

NOVAsom M-line is a family of SBCs specifically developed for High end multimedia markets that require heavy **Full HD** movies or multiple **4k UHD**, that need to be managed with high fluidity without compromise in performance.

Thanks to the different architectures it's possible to chose between various OS like Linux, Android or Windows 10 and IoT.

Examples of applications are: **Digital Signage, Infotainment, multimedia and advertising.**



			SBC-M7 & M7+ Boards	SBC-M8 Boards	SBC-M9 Boards	SBC-M11 Boards
	Processor	CPU	Rockchip RK3328	Qualcomm Snapdragon 410E	RK3399 Dual A72 + Quad A53	Intel Apollo Lake X5 6th generation Dual or quad core
	Graphic	GRAPHICS ENGINE	Mali-450MP4	ADRENO	Mali-T860MP4	Intel HD Graphics 405/505
	Memory	RAM memory DDR3	Up to 2 GB	1 or 2 GB	LPDDR3 up to 4GB @ 64bit	SODIMM DDR3 up to 8GB
		eMMC flash memory	Up to 256 GB	8 or 16 GB in bundle with ram	up to 128 GB	Any size eMMC supported SDR and DDR mode
		µSD slot	Y	Y	Y	Y
	Power	Power supply	12v (6.5 - 18Vcc protected) * 5V via USB (only M7+)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected redundant)
		Power Consumption Active [W]	2.5	6	2.5	10-15
		UPS Manager	Y (battery not included)	Y (battery not included)	Y (battery not included)	Y (battery not included)
		PoE	N	N	N	Y + Relaunch
	Multimedia	HDMI full size connector	* Additional FFC connector (only M7+)	Y	Y	Y
		LVDS	External adapter	n.a.	n.a.	2 ch@1920x1080
		Display Port DP 1.2 or eDP1.3	n.a.	n.a.	Y	Y
		PCAP on Connector (Dedicated I2C Channel)	1	1	1	1
		Display MIPI-DSI	n.a.	Y	Y	Y
		Camera MIPI-CSI PHY 1.1 (¹)	n.a.	Y	Y	Y
		Camera MIPI-CSI PHY 1.2	n.a.	n.a.	Y	Y
		Camera parallel	Y	n.a.	n.a.	n.a.
	I/O	Audio	Y – Analog line out	Y - Analog on jack	Y - Standard 2.5mm jack	Y – High Def Audio 5
		On Board reconfigurable GPIO (¹)	22 @3.3V	22 @1.8V	26 @3.3V	26 @3.3V
		On board protected GPIO	n.a.	n.a.	n.a.	Y
	USB	USB port Host/Device on TYPE - A	1xUSB 3.0 + 1xUSB 2.0	Y	2xUSB 3.0 + 2xUSB 2.0	3xUSB 3.0 + 2xUSB 2.0
		USB 2.0 OTG on micro for debug	Y	Y	Y / USB3	N
		USB 3.0 and 2.0 OTG repeated on strip	*Y (only M7+)	N	Y	N
		USB 2.0 on strip	N	N	N	Y-2
	Communication	I2C	2 on strip @ 3.3 V (²)	2 on strip @ 3.3 V (²)	Y	2 on strip @3.3 (²)
		SPI	1 on strip @ 3.3 V (²)	2 on strip @ 3.3 V (²)	Y	2 on strip @ 3.3(²)
		On board SATA	n.a.	n.a.	n.a.	Y
		RS485	* Y on connector (only M7+)	N	N	N
		Console RS232	Y-TTL	Y	Y	Y
		mPCIe slot	n.a.	n.a.	n.a.	Y
		PCIe full size	n.a.	n.a.	n.a.	Y
		M2 slot	n.a.	n.a.	Y	n.a.
	Networking	RJ 45 Ethernet connector on board	Y – 100 Mb	Y - Gb	Y-Gb	2 x Gb/s with dual MAC address
		WIFI and BT	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n/ac with PCB antenna , BLE 4.1	WIFI 802.11 a/b/g/n with PCB antenna
		GPS	N	Y	N	Any GPS available on mPCIe slot or USB
	Generic	Additional user led	Y - 1	Y -5	Y - 1	Y -5
		RTC with external rechargeable battery	Y	Y	Y	Y
		User reset push-button	Y	Y	Y	Y
	Dimension	Mechanical size	85 x 56 mm (¹)	85 x 56 mm (¹)	105 x 56 mm (¹)	170x170 mm
		Form factor	Credit Card	Credit Card	Credit Card extended	Mini ITX
	Temperature	Operating temperature	0- ÷ 70 °C	-30 ÷ +60 °C	0 ÷ +80 °C / -20 ÷ +85 °C	-20 ÷ +70 °C / -40 ÷ +85 °C
	Operating System	Distributions supported	Android, Linux, Yocto, Ubuntu, Debian, Raspbian (²)	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core (²)	Android, Linux	Windows 10, Linux (²)

NOTE: for more information please refer to Hardware User Manual.



