Technical Info

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.

Technical Info

		SBC Board code	SBC-M7 Boards				
			SBC-M7A	SBC-M7B	SBC-M7C	SBC-M7D	SBC-M7FT
	Processor	CPU	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328	Rockchip RK3328
	Graphic	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
		µSD slot (card not included)	Y	Y	Y	Y	Y
	Power	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
	I/O	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
		OnBoard Protected GPIO	n.a.	n.a.	n.a.	n.a.	n.a.
	USB	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
		GPS	N	N	N	N	N
	Generic	Additional user led	Y-1	Y-1	Y-1	Y-1	Y-1
		RTC with external rechargeable battery	Y	Y	Y	Y	Y
		User reset push-button	Y	Y	Y	Y	Y
	Dimension	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)
		Form factor	Credit Card	Credit Card	Credit Card	Credit Card	Credit Card
	Temperature	Operating temperature	0- 70 °C	0- 70 °C	0- 70 °C	0- 70 °C	0- 70 °C
	Operating System	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.

Technical Info

		SBC-M8 Boards		SBC-M11 Boards
	SBC Board code	**SBC-M8A**	**SBC-M8FT**	**SBC-M11FT**
Processor	**CPU**	Qualcomm Snapdragon 410**E**	Qualcomm Snapdragon 410**E**	Intel Apollo Lake N42
Graphic	**GRAPHICS ENGINE**	ADRENO 405	ADRENO 405	Intel HD 405 / 505
Memory	**RAM memory DDR3**	Y – 1 GB@16bit	Y – 1 GB@16bit	SODIMM x2 slot up to 8GB @64bit
	eMMC flash memory	8 GB	8 GB	Up to 128 GB
	µSD slot (card not included)	Y	Y	Y
Power	**Power supply**	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected)	12v (6.5 - 18Vcc protected redundant)
	Power Consumption [W]	6	6	10-15W
	UPS MANAGER	Y - battery not included	Y - battery not included	Y- battery not included
Multimedia	**HDMI full size connector**	n.a.	Y	Y – 4k
	LVDS	n.a.	n.a.	LVDS 2ch@1920x1080
	Display Port DP 1.2 OR eDP 1.3	n.a.	n.a.	Y - 4k with audio
	PCAP on Connector (Dedicated I2C Channel)	1	1	1
	Display MIPI-DSI	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz	1ch 1920x1080 (x4 lane) 1920x1080 @ 60 Hz	1 ch 1920x1080 @ 60 Hz (x4 lane) **OR** 1 ch 2560x1600 @ 60 Hz (2x4 lane)
	Camera MIPI-CSI PHY 1.1 ([1])	2 ch 1920x1080 (x4 lane)	2 ch 1920x1080 (x4 lane)	1 ch 1920x1080 (x4 lane) **OR** 1 ch @4k (2x4 lane)
	Camera MIPI-CSI PHY 1.2	n.a.	n.a.	1 ch 1920x1080 (x4 lane) **OR** 1 ch @4k (2x4 lane)
	Camera parallel	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])	High Definition Audio 5+1 Spdif
	On Board reconfigurable GPIO ([1])	22 @1,8V	22 @1,8V	26 @3.3V
	OnBoard Protected GPIO	n.a.	n.a.	2 O.C. out up to 30V, 2 in up to 30V
USB	**USB 2.0 port Host/Device on TYPE - A**	N	1 USB	3X USB 3.0; 2 x USB2.0
	USB 2.0 OTG on micro for debug	Y	Y	N
	USB 2.0 on strip	N	Y - 2	Y – 2
Communication	**I2C**	2 on strip @ 1.8 V ([2])	2 on strip @ 1.8 V ([2])	2 on strip @ 3.3V ([2])
	SPI	2 on strip @ 1.8 V ([2])	2 on strip @ 1.8 V ([2])	1 on strip @ 3.3V ([2])
	On board SATA	n.a.	n.a.	Y - 2 x SATA III
	Console RS232	Y	Y	Y
	mPCIe slot	n.a.	n.a.	3 (2 full + 1 only usb and sim)
	PCIe full size	n.a.	n.a.	1 (full 2 lane)
Networking	**RJ 45 Ethernet**	N	1 x Gb/s	2 x Gb/s with dual MAC address
	WIFI and BT	N	WIFI 802.11 a/b/g/n with PCB antenna	WIFI 802.11 a/b/g/n with PCB antenna
	GPS	N	N	On mPCIe slot or USB
Generic	**Additional user led**	Y - 5	Y - 5	Y – 5
	RTC with external rechargeable battery	N	Y	Y
	User reset push-button	Y	Y	Y
Dimension	**Mechanical size**	85 x 56 mm ([1])	85 x 56 mm ([1])	170 x 170 mm
	Form factor	Credit Card	Credit Card	Mini ITX
Temperature	**Operating temperature**	-30 / +60 °C	-30 / +60 °C	-20 / +70 °C / -40+85 °C
Operating System	**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	Windows 10, 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.

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