# **Comparison of single-board computers**

Comparison of single-board computers excluding single-board microcontrollers.

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CPU, GPU, memory
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References

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### **General comparison**

Make	Series	Model	Release date
MYIR Tech <sup>[1]</sup>	Z-turn Lite <sup>[2]</sup>	Xilinx Zynq-7007S/7010	2017/07
MYIR Tech <sup>[1]</sup>	MYS-6ULX <sup>[3]</sup>	NXP i.MX 6UL/6ULL	2017/04
MYIR Tech <sup>[1]</sup>	Z-turn Board <sup>[4]</sup>	Xilinx Zynq-7010/7020	2015/03
MYIR Tech <sup>[1]</sup>	Rico Board <sup>[5]</sup>	TI AM437x	2015/03
Embedded Now, Inc	Piconium <sup>[6]</sup>	Intel Atom E3845	2018/01
Novasom Industries <sup>[7]</sup>	Novasom M7 <sup>[8]</sup>	RK3328	2018/10
Novasom Industries <sup>[7]</sup>	Novasom M8 <sup>[8]</sup>	Snapdragon 410E	2019/01
Novasom Industries <sup>[7]</sup>	Novasom U5 <sup>[9]</sup>	NXP i.MX6ULL	2017/11
Novasom Industries <sup>[7]</sup>	Novasom M11 <sup>[8]</sup>	Intel Apollo Lake N42	2019/02
Novasom Industries <sup>[7]</sup>	Novasom U1 <sup>[9]</sup>	Esp32	2018/01
Novasom Industries <sup>[7]</sup>	Novasom N1 <sup>[10]</sup>	NXP LS1012 Layerscape QorlQ	2018/09
	Novasom P6 <sup>[11]</sup>	, , , ,	
Novasom Industries <sup>[7]</sup>		NXP iMX6 solo	2017/01
Novasom Industries <sup>[7]</sup>	Novasom P7 <sup>[11]</sup>	NXP iMX6 Dual lite	2017/01
Novasom Industries <sup>[7]</sup>	Novasom P8 <sup>[11]</sup>	NXP iMX6 Quad	2017/01
Novasom Industries <sup>[7]</sup>	Novasom S6 <sup>[12]</sup>	NXP iMX6 solo	2016/01
Novasom Industries <sup>[7]</sup>	Novasom S7 <sup>[12]</sup>	NXP iMX6 Dual lite	2016/01
Novasom Industries <sup>[7]</sup>	Novasom S8 <sup>[12]</sup>	NXP iMX6 Quad	2016/01
Khadas	VIM2 Max	AMLogic S912	2017/08
Khadas	VIM2 Pro	AMLogic S912	2017/08
Khadas	VIM2 Basic	AMLogic S912	2017/08
Khadas	VIM2 Lite	S905D	2017/08
Khadas	VIM1	AMLogic S905X	2016/11
F&S Elektronik Systeme GmbH	armStone	A5 <sup>[13]</sup>	2013/02
F&S Elektronik Systeme GmbH	armStone	A8 <sup>[14]</sup>	2011/02
F&S Elektronik Systeme GmbH	armStone	A9 <sup>[15]</sup>	2012
F&S Elektronik Systeme GmbH	armStone	A9r2 <sup>[16]</sup>	2016
F&S Elektronik Systeme GmbH	armStone	MX8M <sup>[17]</sup>	2019
	Arndale Board <sup>[18]</sup>	5250-AA	2012/10
	Arndale Octa		2013/10
Asus	Asus Tinker Board	RK3288	2017/01
Shenzhen SINOVOIP Co,Ltd	Banana Pi <sup>[19]</sup>		2014/03
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M1+	allwinner A20	2014/12
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2	allwinner A31S	2015
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M3	allwinner A83T	2015