Technical Info

		SBC Board code	SBC-M7/M7+ Boards			
			SBC-M7A/ SBC-M7+A	SBC-M7B/ SBC-M7+B	SBC-M7C/ SBC-M7+C	SBC-M7D/ SBC-M7+D
	Processor	CPU	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328
	Graphic	GRAPHICS ENGINE	Mali-450MP4	Mali-450MP4	Mali-450MP4	Mali-450MP4
	Memory	RAM memory DDR3	Y – 1 GB@32bit	Y – 1 GB@32bit	Y – 1 GB@32bit	Y – 1 GB@32bit
		eMMC flash memory	N	N	N	N
		µSD slot (card not included)	Y	Y	Y	Y
	Power	Power supply	5V * 5V via USB (only M7+)	5V * 5V via USB (only M7+)	12v (6.5 - 18Vcc protected) * 5V via USB (only M7+)	12v (6.5 - 18Vcc protected) * 5V via USB (only M7+)
		Power Consumption [W]	2.5	2.5	2.5	2.5
		UPS MANAGER	Y - battery not included	Y - battery not included	Y - battery not included	Y - battery not included
	Multimedia	HDMI full size connector	Y – 4k * Additional FFC connector (only M7+)	Y – 4k * Additional FFC connector (only M7+)	Y – 4k * Additional FFC connector (only M7+)	Y – 4k * Additional FFC connector (only M7+)
		LVDS	External adapter	External adapter	External adapter	External adapter
		Display Port DP 1.2 OR eDP 1.3	n.a.	n.a.	n.a.	n.a.
		PCAP on Connector (Dedicated I2C Channel)	1	1	1	1
		Display MIPI-DSI	n.a.	n.a.	n.a.	n.a.
		Camera MIPI-CSI PHY 1.1 (¹)	n.a.	n.a.	n.a.	n.a.
		Camera MIPI-CSI PHY 1.2	n.a.	n.a.	n.a.	n.a.
	I/O	Audio	Y – Analog line out	Y – Analog line out	Y – Analog line out	Y – Analog line out
		On Board reconfigurable GPIO (¹)	22 @3.3V	22 @3.3V	22 @3.3V	22 @3.3V
		OnBoard Protected GPIO	n.a.	n.a.	n.a.	n.a.
	USB	USB port Host/Device on TYPE - A	1xUSB 3.0 + 1xUSB 2.0	1xUSB 3.0 + 1xUSB 2.0	1xUSB 3.0 + 1xUSB 2.0	1xUSB 3.0 + 1xUSB 2.0
		USB 2.0 OTG on micro for debug	Y	Y	Y	Y
		USB 3.0 and 2.0 OTG repeated on strip	* Y (only M7+)	* Y (only M7+)	* Y (only M7+)	* Y (only M7+)
	Communication	USB 2.0 on strip	N	N	N	N
		I2C	2 on strip @ 3.3 V (²)	2 on strip @ 3.3 V (²)	2 on strip @ 3.3 V (²)	2 on strip @ 3.3 V (²)
		SPI	1 on strip @ 3.3 V (²)	1 on strip @ 3.3 V (²)	1 on strip @ 3.3 V (²)	1 on strip @ 3.3 V (²)
		On board SATA	n.a.	n.a.	n.a.	n.a.
		RS485	N	N	N	N
		Console RS232	Y-TTL	Y-TTL	Y-TTL	Y-TTL
		mPCIe slot	n.a.	n.a.	n.a.	n.a.
	Networking	PCIe full size	n.a.	n.a.	n.a.	n.a.
		RJ 45 Ethernet	1 x 100 Mb/s	1 x 100 Mb/s	1 x 100 Mb/s	1 x 100 Mb/s
		WIFI and BT	N	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n with PCB antenna
	Generic	GPS	N	N	N	N
		Additional user led	Y-1	Y-1	Y-1	Y-1
		RTC with external rechargeable battery	Y	Y	Y	Y
	Dimension	User reset push-button	Y	Y	Y	Y
		Mechanical size	85 x 56 mm (¹)	85 x 56 mm (¹)	85 x 56 mm (¹)	85 x 56 mm (¹)
	Temperature	Form factor	Credit Card	Credit Card	Credit Card	Credit Card
		Operating temperature	0- ÷ 70 °C	0- ÷ 70 °C	0- ÷ 70 °C	0- ÷ 70 °C
	Operating System	Distributions supported	Android, Linux, Yocto, Ubuntu, Debian, Raspbian (³)	Android, Linux, Yocto, Ubuntu, Debian, Raspbian (³)	Android, Linux, Yocto, Ubuntu, Debian, Raspbian (³)	Android, Linux, Yocto, Ubuntu, Debian, Raspbian (³)



(¹) RASPMOOD : form factor , mechanical holes , expansion pin on strip , connector kind and position same of famous Pi Family
(²) Strip NOT mounted (2.54), to leave customer free for any choice

(³) Detailed info on SW and SW versions are in the Software menu of www.novasomindustries.com/

* This means only on M7 Plus

NOTE: OPTIONS are related to the Tailor Made solutions. You choose the CPU than the options you need and you have your Tailor Made board.



