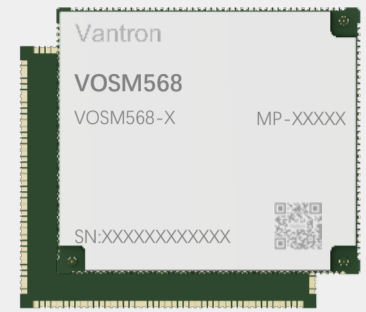


VOSM568 System-on-Module






Product Brief

VOSM568 system-on-module is powered by RK3568 processor with main frequency up to 2.0GHz. The module integrates a quad-core ARM Cortex-A55 processor, a Mali-G52-2EE GPU, and a high-performance NPU that supports up to 1 TOPS processing power. It boasts a variety of expansion interfaces, including video output interfaces, on-board Wi-Fi and Bluetooth, USB 2.0 & 3.0, PCIe 3.0, and GPIOs to increase its versatility for diverse scenarios. The module features an LGA packaging that allows for direct welding, eliminating the need for additional connectors. Additionally, it is compliant with Open Standard Module (OSM) V1.1, which enables seamless integration into various products. Moreover, the module provides an extended service life that meets the rigorous demands of industrial customers.

The module is designed to cater to a vast of application scenarios including but not limited to healthcare devices, smart home appliances, industrial IoT devices, and gym instruments.

Features and benefits

VOSM568

-  Flexible option for advanced & compact editions
-  Rich interfaces, robust system performance
-  On-board Wi-Fi & Bluetooth
-  Android and Linux systems supported
-  Compact size, LGA packaging
-  Open Standard Module (OSM) V1.1 compliant
-  Extended service life (7+ years)

Application Scenarios



Robotics



Healthcare



Fitness Console



Home Appliance

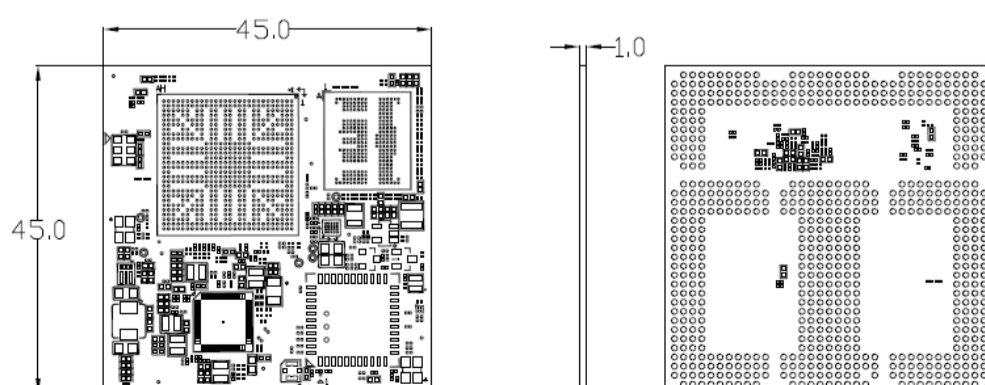


Industrial IoT



Smart Retail

Product Outlines



VOSM568 System-on-Module Datasheet

Specifications			
System	CPU	RK3568 Quad-core ARM Cortex-A55 processor, up to 2.0GHz	
	GPU	ARM Mali-G52 GPU	
	NPU	Up to 1 TOPS performance	
	Memory	2GB LPDDR4 (Optional: 4GB)	
	Storage	16GB eMMC 5.1 (Optional: 64GB)	
	EEPROM	2Kb (for hardware configuration information)	
	PMIC	RK809	
Communication	Wi-Fi & Bluetooth	Wi-Fi 802.11 a/b/g/n/ac & Bluetooth 5.0	
Media	Video processing	4K 60, H.265/H.264/VP9 video decoder	1080p 60, H.265/H.264 video encoder
	Graphics processing	Support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.1	
Power	Input	5V/2A DC input	
Software	Operating system	Android 11, Linux Yocto, Debian 10, other Linux distributions (Support by request)	
	Device management	BlueSphere MDM (Optional for Android)	
Mechanical	Dimensions	45mm x 45mm x 1mm	
Environment Condition	Temperature	Operating: -10°C ~ +60°C (Optional: -40°C ~ +85°C)	Storage: -20°C ~ +70°C
	Humidity	≤95% RH (Non-condensing)	
	Certification	CE, FCC, CCC	

