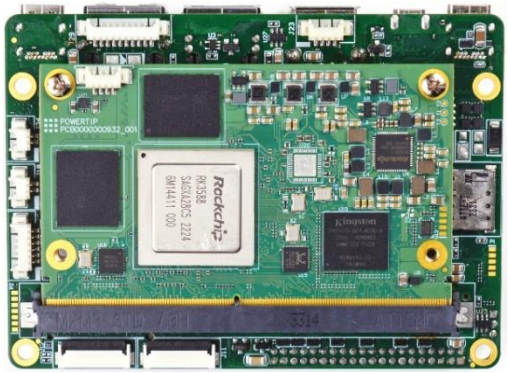
P05D00109-01

Rockchip RK3588

Front View



Features

- RK3588 octa-core SoC (4 ×A76 + 4 ×A55)
- AI applications: object detection, face recognition, speech
- 8K@60 decode / 8K@30 encode (H.265/VP9/H.264)
- Multi-display output: HDMI 2.1, DP 1.4, dual LVDS
- Rich I/O: PCIe, USB 3.0, Gigabit Ethernet, SATA

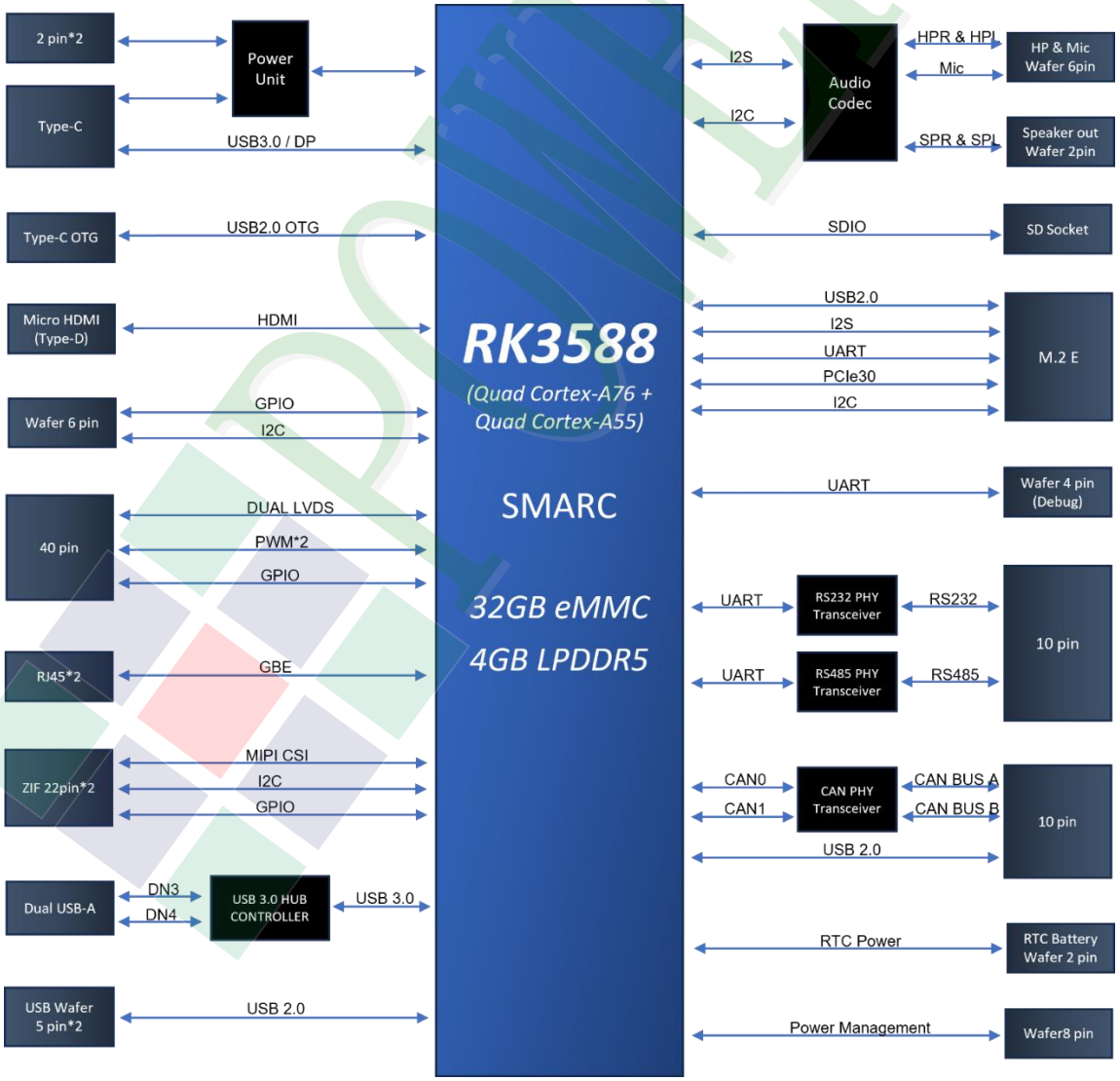
Specifications

Hardware		
CPU	RK3588	Arm Quad-core Cortex-A76 & Quad-core Cortex-A55
GPU	Mali-G610 MP4	OpenGL ES 1.1/2.0/3.2, OpenCL 2.2, Vulkan 1.2
NPU	RKNN	Accelerator with processing performance up to 6.0 TOPS
Memory	On Board RAM	4GB LPDDR5 SDRAM (Optional :8/16/32GB)
	Storage (Default Boot Device)	32GB eMMC Flash (Optional: 64GB/128GB)
I/O	Display (Up to three)	1 × Micro HDMI 2.1, up to 8K@60Hz 1 × Type-C (DP 1.4a), up to 8K@30Hz 1 × LVDS (dual channel), up to 1080P@60Hz
	USB	1 × USB 2.0 OTG (Type-C) 1 × Type-C (USB 3.0, DP, PD) 4 × USB Host (2 × USB 2.0 wafer connector, 2 × USB 3.0 Type-A)