Technical Info

	SBC Board code	SBC-M8 Boards		SBC-M9 Boards	
		SBC-M8A	SBC-M8FT	SBC-M9D	SBC-M9E
Processor	CPU	Qualcomm Snapdragon 410E	Qualcomm Snapdragon 410E	RK3399 Dual A72 + Quad A53	RK3399 Dual A72 + Quad A53
Graphic	GRAPHICS ENGINE	ADRENO 405	ADRENO 405	Mali-T860MP4	Mali-T860MP4
Memory	RAM memory DDR3	Y – 1 GB@16bit	Y – 1 GB@16bit	Y – 2 GB@64 bit	Y – 2 GB@64 bit
	eMMC flash memory	8 GB	8 GB	N	64 GB
	µSD slot (card not included)	Y	Y	Y	Y
Power	Power supply	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)
	Power Consumption [W]	6	6	2.5	2.5
	UPS MANAGER	Y - battery not included	Y - battery not included	Y (battery not included)	Y (battery not included)
	PoE	N	N	N	N
Multimedia	HDMI full size connector	n.a.	Y	Y	Y
	LVDS	n.a.	n.a.	n.a.	n.a.
	Display Port DP 1.2 OR eDP 1.3	n.a.	n.a.	Y	Y
	PCAP on Connector (Dedicated I2C Channel)	1	1	1	1
	Display MIPI-DSI	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz	Y	Y
	Camera MIPI-CSI PHY 1.1 ⁽¹⁾	2 ch 1920x1080 (x4 lane)	2 ch 1920x1080 (x4 lane)	Y	Y
	Camera MIPI-CSI PHY 1.2	n.a.	n.a.	Y	Y
	Camera parallel	n.a.	n.a.	n.a.	n.a.
I/O	Audio	Y - PCM on strip @ 1.8 V ⁽²⁾	Y - PCM on strip @ 1.8 V ⁽²⁾	Y - Standard 2.5mm jack	Y - Standard 2.5mm jack
	On Board reconfigurable GPIO ⁽³⁾	22 @1.8V	22 @1.8V	26 @3.3V	26 @3.3V
	OnBoard Protected GPIO	n.a.	n.a.	n.a.	n.a.
USB	USB 2.0 port Host/Device on TYPE A	N	1 USB	2xUSB 3.0 + 2xUSB 2.0	2xUSB 3.0 + 2xUSB 2.0
	USB 2.0 OTG on micro for debug	Y	Y	Y / USB3	Y / USB3
	USB 3.0 and 2.0 OTG rep. on strip	N	N	Y	Y
	USB 2.0 on strip	N	N	N	N
Communication	I2C	2 on strip @ 3.3 V ⁽²⁾	2 on strip @ 3.3 V ⁽²⁾	Y	Y
	SPI	2 on strip @ 3.3 V ⁽²⁾	2 on strip @ 3.3 V ⁽²⁾	Y	Y
	On board SATA	n.a.	n.a.	n.a.	n.a.
	RS485	N	N	N	N
	Console RS232	Y	Y	Y	Y
	mPCIe slot	n.a.	n.a.	n.a.	n.a.
	PCIe full size	n.a.	n.a.	n.a.	n.a.
	M2 slot	n.a.	n.a.	Y	Y
Networking	RJ 45 Ethernet	N	1 x Gb/s	Y	Y
	WIFI and BT	N	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n/ac with PCB antenna , BLE 4.1	WIFI 802.11 a/b/g/n/ac with PCB antenna , BLE 4.1
	GPS	N	N	N	N
Generic	Additional user led	Y - 5	Y - 5	1	1
	RTC with external recharg. battery	N	Y	Y	Y
	User reset push-button	Y	Y	Y	Y
Dimension	Mechanical size	85 x 56 mm ⁽¹⁾	85 x 56 mm ⁽¹⁾	105 x 56 mm ⁽¹⁾	105 x 56 mm ⁽¹⁾
	Form factor	Credit Card	Credit Card	Credit Card	Credit Card
Temperature	Operating temperature (ext.temp. range includes conformance coating)	-30 ÷ +60 °C	-30 ÷ +60 °C	0 ÷ +80 °C / -20 ÷ +85 °C	0 ÷ +80 °C / -20 ÷ +85 °C
Operating System	Distributions supported	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core ⁽³⁾	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Win 10 IoT Core ⁽³⁾	Android, Linux	Android, Linux

⁽¹⁾ RASPMOOD : form factor , mechanical holes , expansion pin on strip , connector kind and position same of famous Pi Family

⁽²⁾ Strip NOT mounted (2.54), to leave customer free for any choice

⁽³⁾ Detailed info on SW and SW versions are in the Software menu of www.novasomindustries.com/

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