TINKER BOARD 2

Arm SBC, Rockchip RK3399 Hexa-core, LPDDR4 RAM, HDMI, MIPI-DSI, MIPI-CSI, 12-19V DC in

Features

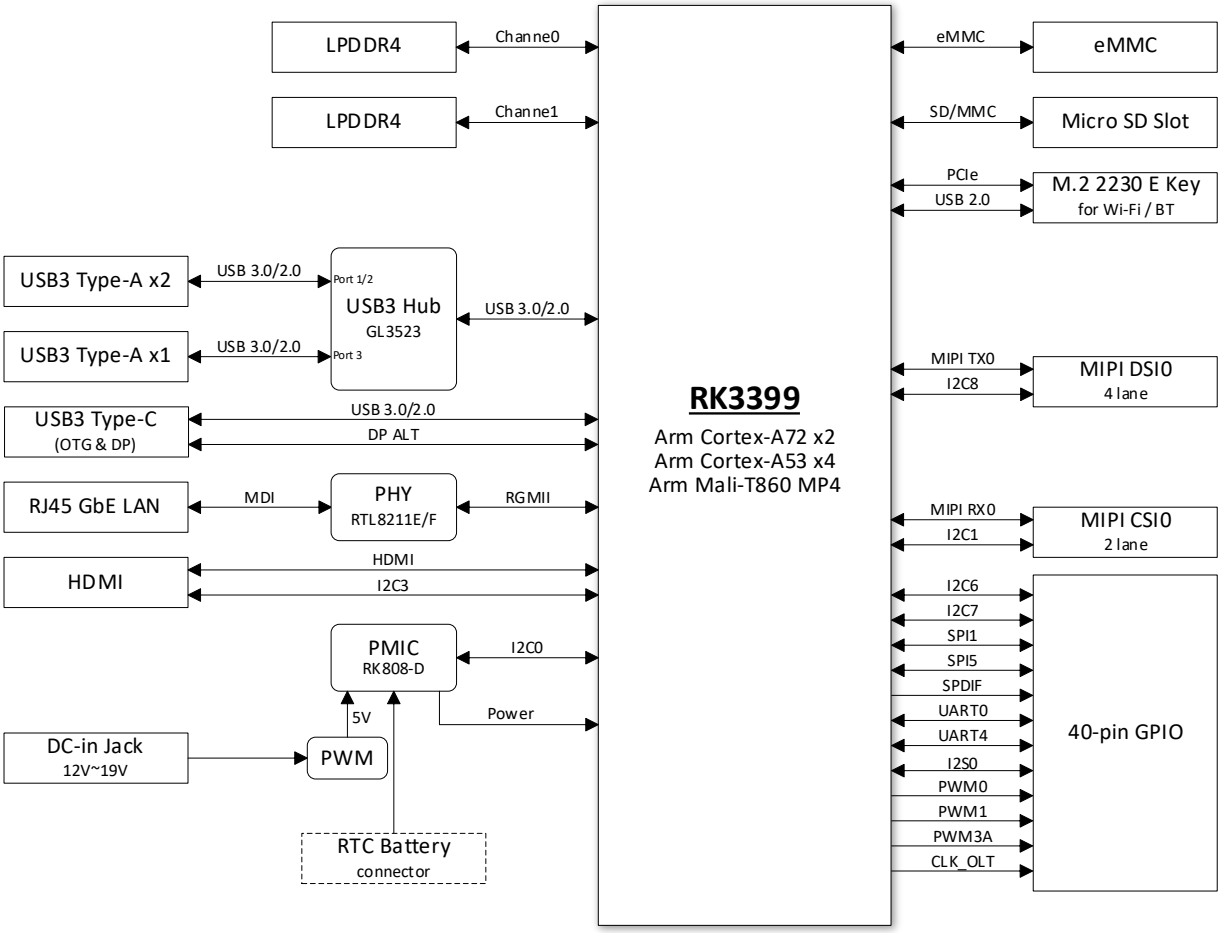
- Arm® big.LITTLE™ A72+A53 Hexa-core SoC
- Multiple MIPI-CSI & DSI / HDMI / Type-C (DP)
- USB 3.0 / Wi-Fi 802.11ac / BT 5.0 / GPIO
- 12V~19V DC-in offers stable power delivery
- Linux & Android supported