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2+	allwinner H3	2016
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2 Zero	allwinner H2+	2017
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-P2 Zero	allwinner H2+	2018
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2 berry	allwinner V40	2016
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2 Ultra	allwinner R40	2016
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-M2 Magic	allwinner A33/R16	2016
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-R1	allwinner A20	2015
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-R2	MTK 7623N	2017
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-R64	MTK 7622	2018
Shenzhen SINOVOIP Co,Ltd	Banana Pi BPI-W2	RealTek RTD1296	2018
BeagleBoard.org Foundation	BeagleBoard	D	2012/10
BeagleBoard.org Foundation	BeagleBoard-xM	C2	2010/09
BeagleBoard.org Foundation	BeagleBone	A6A	2011/10
BeagleBoard.org Foundation	BeagleBone Black	С	2013/04
	Boardcon EM210 <sup>[20]</sup>	S5PV210	2012/2
	Boardcon EM3399 <sup>[21]</sup>	Rockchip RK3399	2017/02
	96Boards Bubblegum96 <sup>[22][23]</sup>	Actions Semi S900	2015
Linaro Community Board Group	90Boards Bubblegum96t=3t=3		
Linaro Community Board Group	C.H.I.P.		2015/05
Linaro Community Board Group	<u> </u>		2015/05 2013/07

Price

	Cubieboard 2		2013/06
	Cubieboard 3		2013/10
	Cubieboard 4 / CC-A80	Octo	2014
SolidRun	CuBox-i <sup>[25][26]</sup>	i1, i2, i2eX, i2ultra, TV,i4Pro	2013/11
SolidRun	HummingBoard-i <sup>[27]</sup>	Base, Pro, Gate, Edge	
Linaro Community Board Group	96Boards Dragonboard 410c <sup>[28]</sup>	Snapdragon 410 (APQ8016)	2015/09
Globalscale Technologies	DreamPlug		2011/02
	Embest SBC8600B <sup>[29]</sup>		2013/01
	WinSystems	EPX-C380-D <sup>[30]</sup>	2015/10
	Espressobin	3700LP (2x A53) <sup>[31]</sup>	2017
	Firefly-RK3288 <sup>[32]</sup>	RK3288	2014
	Firefly-RK3288 Plus	RK3288	2015/01
	Firefly-RK3399 <sup>[33]</sup>	RK3399	2016/12
	Foxconn AT-5570 <sup>[34]</sup>	111.0000	2012/11
	Forlinx (http://www.forlinx.net) OK335xD <sup>[35]</sup>		2013/03
PlayJam	GameStick <sup>[36]</sup>		2013/03
PlayJaili			
	Gizmo Board <sup>[37]</sup>	TIOS D	2013/02
	GoWarrior <sup>[38]</sup>	TIGER Board	2015/09
Graperain	G4418 <sup>[39]</sup>	Samsung S5P4418	2015/06
Graperain	G6818 <sup>[40]</sup>	Samsung S5P6818	2015/06
	Gumstix Overo EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>		2012/01
	Hackberry A10 <sup>[43]</sup>		2012/09
ISEE	IGEP	IGEPv2	2009
Linaro Community Board Group	96Boards HiKey <sup>[44]</sup>	Rev A1	2015/02
Linaro Community Board Group	96Boards Hikey960 <sup>[45][46][47]</sup>	HiSilicon Kirin 960	2017
