

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

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

		SBC-M7 Boards					
Processor		SBC-M7A	SBC-M7B	SBC-M7C	SBC-M7D	SBC-M7FT	
 Graphic	CPU	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	
	GRAPHICS ENGINE	Mali-450MP4	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 – 2 GB@32bit	Y – 2 GB@32bit	
	eMMC flash memory	N	N	N	N	16 GB	
 Power	µSD slot (card not included)	Y	Y	Y	Y	Y	
	Power supply	5V	5V	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	
	Power Consumption [W]	2.5	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	Y – battery not included	
 Multimedia	HDMI full size connector	Y – 4k	Y – 4k	Y – 4k	Y – 4k	Y – 4k	
	LVDS	n.a.	n.a.	n.a.	n.a.	n.a.	
	Display Port DP 1.2 OR eDP 1.3	n.a.	n.a.	n.a.	n.a.	n.a.	
	PCAP on Connector (Dedicated I2C Channel)	1	1	1	1	1	
	Display MIPI-DSI	n.a.	n.a.	n.a.	n.a.	n.a.	
	Camera MIPI-CSI PHY 1.1 ⁽¹⁾	n.a.	n.a.	n.a.	n.a.	n.a.	
	Camera MIPI-CSI PHY 1.2	n.a.	n.a.	n.a.	n.a.	n.a.	
	Camera parallel	Y	Y	Y	Y	Y	
	Audio	Y – Analog line out	Y – Analog line out	Y – Analog line out	Y – Analog line out	Y – Analog line out	
	On Board reconfigurable GPIO ⁽¹⁾	22 @1.8V	22 @1.8V	22 @1.8V	22 @1.8V	22 @1.8V	
 USB	OnBoard Protected GPIO	n.a.	n.a.	n.a.	n.a.	n.a.	
	USB 2.0 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	1xUSB 3.0 + 1xUSB 2.0	
	USB 2.0 OTG on micro for debug	Y	Y	Y	Y	Y	
	USB 2.0 on strip	Y	Y	Y	Y	Y	
 Communication	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⁾	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⁾	1 on strip @ 3.3 V ⁽²⁾	
	On board SATA	n.a.	n.a.	n.a.	n.a.	n.a.	
	Console RS232	Y-TTL	Y-TTL	Y-TTL	Y-TTL	Y-TTL	
	mPCIe slot	n.a.	n.a.	n.a.	n.a.	n.a.	
	PCIe full size	n.a.	n.a.	n.a.	n.a.	n.a.	
 Networking	RJ 45 Ethernet	1 x 100 Mb/s	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	WiFi 802.11 a/b/g/n with PCB antenna	
 Generic	GPS	N	N	N	N	N	
	Additional user led	Y-1	Y-1	Y-1	Y-1	Y-1	
 Dimension	RTC with external rechargeable battery	Y	Y	Y	Y	Y	
	User reset push-button	Y	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⁾	85 x 56 mm ⁽¹⁾	
 Temperature	Form factor	Credit Card	Credit Card	Credit Card	Credit Card	Credit Card	
 Operating System	Operating temperature	0- 70 °C	0- 70 °C	0- 70 °C	0- 70 °C	0- 70 °C	
	Distributions supported	Android 7.1/8.1, Linux	Android 7.1/8.1, Linux	Android 7.1/8.1, Linux	Android 7.1/8.1, Linux	Android 7.1/8.1, 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

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.