Specifications

Processor	SoC	Rockchip RK3399
	CPU	2 x Arm® Cortex®-A72 @ 2.0 GHz + 4 x Arm® Cortex®-A53 @ 1.5 GHz
	GPU	Arm® Mali™-T860 MP4 GPU @ 800 MHz
Memory	Technology	Dual-CH LPDDR4 On-board
	Size	2/4GB*
Storage	Memory Card	1 x Micro SD (TF) card slot (push & pull)
Ethernet	Speed	10/100/1000Mbps
	Controller	1 x Realtek RTL8211E/F
Wireless	Speed	802.11 a/b/g/n/ac & Bluetooth 5.0
	Module	1 x Realtek RTL8822CE (M.2 Socket 1 with E key, type 2230)
	Antenna Connector	2 x I-PEX MHF® 4 (extendable, 2T2R)
Display	HDMI	1, Supports up to 4096 x 2160 @ 60 Hz
	Type-C (DP)	1, Supports DP 1.2 up to 4096 x 2160 @ 60 Hz
	MIPI DSI	1, Supports 4 lane up to 6 Gbps, 1920 x1080 @ 60 Hz (22-pin)
	Multi Display	HDMI+Type-C, HDMI+MIPI DSI, Type-C+MIPI DSI
Camera	MIPI CSI-2	1, Supports 2 lane up to 3 Gbps (15-pin)
Audio	HDMI Audio	1
	I2S	1, in 40-pin header
	S/PDIF	1, in 40-pin header
Rear I/O	USB 3.2 Gen1 Type-A	3
	USB 3.2 Gen1 Type-C OTG	1
	Ethernet	1
	HDMI	1
Internal I/O	40-pin GPIO Header	- up to 28 x GPIO pins - up to 2 x SPI bus - up to 2 x I2C bus - up to 2 x UART - up to 3 x PWM - up to 1 x PCM/I2S (master/slave) - up to 1 x S/PDIF TX - 2 x 5V Power pins - 2 x 3.3V Power pins - 8 x Ground pins
	Recovery Header	1 (2-pin)
	Power-on Header	1 (2-pin)
	Reset Header	1 (2-pin)
	Debug UART Header	1 (2-pin)
	DC Fan Header	1 (2-pin)
	RTC Battery Header	1 (2-pin)
Power	Power Input	12 to 19 VDC, barrel jack (5.5/2.5 mm)
Environment	Operating Temperature	0 ~ 60°C
	Storage Temperature	-40 ~ 85°C
	Relative Humidity	10 ~ 85% (non-condensing)
Others	Operating System	Linux Debian 10, Android (AOSP) 11
	Dimensions	3.37" x 2.125" (85 x 56 mm)

*Spec by SKU

Block Diagram



Ordering Information

PN	Model Name	Description
90ME01N0-*	Tinker Board 2/2G	Arm SBC, Rockchip RK3399 Hexa-core, 2GB LPDDR4, HDMI, MIPI-DSI, MIPI-CSI, 12~19V DC in

Packing List

Item#	Description
1.	2 x Wi-Fi/BT antenna cable
2.	1 x Heatsink
3.	1 x Quick Start Guide

Optional Accessories

Item#	Description
Power Adapter 45W	DC 19V/2.37A or 19.5V/3.33A (5.5/2.5mm)
Power Adapter 65W	DC 19V/3.42A or 19.5V/2.31A (5.5/2.5mm)
Fanless Case	Aluminum Fanless Case
MIPI Convert Board	MIPI to LVDS/eDP converter board

*Accessories will be shipped separately

TINKER BOARD 2S

Arm SBC, Rockchip RK3399 Hexa-core, LPDDR4 RAM, eMMC, HDMI, MIPI-DSI, MIPI-CSI, 12-19V DC in