SolidRun	HummingBoard <sup>[48][49]</sup>	i1, i2, i2eX	2014/07
	Inforce 6410 <sup>[50]</sup>	Snapdragon 600 (APQ8064)	2013/04
	Inforce 6540 <sup>[51]</sup>	Snapdragon 805 (APQ8084)	2014/10 <sup>[52]</sup>
	Inforce 6410plus <sup>[53]</sup>	Snapdragon 600 (APQ8064)	2015/06
	Inforce 6309	Snapdragon 410 (APQ8016)	2016/06
Intel	Intel Galileo <sup>[54]</sup>	Gen 2	2013/10
	Inventami <sup>[55]</sup>	Entry	2015/12
	Inventami <sup>[55]</sup>	Full	2015/12
iWave Systems	iW-RainboW-G23S RZ/G1C SBC	Renesas' RZ/G1C	2018/02
Libre Computer Project	Tritium	ALL-H3-CC <sup>[56]</sup>	2018/02
Libre Computer Project	Le Potato	AML-S905X-CC <sup>[57]</sup>	2017/10
Libre Computer Project	Renegade	ROC-RK3328-CC <sup>[58]</sup>	2018/01
	MarsBoard	A10 New <sup>[59]</sup>	2013/03
	MarsBoard	A20 New <sup>[60]</sup>	2013/04
	MarsBoard	RK3066 <sup>[61]</sup>	2014/05
Linaro Community Board Group	96Boards MdediaTek X20 <sup>[62][63][64]</sup>	Helio X20	2017/04/25
Email Community Board Group	MinnowBoard <sup>[65]</sup>	TICHO XZO	2013/04
	MIPS Creator Cl20 <sup>[66]</sup>	Ingonio 174700	2014/08
		Ingenic JZ4780	
	MiraBox <sup>[67]</sup>		2014/06
	MK802 II	?	2012/08 <sup>[68]</sup>
	MK808	?	2015/01
	MTB025	?	2013/01
	MYIR MYD-AM335X <sup>[69]</sup>		2013/12
	MYIR MYS-6ULX <sup>[70]</sup>		2017/04
	MYIR Rico Board <sup>[71]</sup>		2015/03
FriendlyElec	NanoPC-T1		2014/01
FriendlyElec	NanoPi 2		2015/11
FriendlyElec	NanoPi NEO	256 MB, 512 MB	2016/07
Boundary Devices	Nitrogen6x	Rev 3	2013/06

Nvidia	Nvidia Jetson TK1 <sup>[72]</sup>		2014/04
Hardkernel Co, Ltd	ODROID-C1		2014/12
Hardkernel Co, Ltd	ODROID-C1+		2015/07
Hardkernel Co, Ltd	ODROID-C2		2016/03
Hardkernel Co, Ltd	ODROID-U3		2014/01
Hardkernel Co, Ltd	ODROID-W <sup>[73]</sup>		2014/08
Hardkernel Co, Ltd	ODROID-XU <sup>[74]</sup>		2013
Hardkernel Co, Ltd	ODROID-XU3 <sup>[75]</sup>		2014/08
Hardkernel Co, Ltd	ODROID-XU3 Lite <sup>[76]</sup>		2015/01
Hardkernel Co, Ltd	ODROID-XU4 <sup>[77]</sup>		2015/07
Hardkernel Co, Ltd	ODROID-N2		2019/02
OLIMEX Ltd	A10-OLinuXino	LIME <sup>[78]</sup>	2015/01
OLIMEX Ltd	A13-OLinuXino	base, <sup>[79]</sup> MICRO, <sup>[80]</sup> WIFI	2015/01
OLIMEX Ltd	A20-OLinuXino	LIME,[81] MICRO[82]	2013/06
OLIMEX Ltd	A20-OLinuXino	LIME2 <sup>[83]</sup>	2014/09
OLIMEX Ltd	A64-OLinuXino <sup>[84]</sup>		2016/02 <sup>[85]</sup>
	Omega2		2016/11 <sup>[86]</sup>
	Orion R28	Pro	2014
Shenzhen Xunlong Software Co.,	Orange Pi		2015/01
Ltd Shenzhen Xunlong Software Co.,	Orange Pi 2 <sup>[87]</sup>	Allwinner H3 Quad-core Cortex-A7	2015/01
Ltd. Shenzhen Xunlong Software Co.,	Orange Pi Plus	H3 Quad-core Cortex-A7	2015/02
Ltd. Shenzhen Xunlong Software Co.,		ns Quau-core cortex-A7	
Ltd.	Orange Pi Plus 2 <sup>[88]</sup>		2015/02