I/Os			
Display (Extended mode supported)	1 x 4-lane MIPI DSI (up to 1920 x 1080 @60Hz)		
	1 x 4-Lane eDP (up to 2560 x 1600 @60Hz)		
	1 x HDMI 2.0 (up to 1080p@120Hz or 4096 x 2304@60Hz)		
MIPI CSI	1 x 4-lane MIPI CSI		
Audio	1 x Headphone output	1 x Speaker output	1 x Microphone input
I ² S	1 x I ² S		
ADC	2 x ADC input		
SDIO	1 x 4-bit SDIO V3.0		
RGMII (Ethernet)	1 x RGMII		
SPI	1 x SPI		
UART	1 x Debug UART (1.8V level)	4 x Communication UART (TTL)	
USB	2 x USB 2.0 Host	1 x USB 2.0 OTG	1 x USB 3.0 Host
I ² C	2 x I ² C		
GPIO	25 x GPIO (Max.)		
PCIe	1 x PCIe 3.0 x2		
CAN	2 x CAN (CAN_A, CAN_B)		
PWM	4 x PWM		
Key	1 x Power key	1 x Reset key	2 x Volume +/- key

Electrical Characteristics

Absolute Maximum Ratings

Voltage beyond absolute maximum ratings may cause permanent damage to the module. Operation of the module outside of recommended conditions may result in reduced lifetime and/or reliability problems even if the absolute maximum ratings are not exceeded.

Parameter	Min.	Max.	Unit	
Voltage of the SOM	-0.3	6.5	V	
Voltage on Wi-Fi/BT chip	VBAT	-0.5	5	V
	VDDIO	-0.5	3.9	V
Voltage of LPDDR4	LPDDR4X VDD1	-0.4	2.1	V
	LPDDR4X VDD2	-0.4	1.5	V
	LPDDR4X VDDQ	-0.4	1	V
Storage temperature	-20	70	°C	

Recommended Operating Conditions

You are recommended to operate the module in the following conditions to achieve optimized performance of the module.

Parameter	Min.	Typ.	Max.	Unit	
Voltage of the SOM	2.7	4.4	5.5	V	
Voltage on Wi-Fi/BT chip	VBAT	3	3.3	4.4	V
	VDDIO	1.6	1.8	3.6	V
Voltage of EMCP	eMMC VCC	2.7	3.3	3.6	V
	eMMC VCCQ	1.7	1.8	1.95	V
	LPDDR4X VDD1	1.7	1.8	1.95	V
	LPDDR4X VDD2	1.06	1.1	1.17	V
	LPDDR4X VDDQ	0.57	0.6	0.65	V

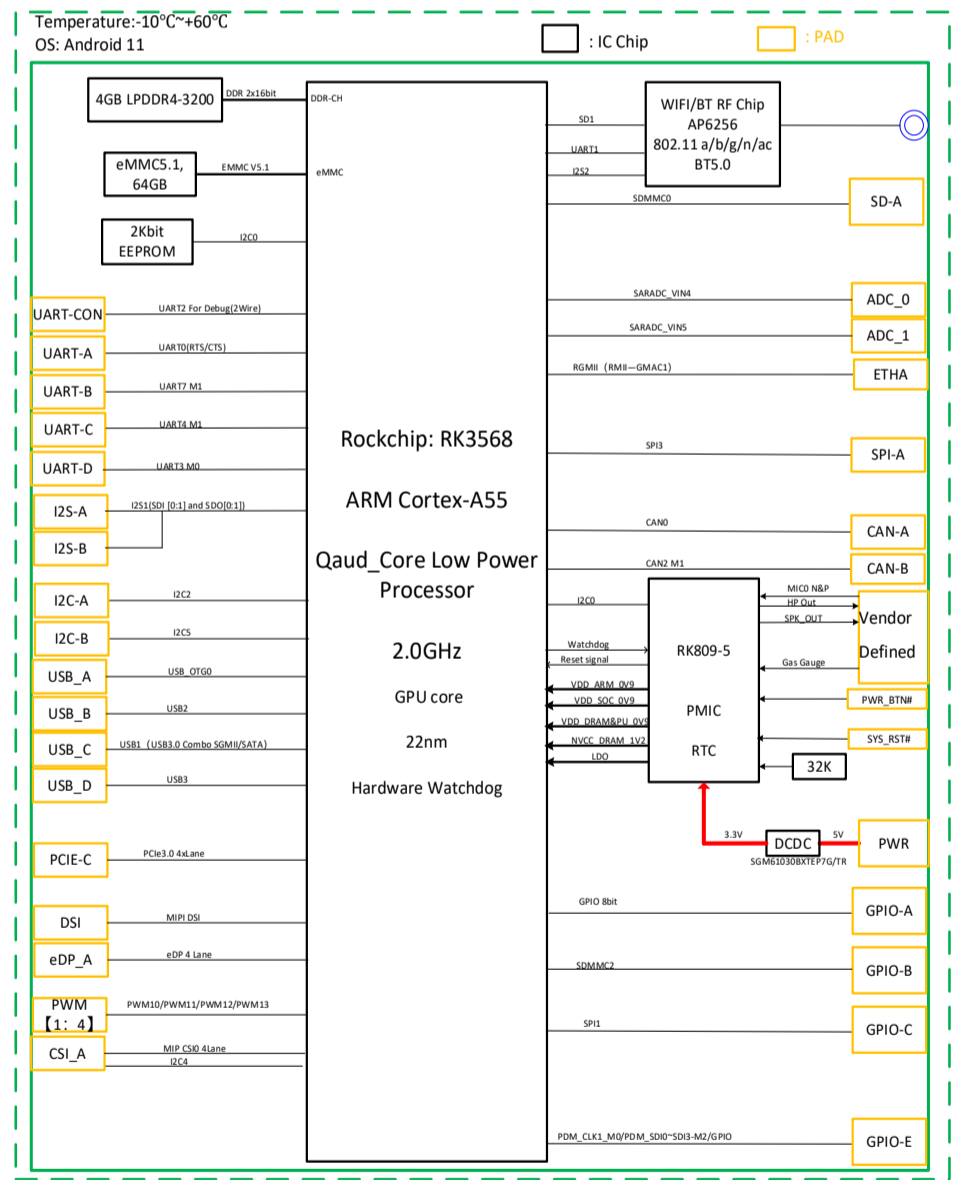
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Recommended Operating Conditions (Cont'd)