Features

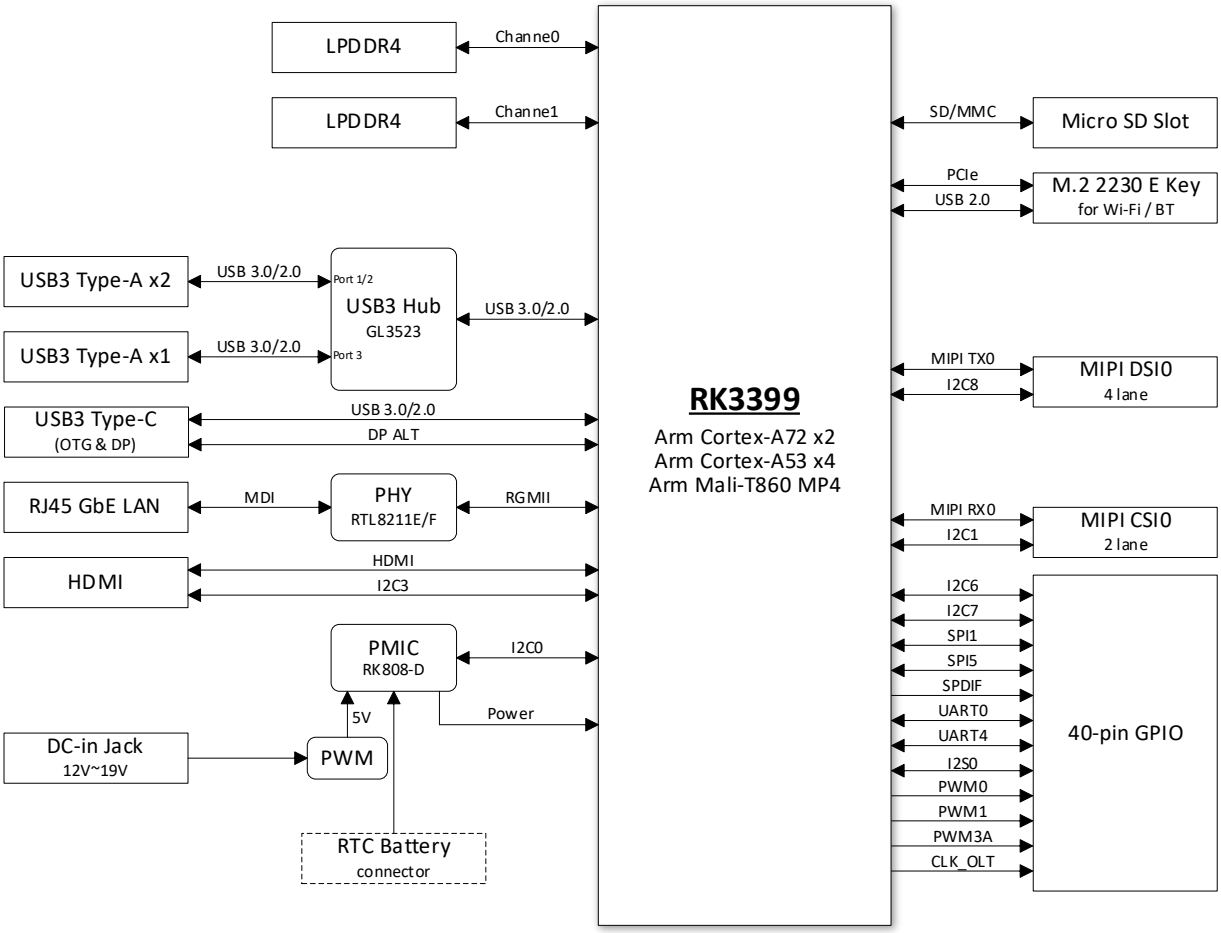
- Arm® big.LITTLE™ A72+A53 Hexa-core SoC
- Multiple MIPI-CSI & DSI / HDMI / Type-C (DP)
- USB 3.0 / Wi-Fi 802.11ac / BT 5.0 / GPIO
- 12V~19V DC-in offers stable power delivery
- Linux & Android supported