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Mini		2015/02
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Mini 2 <sup>[89]</sup>		2015/02
Shenzhen Xunlong Software Co., Ltd.	Orange Pi PC <sup>[90]</sup>		2015/02
Shenzhen Xunlong Software Co., Ltd.	Orange Pi One <sup>[91]</sup>		2016/01
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Lite		2016/01
Shenzhen Xunlong Software Co., Ltd.	Orange Pi PC Plus		2016/04
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Plus 2E		2016/04
Shenzhen Xunlong Software Co., Ltd.	Orange Pi PC 2 <sup>[92]</sup>	Allwinner H5 Quad ARM64 Cortex- A53	2016/11
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Win		2017/03
Shenzhen Xunlong Software Co., Ltd.	Orange Pi Zero Pluz 2		2017/03
Shenzhen Xunlong Software Co., Ltd.	Orange Pi R1 (http://www.orangepi.org/OrangePi R1)	ARM Cortex-A7	2017/08
	Ouya		2013
	P112		1996
	PandaBoard ES <sup>[93]</sup>	Rev. 3	2011/12
	Adapteva Parallella		2013
	pcDuino Lite <sup>[94]</sup>		2013/10
	pcDuino v2 <sup>[95]</sup>		2013/09
	pcDuino3 <sup>[96]</sup>		2014/02
	pcDuino3Nano <sup>[97]</sup>		2014/07
	PC Engines APU <sup>[98]</sup>	APU.1D, <sup>[99]</sup> APU.1D4 <sup>[100]</sup>	2014/04
	PC Engines APU <sup>[101]</sup>	APU.2C2, <sup>[102]</sup> APU.2C4 <sup>[103]</sup>	2016/03
	phyBOARD-Wega <sup>[104]</sup>	5V, 12-24V	2013
	phyBOARD-Mira <sup>[105]</sup>	Solo, Quad	2014
	t to the second of the second		
Pine64	PINE A64		2015

Pine64	PINE64 Rock64 <sup>[106]</sup>	RK3328	2017	
Pine64	RockPro64 <sup>[107]</sup>	RK3399	2018	
	Radxa Rock	base, Lite	2014/01	
Raspberry Pi Foundation	Raspberry Pi	Model A, B, A+, B+	2012/02 (A) 2012/10 (B) 2014/07 (B+) 2014/11 (A+)	
Raspberry Pi Foundation	Raspberry Pi Zero		2015/11 2017/02 (W)	
Raspberry Pi Foundation	Raspberry Pi 2	Generation 2 Model B	2015/02	
Raspberry Pi Foundation	Raspberry Pi 3	Model B	2016/02	
Raspberry Pi Foundation	Raspberry Pi 3	Model B+	2018/03	
Raspberry Pi Foundation	Raspberry Pi 4 <sup>[108]</sup>	Model B	2019/06	Starting from \$35
	Rikomagic MK802	base, <sup>[109]</sup> + <sup>[109]</sup> / II <sup>[110]</sup>	2015/01	
	RIoTboard	?	2014/01	
	RouterBOARD RB450G <sup>[111]</sup>		2012/12	
	RouterBOARD RB953GS-5HnT <sup>[112]</sup>		2014/06	
	SkateBoard <sup>[113]</sup>	SKATE-212	2017/08	
	Snowball	SKY-S9500	2011/08	
Super Micro Computer, Inc.	Supermicro E100-8Q <sup>[114][115]</sup>		2014/11	
	TBS 2910 Matrix <sup>[116]</sup>		2014/01	
Tinkerforge	RED Brick	Model 1.0	2018/04	
	Tronsmart Draco	Octo Meta, Octo Telos	2015/01	
	TS-7250-V2 <sup>[117]</sup>		2014/11	
	TS-7680 <sup>[118]</sup>		2016/04	
	TS-7970 <sup>[119]</sup>		2016	