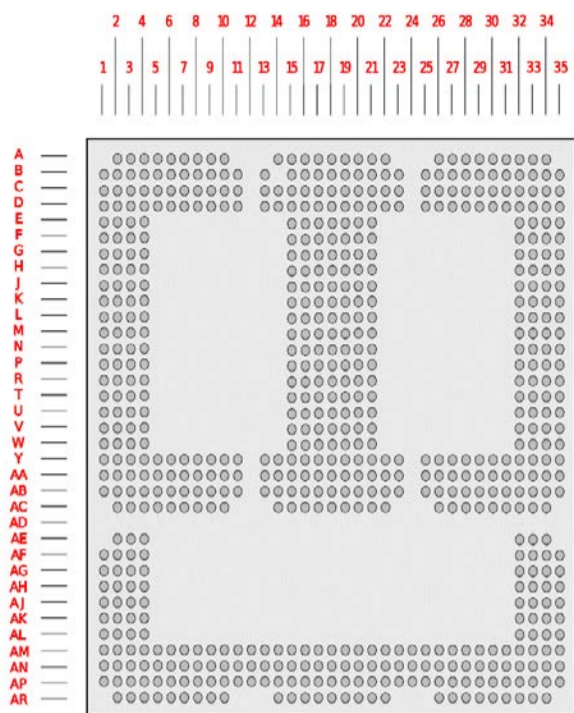
Parameter	Min.	Typ.	Max.	Unit
Voltage on CPU	0.8	0.9	1.2	V
Voltage on GPU	0.8	0.9	1.1	V
Voltage on NPU	0.8	0.9	1.1	V
Voltage on PMU	0.81	0.9	0.99	V
Voltage of core logic	0.81	0.9	0.99	V
PMUIO1 GPIO voltage	2.97	3.3	3.63	V
Voltage of EEPROM	1.7	1.8	5.5	V
LPDDR4X IO VDDQ voltage	1	1.1	1.21	V
LPDDR4X IO VDDQL voltage	0.54	0.6	0.66	V
PMUPLL_AVDD_0V9	0.81	0.9	0.99	V
PMUPLL_AVDD_1V8	1.62	1.8	1.98	V
SYSPLL_AVDD_0V9	0.81	0.9	0.99	V
SYSPLL_AVDD_1V8	1.62	1.8	1.98	V
PMUIO2	1.62	1.8	1.98	V
VCCIO2	1.62	1.8	1.98	V
VCCIO3	2.97	3.3	3.63	V
USB3_AVDD_0V9	0.81	0.9	0.99	V
USB3_AVDD_1V8	1.62	1.8	1.98	V
USB3_AVDD_3V3	2.97	3.3	3.63	V
MULTI_PHY_AVDD_0V9	0.81	0.9	0.99	V
MULTI_PHY_AVDD_1V8	1.62	1.8	1.98	V
USB2_AVDD_0V9	0.81	0.9	0.99	V
USB2_AVDD_1V8	1.62	1.8	1.98	V
USB2_AVDD_3V3	2.97	3.3	3.63	V
PCIE30_AVDD_0V9	0.81	0.9	0.99	V
PCIE30_AVDD_1V8	1.62	1.8	1.98	V
VCCIO4	1.62	1.8	1.98	V
VCCIO7	1.62	1.8	1.98	V
SARADC_AVDD_1V8	1.62	1.8	1.98	V
OTP_VCC18	1.62	1.8	1.98	V
MIPI_CSI_RX_AVDD_0V9	0.81	0.9	0.99	V
MIPI_CSI_RX_AVDD_1V8	1.62	1.8	1.98	V
VCCIO6	1.62	1.8	1.98	V