Specifications

Processor	SoC	Rockchip RK3399
	CPU	2 x Arm® Cortex®-A72 @ 2.0 GHz + 4 x Arm® Cortex®-A53 @ 1.5 GHz
	GPU	Arm® Mali™-T860 MP4 GPU @ 800 MHz
Memory	Technology	Dual-CH LPDDR4 On-board
	Size	2/4GB*
Storage	eMMC	16GB* On-board
	Memory Card	1 x Micro SD (TF) card slot (push & pull)
Ethernet	Speed	10/100/1000Mbps
	Controller	1 x Realtek RTL8211E/F
Wireless	Speed	802.11 a/b/g/n/ac & Bluetooth 5.0
	Module	1 x Realtek RTL8822CE (M.2 Socket 1 with E key, type 2230)
	Antenna Connector	2 x I-PEX MHF® 4 (extendable, 2T2R)
Display	HDMI	1, Supports up to 4096 x 2160 @ 60 Hz
	Type-C (DP)	1, Supports DP 1.2 up to 4096 x 2160 @ 60 Hz
	MIPI DSI	1, Supports 4 lane up to 6 Gbps, 1920 x1080 @ 60 Hz (22-pin)
	Multi Display	HDMI+Type-C, HDMI+MIPI DSI, Type-C+MIPI DSI
Camera	MIPI CSI-2	1, Supports 2 lane up to 3 Gbps (15-pin)
Audio	HDMI Audio	1
	I2S	1, in 40-pin header
	S/PDIF	1, in 40-pin header
Rear I/O	USB 3.2 Gen1 Type-A	3
	USB 3.2 Gen1 Type-C OTG	1
	Ethernet	1
	HDMI	1
Internal I/O	40-pin GPIO Header	- up to 28 x GPIO pins - up to 2 x SPI bus - up to 2 x I2C bus - up to 2 x UART - up to 3 x PWM - up to 1 x PCM/I2S (master/slave) - up to 1 x S/PDIF TX - 2 x 5V Power pins - 2 x 3.3V Power pins - 8 x Ground pins
	Recovery Header	1 (2-pin)
	Power-on Header	1 (2-pin)
	Reset Header	1 (2-pin)
	Debug UART Header	1 (2-pin)
	DC Fan Header	1 (2-pin)
	RTC Battery Header	1 (2-pin)
Power	Power Input	12 to 19 VDC, barrel jack (5.5/2.5 mm)
Environment	Operating Temperature	0 ~ 60°C
	Storage Temperature	-40 ~ 85°C
	Relative Humidity	10 ~ 85% (non-condensing)
Others	Operating System	Linux Debian 10, Android (AOSP) 11
	Dimensions	3.37" x 2.125" (85 x 56 mm)

*Spec by SKU

Block Diagram



Ordering Information

PN	Model Name	Description
90ME01P0-*	Tinker Board 2S/2G/16G	Arm SBC, Rockchip RK3399 Hexa-core, 2G LPDDR4, 16G eMMC, HDMI, MIPI-DSI, MIPI-CSI, 12~19V DC in
90ME01P1-*	Tinker Board 2S/4G/16G	Arm SBC, Rockchip RK3399 Hexa-core, 4G LPDDR4, 16G eMMC, HDMI, MIPI-DSI, MIPI-CSI, 12~19V DC in

Packing List

Item#	Description
1.	2 x Wi-Fi/BT antenna cable
2.	1 x Heatsink
3.	1 x Quick Start Guide

Optional Accessories

Item#	Description
Power Adapter 45W	DC 19V/2.37A or 19.5V/3.33A (5.5/2.5mm)
Power Adapter 65W	DC 19V/3.42A or 19.5V/2.31A (5.5/2.5mm)
Fanless Case	Aluminum Fanless Case
MIPI Convert Board	MIPI to LVDS/eDP converter board

*Accessories will be shipped separately

Power Adapter 45W

DC 19V/2.37A or 19.5V/3.33A (5.5/2.5mm)

Ordering Information

PN	Model Name	Description
90AN00D*-M0AAY0	45W ADAPTER/US	United States
90AN00D*-M0BAY0	45W ADAPTER/BR	Brazil
90AN00D*-M0CAY0	45W ADAPTER/CN	China
90AN00D*-M0EAY0	45W ADAPTER/EU	European Union
90AN00D*-M0EAY1	45W ADAPTER/UK	United Kingdom
90AN00D*-M0EAY2	45W ADAPTER/CH	Switzerland
90AN00D*-M0EAY3	45W ADAPTER/ZA	South Africa
90AN00D*-M0EAY4	45W ADAPTER/IL	Israel
90AN00D*-M0IAY0	45W ADAPTER/IN	India
90AN00D*-M0JAY0	45W ADAPTER/JP	Japan
90AN00D*-M0SAY0	45W ADAPTER/AR	Argentina
90AN00D*-M0TAY0	45W ADAPTER/TW	Taiwan
90AN00D*-M0UAY0	45W ADAPTER/HK	Hong Kong
90AN00D*-M0UAY1	45W ADAPTER/AU	Australia
90AN00D*-M0UAY2	45W ADAPTER/KR	Korea

Power Adapter 65W

DC 19V/2.37A or 19.5V/3.33A (5.5/2.5mm)