	UDOO	Dual Basic, Dual, Quad	2013/10	
	UDOO X86 <sup>[120]</sup>	Basic, Advanced, Ultra	2016/11	
	UP <sup>[121]</sup>		2016/04	
	UP Squared <sup>[122]</sup>		2017/04	
CompuLab	Utilite <sup>[123]</sup>	Value, Standard, Pro	2013/07	
CompuLab	Utilite2 <sup>[124]</sup>	4GB, SSD	2015/02	
	Ventana GW5510 Femto <sup>[125]</sup>	Solo, Dual, Quad	2014	
VIA	VIA APC 8750 / Rock		2012/05	
VIA	VIA Springboard VAB-600 <sup>[126]</sup>		2013/11	
Wandboard	Wandboard <sup>[127]</sup>	Solo, Dual, Quad	2013	
Wandboard	WandPi 8M <sup>[128]</sup>	Lite, Pro, Deluxe	2018 spring	
VersaLogic	Zebra <sup>[129]</sup>	Solo, DualLite	2018/04	

# CPU, GPU, memory

		С	PU				ı	RAM	
Name	SoC	Architecture	Cores	Frequency	GPU	Size	Data rate [MT/s]	Data path width [bits]	Туре
Embedded Now Piconium	Intel Atom E3845	Intel	4	1.91 GHz	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	2GB	1333	64	DDR3
Novasom M7	Rockchip 3328	ARM Cortex-A53	4	1.5 GHz	Mali-450MP4	1 GB / 2 GB	?	32	DDR3
Novasom M8	Qualcomm Snapdragon 410	ARM Cortex-A53	4	1.2 GHz	Qualcomm Adreno 306	1 GB / 2 GB	?	?	DDR3
Novasom M11	Intel E3900	Intel X series	4	1.8 GHz	Intel HD 505	2 GB / 4 GB / 8 GB	?	32	DDR3
Novasom U5	Freescale i.MX6 ULL	ARM Cortex-A7	1	900 MHz	?	512 MB	?	?	DDR3
Novasom U1	ESP32	LX6	2	240 MHz	?	384 KB	?	?	DDR3
Novasom N1	NXP LS1012	ARM Cortex-A53	1	800 MHz	?	512 MB	?	?	DDR3
Novasom P6/7/8	Freescale i.MX6 Solo / i.MX6 Dual Lite / i.MX6 Quad	ARM Cortex-A9	1 / 2 /4	1 GHz	Vivante GC880 + GC320	0.5 GB /1 GB /2 GB	?	32	DDR3
Novasom S6/7/8	Freescale i.MX6 Solo / i.MX6 Dual Lite / i.MX6 Quad	ARM Cortex-A9	1 / 2 /4	1 GHz	Vivante GC880 + GC320	0.5 GB / 1 GB / 2 GB / 4 GB	?	64	DDR3
armStoneA5	Freescale Vybrid VF6xx	ARM Cortex-A5 ARM Cortex-M4	2 (1+1)	500 MHz 167 MHz		512 MB	?	16	DDR3 4x 12Bit ADC
armStoneA8	Samsung S5PV210	ARM Cortex-A8	1	800 MHz	PowerVR SGX540	512 MB	?	?	?
armStoneA9	Freescale i.MX6 Quad	ARM Cortex-A9	4	1.2 GHz	Vivante GC2000 + GC335 + GC320	4 GB	?	64	DDR3
Arndale Board <sup>[18]</sup>	Samsung Exynos 5	ARM Cortex-A15	2	1.7 GHz	Mali T604MP4	2 GB	?	?	DDR3L
Asus Tinker Board	Rockchip RK3288	ARM Cortex-A17	4	1.8 GHz	Mali T760MP4	2 GB	?	32	LPDDR3
Banana Pi <sup>[19]</sup>	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	32	DDR3
Banana Pro	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	32	DDR3
Banana Pi D1 (https://bananapi.g itbooks.io/bpi-d1/content/en/)	Anyka AK3918 (https://www. cnx-software.com/2014/11/1 3/linux-based-bpi-d1-hd-ca mera-module-features-anyk a-ak3918-arm9-processor/)	ARM926EJ-S	1	400 MHz	?	64 MB	?	?	DDR2
Banana Pi G1 (https://bananapi.g itbooks.io/bpi-g1/content/en/bpig 1hardwareinterface.html)	STMicro STM32F103CB	ARM Cortex-M3	1	72 MHz	-	?	?	32	?