Parameter	Min.	Typ.	Max.	Unit
MIPI_DSI_TX0/LVDS_TX0_AVDD_0V9	0.81	0.9	0.99	V
MIPI_DSI_TX0/LVDS_TX0_AVDD_1V8	1.62	1.8	1.98	V
EDP_TX_AVDD_0V9	0.81	0.9	0.99	V
EDP_TX_AVDD_1V8	1.62	1.8	1.98	V
MIPI_DSI_TX1_AVDD_0V9	0.81	0.9	0.99	V
MIPI_DSI_TX1_AVDD_1V8	1.62	1.8	1.98	V
HDMI_TX_AVDD_0V9	0.81	0.9	0.99	V
HDMI_TX_AVDD_1V8	1.62	1.8	1.98	V
VCCIO5	1.62	1.8	1.98	V
VCCIO1	1.62	1.8	1.98	V

Block Diagram



Pinout



Pin	Name	Type	Description
C2	MIPI_CSI_CLK	Passive	Camera clock output
G3	MIPI_CSI_PDN	Passive	MIPI-CSI power down signal output
G4	MIPI_CSI_RST	Passive	MIPI-CSI reset signal output
B3	MIPI_CSI_CLKN	Passive	MIPI_CSI_CLKN
B4	MIPI_CSI_CLKP	Passive	MIPI_CSI_CLKP
C1	MIPI_CSI_DN0	Passive	MIPI_CSI_DN0
B1	MIPI_CSI_DPO	Passive	MIPI_CSI_DPO
A2	MIPI_CSI_DN1	Passive	MIPI_CSI_DN1
A3	MIPI_CSI_DP1	Passive	MIPI_CSI_DP1
A5	MIPI_CSI_DN2	Passive	MIPI_CSI_DN2
A6	MIPI_CSI_DP2	Passive	MIPI_CSI_DP2
B6	MIPI_CSI_DN3	Passive	MIPI_CSI_DN3
B7	MIPI_CSI_DP3	Passive	MIPI_CSI_DP3
C4	I2C4_SCL	Passive	I2C4 clock
C3	I2C4_SDA	Passive	I2C4 data
F4	DSI_BL_EN	Passive	MIPI_DSI_TX0 backlight enable signal output
E18	MIPI_DSI_PWM	Passive	MIPI_DSI_TX0 backlight pwm signal output
F3	MIPI_DSI_PWR	Passive	MIPI_DSI_TX0 power enable signal output
AB8	MIPI_TX_CLKN	Passive	MIPI_DSI_TX0 differential clock lane -
AB7	MIPI_TX_CLKP	Passive	MIPI_DSI_TX0 differential clock lane +
AB11	MIPI_TX_D0N	Passive	MIPI_DSI_TX0 differential lane 0 -
AB10	MIPI_TX_D0P	Passive	MIPI_DSI_TX0 differential lane 0 +
AC9	MIPI_TX_D1N	Passive	MIPI_DSI_TX0 differential lane 1 -
AC8	MIPI_TX_D1P	Passive	MIPI_DSI_TX0 differential lane 1 +
AC6	MIPI_TX_D2N	Passive	MIPI_DSI_TX0 differential lane 2 -
AC5	MIPI_TX_D2P	Passive	MIPI_DSI_TX0 differential lane 2 +

Pin	Name	Type	Description
AB5	MIPI_TX_D3N	Passive	MIPI_DSI_TX0 differential lane 3 -
AB4	MIPI_TX_D3P	Passive	MIPI_DSI_TX0 differential lane 3 +
AA3	DSI_TE	Passive	MIPI_DSI_TX0 testing effect signal input (not used)
M18	SARADC_VIN4	Passive	ADC4 signal input, ES8316 Headphone hook on EVB
N18	SARADC_VIN5	Passive	ADC5 signal input, Audio headphone hook on EVB
AC18, R19, P19, N17, P17, R17, N19, C18, B22, C16, P16, D6	NC		No connection
D7	HP_DET	Passive	Headphone detect signal input
Y29	MIC1_INN	Passive	Negative input of the Microphone
Y30	NC		No connection
Y31	SPKN_OUT	Passive	Negative speaker driver output
AA29	MIC1_INP	Passive	Positive input of the Microphone
AA30	NC		No connection
AA31	SPKP_OUT	Passive	Positive speaker driver output
AK32	NC		No connection
AK33	HPOL	Passive	Left channel output of the headphone
AL32	HPOR	Passive	Right channel output of the headphone
AL33	HP_SNS	Passive	Reference ground for the headphone
AM32	VBAT_SNSN	Passive	Battery charge and discharge current sensing signal -
AM33	VBAT_SNSP	Passive	Battery charge and discharge current sensing signal +
F18	PWM10	Passive	PWM10 signal output, LED control
G18	PWM11	Passive	PWM11 signal output, LED control
H18	PWM0	Passive	PWM0 signal output, LED control
J18	PWM1	Passive	PWM1 signal output, LED control
K18	NC		No connection
AB17	CAN0_RX_M0	Passive	CAN0 bus receive data
AC17	CAN0_TX_M0	Passive	CAN0 bus transmit data
AB19	CAN1_RX_M0	Passive	CAN1 bus receive data
AC19	CAN1_TX_M0	Passive	CAN1 bus transmit data
C14	UART0_CTS	Passive	UART0 Clear to Send signal input
C13	UART0_RTS	Passive	UART0 Request to Send signal output
A14	UART0_RX	Passive	UART0 receive data
B13	UART0_TX	Passive	UART0 transmit data
D16	NC		No connection
D15	NC		No connection
D14	UART7_RX_M1	Passive	UART7 receive data
D13	UART7_TX_M1	Passive	UART7 transmit data