	Ethernet 0	10/100/1000 Mbps
	Ethernet 1	10/100/1000/2500 Mbps
	Camera	2 × MIPI CSI-2 (1 × 4-lane, 1 × 2-lane)
	Audio	1 × Headphone output 1 × Microphone input 1 × Speaker output
	Serial Port	3 × UART (J23 for debug used, 1 for RS232 and 1 for RS485)
	CAN Bus	2 × CAN
	Low-speed Bus	1 × I^2C, 1 × SPI

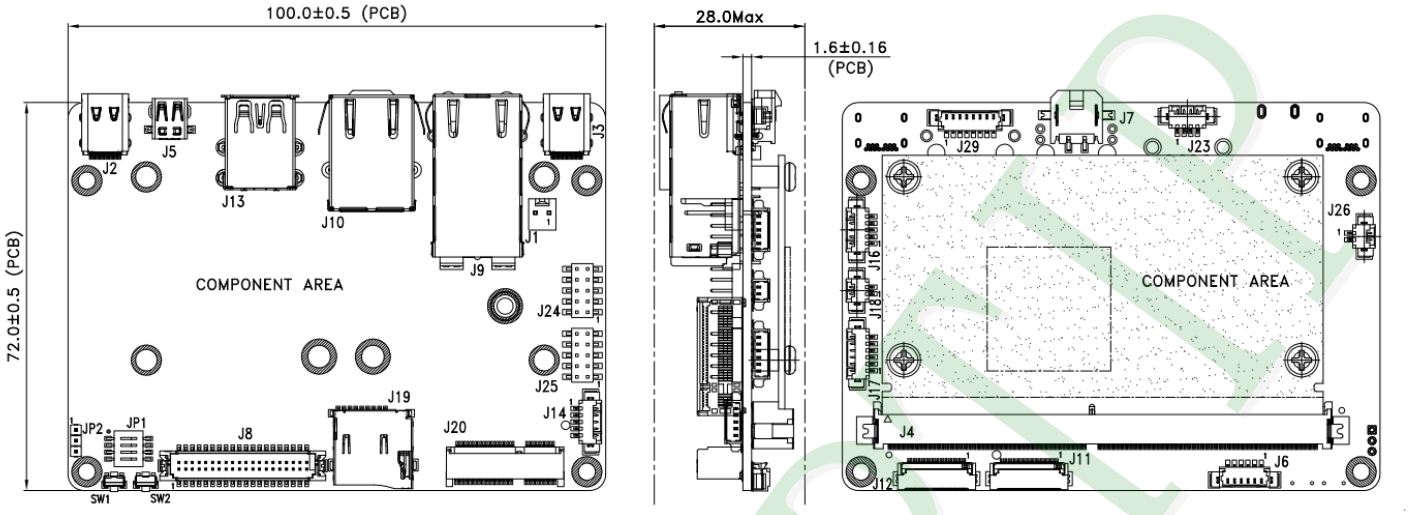
Hardware		
I/O	Control I/O	PWM, GPIOs
Expansion	M.2 Key E	1 × PCIe 3.0 x1
	SD Socket	1 × microSD card socket
Power	Input Voltage	9 ~ 24V DC
Environment	Operating Temp.	0 ~ 70 °C
	Storage Temp.	-30 ~ 85 °C
Mechanical	Form Factor	SMARC v2.2 Module + Pico Carrier Board
	SMARC Module	82 × 50 mm
	Pico Carrier Board	100 × 72 mm

Software		
OS	Default	Yocto 5.X
	Optional	Buildroot, Debian, Android

Block Diagram



Dimensions


100.0±0.5 (PCB)
72.0±0.5 (PCB)
28.0Max
1.6±0.16
(PCB)
COMPONENT AREA
COMPONENT AREA
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
J16
J17
J18
J19
J20
J23
J24
J25
J26
J29
JP1
JP2
SW1
SW2