Banana Pi M1 (http://wiki.banana -pi.org/Banana_Pi_BPI-M1)	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	?	DDR3
Banana Pi M1+ (http://wiki.banan a-pi.org/Banana_Pi_BPI-M1%2B)	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	?	DDR3
Banana Pi M2	Allwinner A31s	ARM Cortex-A7	4	1 GHz	PowerVR SGX544MP	1 GB	?	32	DDR3
Banana Pi M2PLUS-H3	Allwinner H3	ARM Cortex-A7	4	1.2 GHz	Mali-400MP2	1 GB	?	?	DDR3
Banana Pi M2PLUS-EDU	Allwinner H3	ARM Cortex-A7	4	1.2 GHz	Mali-400MP2	512 MB	?	?	DDR3
Banana Pi M2PLUS-H2+	Allwinner H2+	ARM Cortex-A7	4	1.2 GHz	Mali-400MP2	1 GB	?	?	DDR3
Banana Pi M2PLUS-H5	Allwinner H5	ARM Cortex-A7	4	1.2 GHz	Mali-450	1 GB	?	?	DDR3
Banana Pi M2 Berry	Allwinner V40	ARM Cortex A7	4	?	Mali-400 MP2	1 GB	?	?	DDR3
Banana Pi M2 Ultra	Allwinner R40	ARM Cortex A7	4	?	Mali-400 MP2	2 GB	?	?	DDR3
Banana Pi M2 Magic	Allwinner A33	ARM Cortex A7	4	?	Mali-400 MP2	512 MB	?	?	DDR3
Banana Pi M2 Zero (http://wiki.ba nana-pi.org/Banana_Pi_BPI-ZER O)	Allwinner H2+	ARM Cortex A7	4	1.2 GHz	Mali-400 MP2	512 MB	?	?	DDR3
Banana Pi M3	Allwinner A83T	ARM Cortex-A7	8	1.8 GHz	PowerVR SGX544MP	2 GB	?	32	LPDDR3
Banana Pi M64 (http://wiki.banan a-pi.org/Banana_Pi_BPI-M64)	Allwinner A64	ARM Cortex-A53	4	?	Mali-400 MP2	2 GB	?	?	DDR3
Banana Pi R2 (http://wiki.banana- pi.org/Banana_Pi_BPI-R2)	MediaTek MT7623N	ARM Cortex-A7	4	1.3 GHz	Mali-450 MP4	2 GB	?	?	DDR3
Banana Pi R64 (http://wiki.banan a-pi.org/Banana_Pi_BPI-R64)	MediaTek MT7622A	ARM Cortex-A53	2	1.35 GHz	?	1 GB	?	?	DDR3
BeagleBoard	TI OMAP3530	ARM Cortex-A8	1	720 MHz	TMS320C64x	256 MB	?	?	LPDDR

					@430 MHz DSP				
BeagleBoard-xM	TI Sitara AM37x	ARM Cortex-A8	1	1 GHz	C64x, DSP	512 MB	?	?	LPDDR
BeagleBone	TI Sitara AM335x	ARM Cortex-A8	1	720 MHz	PowerVR SGX530	256 MB	?	16	DDR2
BeagleBone Black	TI Sitara AM335x	ARM Cortex-A8	1	1 GHz	PowerVR SGX530	512 MB	?	16	DDR3L
Boardcon EM210 <sup>[20]</sup>	Samsung S5PV210	ARM Cortex-A8	1	800 MHz	PowerVR SGX540	512 MB	?	?	DDR2
Boardcon EM3399 <sup>[21]</sup>	Rockchip RK3399	Cortex-A72 + Cortex-A53	6 (2+4)	2.0 GHz	Mali-T864	4 GB	1866	32	LPDDR
C.H.I.P. <sup>[130]</sup>	Allwinner R8	ARM Cortex-A8	1	1 GHz	Mali 400	512 MB	?	?	DDR3
Cosmic+ Board <sup>[24]</sup>	Freescale Vybrid VF6xx	ARM Cortex-A5 ARM Cortex-M4	2 (1 + 1)	500 MHz 167 MHz	?	256 MB	?	?	DDR3
Cubieboard	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	1 GB	960	?	DDR3
Cubieboard 2	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	960	?	DDR3
Cubieboard 3	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	2 GB	960	?	DDR3
Cubieboard 4 / CC-A80	Allwinner A80	ARM Cortex A15 x4 /ARM Cortex A7 x4	8	1.3 GHz	PowerVR 64- core 6230	2 GB	1600	64	DDR3
CuBox-i2 <sup>[25][26]</sup>	Freescale i.MX6 Dual Lite	ARM Cortex-A9	2	1 GHz	Vivante GC880 + GC320	1 GB	800	32	DDR3