(To be continued...)

Pin	Name	Type	Description
A22	UART4_RX_M1	Passive	UART4 receive data
B23	UART4_TX_M1	Passive	UART4 transmit data
D22	UART2_RX_M0_DEBUG	Passive	UART2 receive data, for debug
D23	UART2_TX_M0_DEBUG	Passive	UART2 transmit data, for debug
C22	UART3_RX_M1	Passive	UART3 receive data
C23	UART3_TX_M1	Passive	UART3 transmit data
V21	I2S1_SDI0_M0	Passive	I2S1 data0 input
W21	I2S1_SDO0_M0	Passive	I2S1 data0 output
V19	I2S1_SDI1_M0	Passive	I2S1 data1 input
W19	I2S1_SDO1_M0	Passive	I2S1 data1 output
W20	I2S1_SCLK_TX_M0	Passive	I2S1 serial clock
W18	I2S1_LRCK_TX_M0	Passive	I2S1 Left & Right channel clock
V18	I2S1_MCLK_M0	Passive	I2S1 Master clock
AB2	PCIE20_RXN	Passive	Not used
AB1	PCIE20_RXP	Passive	Not used
AC3	PCIE20_TXN	Passive	Not used
AC2	PCIE20_TXP	Passive	Not used
V2	PCIE20_PERST	Passive	Not used
W2	PCIE20_CLKREQ	Passive	Not used
Y1	PCIE20_REFCLKN	Passive	Not used
W1	PCIE20_REFCLKP	Passive	Not used
T2	PCIE20_WAKE	Passive	Not used
M34, L34, L35, K35, L33, R2, T1, U1	NC		No connection
D11	USB3_HOST1_DM	Passive	USB3 HOST1 HS/FS/LS data -
D10	USB3_HOST1_DP	Passive	USB3 HOST1 HS/FS/LS data +
C10	HOST1_EN	Passive	USB3.0 power enable signal output
D9	NC		No connection
C8	USB3_HOST1_OC	Passive	USB3.0 over-current signal input (not used)
B11	USB3_HOST1_SSRXN	Passive	USB3.0 HOST1 Superspeed receive differential -
B10	USB3_HOST1_SSRXP	Passive	USB3.0 HOST1 Superspeed receive differential +
A9	USB3_HOST1_SSTXN	Passive	USB3.0 HOST1 Superspeed transmit differential -
A8	USB3_HOST1_SSTXP	Passive	USB3.0 HOST1 Superspeed transmit differential +
C9	NC		No connection
D26	HOST3_DM	Passive	USB HOST3 data -
D25	HOST3_DP	Passive	USB HOST3 data +
C26	HOST3_EN	Passive	USB2.0 power enable signal output
C28	HOST3_OC	Passive	USB2.0 over-current signal input (not used)