Ordering Information

PN	Model Name	Description
90AN00C*-M0AAY0	65W ADAPTER/US	United States
90AN00C*-M0BAY0	65W ADAPTER/BR	Brazil
90AN00C*-M0CAY0	65W ADAPTER/CN	China
90AN00C*-M0EAY0	65W ADAPTER/EU	European Union
90AN00C*-M0EAY1	65W ADAPTER/UK	United Kingdom
90AN00C*-M0EAY2	65W ADAPTER/CH	Switzerland
90AN00C*-M0EAY3	65W ADAPTER/ZA	South Africa
90AN00C*-M0EAY4	65W ADAPTER/IL	Israel
90AN00C*-M0IAY0	65W ADAPTER/IN	India
90AN00C*-M0JAY0	65W ADAPTER/JP	Japan
90AN00C*-M0SAY0	65W ADAPTER/AR	Argentina
90AN00C*-M0TAY0	65W ADAPTER/TW	Taiwan
90AN00C*-M0UAY0	65W ADAPTER/HK	Hong Kong
90AN00C*-M0UAY1	65W ADAPTER/AU	Australia
90AN00C*-M0UAY2	65W ADAPTER/KR	Korea

OmniEdge

DATASHEET

Rich configurations, multi-platform APIs, flexible framework for smart edge

ASUS has created OmniEdge middleware to simplify application development and offer exclusive services with ASUS IoT platforms.

OmniEdge provides rich and stable Application Programming Interface (API) functions with modular design and multi-OS consideration. System integrators and customers can easily leverage the API to connect to peripherals, make best use of hardware capabilities. OmniEdge API is backward compatible on multi-OS platforms. It takes minimal effort to upgrade or migrate existing application to a new hardware platform.

For no-code low-code system integrators and customers, OmniEdge provides series of configuration tools and scripts, to protect and configure systems while integrating solutions. Customers can easily configure hardware monitors, connectivity, thermal protection, system throttling, and brightness levels…etc.

OmniEdge delivers an SDK of tools, scripts, libraries, and flexible application framework, to assist customers to accelerate application development and solution integration.

HIGHLIGHTS

Configuration

Shell scripts (CLI)
Tinker config tools, x86 IPC tools

APIs

EAPI compliant
ASUS extended API for full control
Cross platforms (Windows, Linux, Android)

IOT Framework

Quick response time
Local decision
Automation by multiple data sources
Reliability under intermittent network

Connectivity

LTE keep alive & auto recover
Automatic backup between networks

Monitor & Protect

Watchdog timer
Thermal protect customization
Fan control
Power on/off scheduling

IoT Protocols

MQTT
Modbus, BACNET

DELIVERABLES (SDK)

Category	A (x86)	B (Tinker Series)	C (ARM IPC)
Windows	1. API library, header files, sample code 2. API Programming Guide 3. Driver (32 bit and 64 bit)	N/A	N/A
Linux	By request	1. API library, header files, sample code 2. API Programming Guide 3. Connectivity Manager User Manual	1. API library, header files, sample code 2. API Programming Guide 3. Connectivity Manager User Manual
Android	N/A	1. API library, sample code 2. API Programming Guide	N/A

OmniEdge API

DATASHEET

Features	Functions [2]	Category A		Category B		Category C
		Windows	Linux	Linux	Android	Linux
Operation & Protection	Hardware monitor API	V				
	Thermal protect API	V				
	Fan control API [3]	V				
	Scheduled Power on/off API [3]	V				
	Watchdog timer API	V		V [4]		V
Peripheral	GPIO API	V		V [4]	V [5]	V
	I2C API			V [4]	V [5]	V
	SPI API				V [5]	
	UART API				V [5]	
	PWM API				V [5]	
Connectivity	Connection auto-recover			V [4]	O [6]	V
	High availability network			V [4]	O [6]	V
IoT framework	Cloud/on-prem adapter				x	V
	IOT gateway framework & services				x	V
	Protocols (MQTT, Modbus, REST)				x	V

Category	A (x86)	B (Tinker Series)	C (ARM IPC)
Models[1]	E395S-IM-AA H110M-IM-A H310I-IM-A R3.0 H610M-IM-A J3455T-IM-A J3455T-IM-A R2.0 J6412T-IM-A N3350T-IM-A N420S-IM-AA N4200T-IM-A N5105I-IM-A R2.0 Q370I-IM-A Q370I-IM-A R2.0 Q470EI-IM-A Q470EA-IM-A Q470EI-IM-A R3.0 Q670EI-IM-A (SHINE) R680EI-IM-A(SKY) W480E-IM-A R3.0 W480EI-IM-A	Tinkerboard 2 Tinkerboard 2S Tinker Edge R	PE100A

1. Not listed models can be supported by request
2. Not checked features can be supported by request
3. Some models may not support this function. Please refer API document
4. Available on Tinker Edge R. Further models by request
5. Available on Tinker 2. Further models by request
6. Native support by Android