplexed Analog inputs/GPIOs) 1 RTC battery connector 1 Debug console connector 1 12V DC-in power connector
Front I/O	<ul style="list-style-type: none"> 1 Download/Volume+ button 1 Volume- button 1 MicroSD card slot
Back I/O	<ul style="list-style-type: none"> 1 HDMI port 2 USB 3.1 ports 1 Micro USB 2.0 port (for image download) 2 GLAN ports 1 3.5mm Audio jack (supports Headphone-out and MIC-in) 1 Reset button 1 Power button with LED
Power Supply	12V DC-in
Operating Temperature	0°C ~ 60°C
Operating Humidity	0% ~ 95% (relative humidity ; non-condensing)
Form Factor	151mm x 134mm (5.94" x 5.28")

Ordering Information

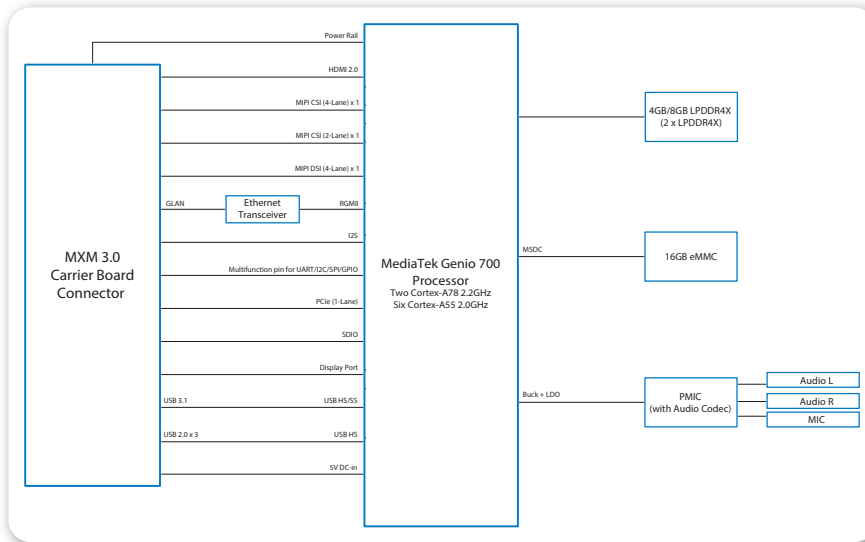
Part Number	SoC Frequency	Description
10GQR22S40020	MediaTek Genio 700 Octa-Core SoC @ 2.2GHz/2.0GHz	VIA SOM-5000 Module with 2.2/2.0GHz GHz MediaTek Genio 700 Octa-Core SoC, 16GB eMMC, 4GB LPDDR4X SDRAM, Gigabit Ethernet, HDMI, Audio Jack
10GQR22S30020	MediaTek Genio 700 Octa-Core SoC @ 2.2GHz/2.0GHz	VIA SOM-5000 Module with 2.2/2.0GHz GHz MediaTek Genio 700 Octa-Core SoC, 16GB eMMC, 8GB LPDDR4X SDRAM, Gigabit Ethernet, HDMI, Audio Jack
STK-SOM500-00A0		VIA SOM-5000 Evaluation Kit with VIA SOM-5000 Module (8GB LPDDR4X SDRAM), VIA SOMDB7 reference carrier board and accessory kit

Optional Accessories

Wireless Module Option

Part Number	Description
EMIO-2576-00A0	4G LTE mobile broadband M.2 module with two antennas and assembly

Block Diagram



Evaluation Kit Packing List

Items

- VIA SOM-5000 module
- VIA SOMDB7 carrier board
- 7" MIPI LCD and touch panel
- Wi-Fi 6 module with 2 antennas
- 5MP CMOS sensor camera module
- Heatsink
- Audio cable
- Power cable
- Debug console cable
- 12V AC power adapter