Pin	Name	Type	Description
D27, B26, B25, A28, A27, C27	NC		No connection
AA15	I2C2_SCL	Passive	I2C serial clock 2
AA16	I2C2_SDA	Passive	I2C serial data 2
AA20	I2C5_SCL	Passive	I2C HDMI bus clock, for HDMI
AA21	I2C5_SDA	Passive	I2C HDMI bus Data/Address, for HDMI
AB13	USB3_OTG0_DM	Passive	USB3 OTG0 HS/FS/LS data -
AC14	USB3_OTG0_DP	Passive	USB3 OTG0 HS/FS/LS data +
AC16	USB3_OTG0_EN	Passive	USB OTG enable signal output
AB14	OTG_ID	Passive	USB3 OTG0 ID detect (Internal weak pull-up to USB3_AVDD_1V8)
AC15	USB3_OTG0_OC	Passive	USB OTG over-current signal input (not used)
AB16	OTG_DET	Passive	USB3 OTG0 VBUS power connection detect (Valid voltage range: 2.7V-3.3V)
AB23	HOST2_DM	Passive	USB HOST2 data -
AC22	HOST2_DP	Passive	USB HOST2 data +
AC20	HOST2_EN	Passive	USB host2 power enable signal output
AC21	HOST2_OC	Passive	USB host2 over-current signal input (not used)
AB22, AB20	NC		No connection
J21	SDMMC0_DET	Passive	SD card input detect
F21	SDMMC0_CLK	Passive	SDMMC0_CLK
E20	SDMMC0_CMD	Passive	SDMMC0 CMD
G20	SDMMC0_D0	Passive	SDMMC0 data0
G21	SDMMC0_D1	Passive	SDMMC0 data1
H20	SDMMC0_D2	Passive	SDMMC0 data2
H21	SDMMC0_D3	Passive	SDMMC0 data3
C20	VCCIO_SD	power	3.3V power of SD card
D21	SDMMC0_PWR_EN	Passive	SDIO power enable signal output (not used)
D20	SDMMC0_WP	Passive	SDIO write protect signal output (not used)
T21, K20, K21, L20, L21, M21, N20, N21, P20, P21, R21, T20, U21, U20	NC		No connection
D17	GPIOA0	Passive	GPIOA0 signal. PD interrupt signal input on EVB
E17	GPIOA1	Passive	GPIOA1 signal. SGM41510 charger state signal input on EVB
F17	GPIOA2	Passive	GPIOA2 signal. SGM41510 interrupt signal input on EVB

(To be continued...)

Pin	Name	Type	Description
G17	GPIOA3	Passive	GPIOA3 signal. YT8531 reset signal output on EVB
H17	GPIOA4	Passive	GPIOA4 signal. SGM41510 charge enable signal output on EVB
J17	LVDS_BL_PWM/GPIOA5	Passive	GPIOA5 signal. MIPI_DSI_TX1 backlight pwm signal output on EVB
D19	GPIOB0/SDMMC2_D0	Passive	GPIOB0 signal. Camera power enable signal output on EVB
E19	GPIOB1/SDMMC2_D1	Passive	GPIOB1 signal. MIPI DSI switch control signal output on EVB. High for HDMI output, low for MIPI output. (set to low by default)
F19	GPIOB2/SDMMC2_D2	Passive	GPIOB2 signal. LT9611 reset signal output on EVB (not used)
G19	GPIOB3/SDMMC2_D3	Passive	GPIOB3 signal. LT9611 interrupt request signal input on EVB (not used)
H19	GPIOB4/SDMMC2_CMD	Passive	GPIOB4 signal. TP interrupt signal input on EVB
J19	GPIOB5/SDMMC2_CLK	Passive	GPIOB5 signal. TP reset signal output on EVB
K19	LVDS_BL_EN/SDMMC2_DET	Passive	GPIOB6 signal. MIPI_DSI_TX1 backlight enable signal output on EVB
L19	GPIOB7/SDMMC2_PWREN	Passive	GPIOB7 signal. MIPI-DSI reset signal output on EVB
D3	LVDS_VDD_EN/SPI1_MOSI	Passive	GPIOC0 signal. MIPI_DSI_TX1 power enable signal output on EVB
D4	PCIE30_PERST/SPI1_MISO	Passive	GPIOC1 signal. PCIe3.0 reset signal output on EVB
E3	GPIOC2/SPI1_CLK	Passive	GPIOC2 signal. eDP backlight enable signal output on EVB
E4	GPIOC3	Passive	GPIOC3 signal. YT8531 interrupt signal input on EVB
U32, U33, V32, V33, W32, W33, Y32	NC		No connection
AF32	PCIE30_CLKREQN	Passive	GPIOE0 signal. PCIe3.0 reference clock request signal input on EVB
AF33	PCIE30_WAKEN	Passive	GPIOE1 signal. PCIe3.0 wake signal input on EVB
AG32	PDM_CLK1_M0	Passive	GPIOE2 signal. eDP power enable signal output on EVB
AG33	PDM_SDI2_M0	Passive	GPIOE3 signal. MIPI-B-DSI reset signal output on EVB
AH32	GMAC0_MDC	Passive	not used
AH33	GMAC0_MDIO	Passive	not used
AJ32	GPIOE6	Passive	GPIOE6 signal. ES8316 headphone detect signal input on EVB