	SBC Board code	SBC-M8 Boards				SBC-M11 Boards	
		SBC-M8A	SBC-M8FT	SBC-M11FT	SBC-M11FT	SBC-M11FT	SBC-M11FT
 Processor	CPU	Qualcomm Snapdragon 410E	Qualcomm Snapdragon 410E	Intel Apollo Lake N42	Intel Apollo Lake N42	Intel HD 405 / 505	Intel HD 405 / 505
 Graphic	GRAPHICS ENGINE	ADRENO 405	ADRENO 405	SODIMM x2 slot up to 8GB @64bit	SODIMM x2 slot up to 8GB @64bit	Up to 128 GB	Up to 128 GB
 Memory	RAM memory DDR3 eMMC flash memory µSD slot (card not included)	Y – 1 GB@16bit 8 GB	Y – 1 GB@16bit 8 GB	Y – 1 GB@16bit 8 GB	Y – 1 GB@16bit 8 GB	Y – 1 GB@16bit 8 GB	Y – 1 GB@16bit 8 GB
 Power	Power supply Power Consumption [W] UPS MANAGER HDMI full size connector	12v (6.5 - 18Vdc protected) 6 Y - battery not included n.a.	12v (6.5 - 18Vdc protected) 6 Y - battery not included Y	12v (6.5 - 18Vdc protected) 6 Y - battery not included Y - 4k	12v (6.5 - 18Vdc protected) 6 Y - battery not included Y - 4k	12v (6.5 - 18Vdc protected) 6 Y - battery not included Y - 4k	12v (6.5 - 18Vdc protected) 6 Y - battery not included Y - 4k
 Multimedia	Display Port DP 1.2 OR eDP 1.3 PCAP on Connector (Dedicated I2C Channel) Display MIPI-DSI Camera MIPI+CSI PHY 1.1 (¹) Camera MIPI+CSI PHY 1.2 Camera parallel	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz 2 ch 1920x1080 (x4 lane) n.a. n.a.
 I/O	Audio	Y - PCM on strip @ 1.8 V (²)	Y - PCM on strip @ 1.8 V (²)	Y - PCM on strip @ 1.8 V (²)	Y - PCM on strip @ 1.8 V (²)	Y - PCM on strip @ 1.8 V (²)	Y - PCM on strip @ 1.8 V (²)
 USB	On Board reconfigurable GPIO (¹) OnBoard Protected GPIO USB 2.0 port Host/Device on TYPE - A USB 2.0 OTG on micro for debug USB 2.0 on strip I2C SPI On board SATA mPCIe slot PCIe full size RJ 45 Ethernet	22 @1.8V n.a. N Y N 2 on strip @ 1.8 V (²) 2 on strip @ 1.8 V (²) n.a. Y n.a. n.a. N	22 @1.8V n.a. 1 USB Y Y - 2 2 on strip @ 1.8 V (²) 2 on strip @ 1.8 V (²) n.a. Y n.a. n.a. 1 x Gb/s	26 @3.3V 2 O.C. out up to 30V, 2 in up to 30V 3X USB 3.0; 2 x USB2.0 N Y - 2 2 on strip @ 3.3V (²) 1 on strip @ 3.3V (²) Y - 2 x SATA III Y 3 (2 full + 1 only usb and sim) 1 (full 2 lane)	26 @3.3V 2 O.C. out up to 30V, 2 in up to 30V 3X USB 3.0; 2 x USB2.0 N Y - 2 2 on strip @ 3.3V (²) 1 on strip @ 3.3V (²) Y - 2 x SATA III Y 3 (2 full + 1 only usb and sim) 1 (full 2 lane)	26 @3.3V 2 O.C. out up to 30V, 2 in up to 30V 3X USB 3.0; 2 x USB2.0 N Y - 2 2 on strip @ 3.3V (²) 1 on strip @ 3.3V (²) Y - 2 x SATA III Y 3 (2 full + 1 only usb and sim) 1 (full 2 lane)	26 @3.3V 2 O.C. out up to 30V, 2 in up to 30V 3X USB 3.0; 2 x USB2.0 N Y - 2 2 on strip @ 3.3V (²) 1 on strip @ 3.3V (²) Y - 2 x SATA III Y 3 (2 full + 1 only usb and sim) 1 (full 2 lane)
 Networking	WiFi and BT GPS Additional user led RTC with external rechargeable battery User reset push-button Mechanical size Form factor	N N Y - 5 N Y 85 x 56 mm (¹) Credit Card	WiFi 802.11 a/b/g/n with PCB antenna N Y - 5 Y 85 x 56 mm (¹) Credit Card	WiFi 802.11 a/b/g/n with PCB antenna N Y - 5 Y 85 x 56 mm (¹) Credit Card	WiFi 802.11 a/b/g/n with PCB antenna N Y - 5 Y 85 x 56 mm (¹) Credit Card	WiFi 802.11 a/b/g/n with PCB antenna N Y - 5 Y 85 x 56 mm (¹) Credit Card	WiFi 802.11 a/b/g/n with PCB antenna N Y - 5 Y 85 x 56 mm (¹) Credit Card
 Dimension	Operating temperature	-30 / +60 °C	-30 / +60 °C	-30 / +60 °C	-30 / +60 °C	-30 / +60 °C	-30 / +60 °C
 Temperature	Distributions supported	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core	Android 5.1/6, Linux based on Debian 8.0/Ubuntu 14, Windows 10 IoT Core
 Operating System							

(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
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