Pin	Name	Type	Description
AJ33, W15, W16, AA23, L17, Y21, Y22, Y23, C30, Y33, D29, C29, D30, F15, E16	NC		No connection
R15	ENET_RGMII_RXCLK	Passive	RGMII receive CLK
M15	ENET_RGMII_RXDV	Passive	RGMII receive data enable
L16	ENET_RGMII_RXER	Passive	RGMII receive error signal
N15	ENET_RGMII_RXD2	Passive	RGMII receive data 2
P15	ENET_RGMII_RXD3	Passive	RGMII receive data 3
J15	ENET_RGMII_TXCLK	Passive	RGMII transmit CLK
K16	ENET_RGMII_TXCTL	Passive	RGMII transmit enable
K15	ENET_RGMII_RXD0	Passive	RGMII receive data 0
L15	ENET_RGMII_RXD1	Passive	RGMII receive data 1
H15	ENET_RGMII_TXD0	Passive	RGMII transmit data 0
G15	ENET_RGMII_TXD1	Passive	RGMII transmit data 1
H16	ENET_RGMII_TXD2	Passive	RGMII transmit data 2
G16	ENET_RGMII_TXD3	Passive	RGMII transmit data 3
N16	ENET_RGMII_REFCLK	Passive	YT8531H PHY to CPU clock output
E1, D2, P1, L1, K2, M1, N1, H1, J2, J1, K1, G1, F1, G2, F2, C6, C7, M2, AB35, AC34, W35, AP6, AP3, AR3, AR4	NC		No connection
T35, U34, R35, P35, N35, V34, V35, U35, Y35, AA35, Y34, AA34, R34, N33, P33, AF3, AE3, AP1, AL1, AP4, AR6	NC		No connection
AK2, AM1, AN1, AH1, AJ2, AJ1, AK1, AF1, AG1, AG2, AF2, AM2, AR2, AN4, AN10, AR8, AP7, AP9, AR9, AR10, AR5, AR7	NC		No connection
M17	VCC_1V8	Passive	1.8V Power of ENET
T16	ENET_MDC	Passive	Management data, clock reference
T15	ENET_MDIO	Passive	Management data, pull-up resistor to 3.3V/2.5V
AP32	PCIE30_RX0N	Passive	PCIe3.0 receive differential data lane 0 -
AP33	PCIE30_RX0P	Passive	PCIe3.0 receive differential data lane 0 +

(To be continued...)

Pin	Name	Type	Description
AP35	PCIE30_RX1N	Passive	PCIe3.0 receive differential data lane 1 -
AN35	PCIE30_RX1P	Passive	PCIe3.0 receive differential data lane 1 +
AR33	PCIE30_TX0N	Passive	PCIe3.0 transmit differential data lane 0 -
AR34	PCIE30_TX0P	Passive	PCIe3.0 transmit differential data lane 0 +
AN34	PCIE30_TX1N	Passive	PCIe3.0 transmit differential data lane 1 -
AM34	PCIE30_TX1P	Passive	PCIe3.0 transmit differential data lane 1 +
A15, A17, A18, A19, A21, B15, B16, B17, B18, B19, B20, B21	GND	GND	Ground
D18, E15, E21, F16, F20, J16, J20, L18, M16, M20	GND	GND	Ground
P18, R16, R20, V16, V20, Y18, AA14, AA17, AA19	GND	GND	Ground
AA22, AB15, AB21, A4, A7, A10, B2, B5, B8, B9, C11, D1	GND	GND	Ground
A16	ANT	Passive	RF in
C34	DP_AUX-	Passive	eDP AUX differential -
C33	DP_AUX+	Passive	eDP AUX differential +
D32	NC		No connection
D31	EDP_BL_EN	Passive	eDP backlight enable signal output
D33	DP_HPD	Passive	eDP hot plug signal input
C31	EDP_BL_PWM	Passive	eDP backlight pwm signal output
A31	EDP_TXD0_N	Passive	eDP transmit differential data lane 0 -
A30	EDP_TXD0_P	Passive	eDP transmit differential data lane 0 +
B32	EDP_TXD1_N	Passive	eDP transmit differential data lane 1 -
B31	EDP_TXD1_P	Passive	eDP transmit differential data lane 1 +
A34	EDP_TXD2_N	Passive	eDP transmit differential data lane 2 -
A33	EDP_TXD2_P	Passive	eDP transmit differential data lane 2 +
B35	EDP_TXD3_N	Passive	eDP transmit differential data lane 3 -
B34	EDP_TXD3_P	Passive	eDP transmit differential data lane 3 +
H33, G33, F32, E32, E33	NC		No connection
G32	HDMI_TX_HPDIN	Passive	HDMI2.0 Hot plug detection interrupt with 5V tolerance

Pin	Name	Type	Description
E35	HDMI_TX_D0N	Passive	HDMI2.0 transmit differential data lane 0 -
D35	HDMI_TX_D0P	Passive	HDMI2.0 transmit differential data lane 0 +
F34	HDMI_TX_D1N	Passive	HDMI2.0 transmit differential data lane 1 -
E34	HDMI_TX_D1P	Passive	HDMI2.0 transmit differential data lane 1 +
H35	HDMI_TX_D2N	Passive	HDMI2.0 transmit differential data lane 2 -
G35	HDMI_TX_D2P	Passive	HDMI2.0 transmit differential data lane 2 +
J34	HDMI_TX_CLKN	Passive	HDMI2.0 transmit differential clock -
H34	HDMI_TX_CLKP	Passive	HDMI2.0 transmit differential clock +
AN12	MIPI_TX_C1LKN	Passive	MIPI_DSI_TX1 differential clock lane -
AN13	MIPI_TX1_CLKP	Passive	MIPI_DSI_TX1 differential clock lane +
AP17	MIPI_TX1_D0N	Passive	MIPI_DSI_TX1 differential lane 0 -
AP18	MIPI_TX1_D0P	Passive	MIPI_DSI_TX1 differential lane 0 +
AR15	MIPI_TX1_D1N	Passive	MIPI_DSI_TX1 differential lane 1 -
AR16	MIPI_TX1_D1P	Passive	MIPI_DSI_TX1 differential lane 1 +
AP14	MIPI_TX1_D2N	Passive	MIPI_DSI_TX1 differential lane 2 -
AP15	MIPI_TX1_D2P	Passive	MIPI_DSI_TX1 differential lane 2 +
AP11	MIPI_TX1_D3N	Passive	MIPI_DSI_TX1 differential lane 3 -
AP12	MIPI_TX1_D3P	Passive	MIPI_DSI_TX1 differential lane 3 +
D5, D8, E2, H2, H4, L2, L4, P2, P4, R1, U2, U4, V1, W3, Y2	GND	GND	Ground
AA1, AA4, AA7, AA8, AA10, AA11, AB3, AB6, AB9, AC4	GND	GND	Ground
AC7, AC10, A26, A29, A32, B27, B28, B30, B33, C25, C32, C35	GND	GND	Ground
D28, D34, F33, F35, G34, H32, J33, J35, K34, M35, N34, T34	GND	GND	Ground
W34, AA25, AA26, AA27, AA28, AA32, AB28, AB31	GND	GND	Ground

(To be continued...)

Pin	Name	Type	Description
U19, R18	NC		No connection
V17	EXT_EN	Passive	Extra power enable signal output on EVB
T17	SARADC_VINO_KEY/RECOVERY	Passive	AD keyboard input, for recovery
AA9	RK809_PWRON	Passive	PMIC RK809 POWER ON
W17	NC		No connection
U17	RESETN	Passive	System reset input, active low
AB18	VCC_BAT+	Power	VCC_BAT+
AA18	VCC_BAT+	Power	VCC_BAT+
M19, Y16, Y20, Y3, C5, AA33, B29, Y17, Y8, Y9, Y10, Y11	NC		No connection
Y25	VBUS	Power	Power In
Y26	VBUS	Power	Power In
Y27	VBUS	Power	Power In
Y28	VBUS	Power	Power In

Pin	Name	Type	Description
AE4, AF4, AG4, AH3, AH4, AJ3, AJ4, AK4, Y19, U18	NC		No connection
AB34, AC27, AC30, AC33, AE2, AE34, AF35, AG3	GND	GND	Ground
AH2, AH34, AJ35, AK3, AL2, AL34, AM13, AM16, AM19	GND	GND	Ground
AM22, AM35, AN3, AN6, AN9, AN11, AN15, AN18, AN21	GND	GND	Ground
AN33, AP2, AP5, AP8, AP13, AP16, AP19, AP22, AP25, AP28	GND	GND	Ground
AP31, AP34, AR14, AR17, AR20, AR26, AR29, AR32	GND	GND	Ground

* Apart from those specified here, any pins not included in these sheets are not connected.

Ordering Information

Ordering No.	Chipset	Memory	Storage	Description
VOSM568-L	RK3568	2GB LPDDR4	16GB eMMC	MIPI DSI, eDP, HDMI, MIPI CSI, SPI, UART, USB, I ² C, GPIO, CAN, PCIe 3.0
VOSM568-H	RK3568	4GB LPDDR4	64GB eMMC	
VT-SBC-VOSM568-EVB	RK3568	2GB LPDDR4	16GB eMMC	VOSM568 + Carrier board, MIPI DSI, eDP, HDMI, MIPI CSI, UART, USB, I ² C, GPIO, CAN, PCIe 3.0

* More variants are available, please contact the sales executive for details.

Packing list	
VOSM568 system-on-module	1

Optional accessories	
Power adapter and power cord	1 kit
Wi-Fi and BT antenna	1

Company Profile

Since its establishment in 2002 by two Silicon Valley entrepreneurs, Vantron Technology has been at the forefront of the connected IoT devices and IoT platform solutions. Today, Vantron boasts a global customer base that includes many Fortune Global 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud platforms.

With over 20 years of experience in R&D of embedded edge intelligent hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux to Windows, from embedded to desktop level, and from gateway to server. In addition, it provides users with system trimming, driver transplantation and more to cater to the unique needs of its users.