CuBox-i2eX <sup>[25][26]</sup>	Freescale i.MX6 Dual	ARM Cortex-A9	2	1 GHz	Vivante GC2000 + GC335 + GC320	1 GB	1066	64	DDR3
CuBox-i4Pro <sup>[25][26]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC335 + GC320	2 GB	1066	64	DDR3
Dragonboard 410c	Qualcomm Snapdragon 410	ARM Cortex-A53	4	1.2 GHz	Qualcomm Adreno 306	1 GB	1066	?	LPDDR
DreamPlug	Marvell Kirkwood 88F6281	ARM9E	1	1.2 GHz	N/A	512 MB	?	?	DDR2
Embest SBC8600B <sup>[29]</sup>	TI Sitara AM3359	ARM Cortex-A8	1	720 MHz	PowerVR SGX530	512 MB	?	16	DDR3
ESPRESSObin	Marvell Armada 3700LP	ARM Cortex-A53	2	1.2 GHz	none	1 GB / 2 GB	?	16	DDR3
Firefly RK3288 <sup>[32]</sup> Firefly RK3288 Plus	Rockchip RK3288	ARM Cortex-A17	4	1.8 GHz	Mali T760MP4	2 GB 4 GB	?	32	DDR3
GameStick <sup>[36]</sup>	Amlogic 8726-MX	ARM Cortex-A9	2	1 GHz	Mali-400	1 GB	?	?	DDR3
Gizmo Board <sup>[37]</sup>	AMD Embedded G-Series	x86-64 Bobcat	2	1 GHz	Radeon HD	1 GB	?	64	DDR3
	T40E APU <sup>[131]</sup>				6250				
GoWarrior <sup>[38]</sup>	ALi M3733-AFAAA	ARM Cortex-A9	2	1 GHz	Mali-400MP2	1 GB	1600	64	DDR3
Gumstix Overo EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>	TI Sitara AM3703	ARM Cortex-A8	1	1 GHz	?	512 MB	?	?	LPDDF
Hackberry A10 <sup>[43]</sup>	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	1 GB	?	?	DDR3
HiKey	HiSilicon Kirin 620	ARM Cortex-A53	8	1.2 GHz	Mali-450 MP4	1 GB	1600	64	LPDDF
HiKey 960	HiSilicon Kirin 960	Cortex-A73	8	2.4 GHz	Mali-G71 MP8	3 GB	?	?	LPDDF
Timey 555	THOMOOTI KIIII 300	Cortex-A53	(4+4)	1.8 GHz	With Cirini o	0.00	•		Libbi
HiKey 970	HiSilicon Kirin 970	Cortex-A73 + Cortex-A53	8 (4+4)	?	Mali-G72 MP12	6 GB	?	?	?
HummingBoard-i1 <sup>[48][49]</sup>	Freescale i.MX6 Solo	ARM Cortex-A9	1	1 GHz	Vivante GC880 + GC320	512 MB	800	32	DDR3
HummingBoard-i2 <sup>[48][49]</sup>	Freescale i.MX6 Dual Lite	ARM Cortex-A9	2	1 GHz	Vivante GC880 + GC320	1 GB	800	64	DDR3
HummingBoard-i2eX <sup>[48][49]</sup>	Freescale i.MX6 Dual	ARM Cortex-A9	2	1 GHz	Vivante GC2000 + GC355 + GC320	1 GB	1066	64	DDR3
Inforce 6410 <sup>[50]</sup>	Qualcomm Snapdragon 600 (APQ8064M)	Krait (ARM-based)	4	1.7 GHz	Adreno 320 @400 MHz	2 GB	1066	?	DDR3
Inforce 6540 <sup>[51][132]</sup>	Qualcomm Snapdragon 805 (APQ8084)	Krait 450 (ARM-based)	4	2.5 GHz	Adreno 420 @600 MHz	2 GB	?	?	LPDDF
Inforce 6410plus <sup>[53]</sup>	Qualcomm Snapdragon 600 (APQ8064M)	Krait (ARM-based)	4	1.7 GHz	Adreno 320 @400 MHz	2 GB	1066	?	DDR3
Intel Galileo Gen 2 <sup>[54]</sup>	Intel Quark SoC X1000	x86 Quark	1	400 MHz	N/A	256 MB	800	?	DDR3
Inventami Entry <sup>[55]</sup>	Freescale i.MX6 Dual	ARM Cortex-A9	2	1 GHz	Vivante	1 GB	1066		DDR3

					GC335 + GC320				
Inventami Full <sup>[55]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC335 + GC320	1 GB	1066	64	DDR3
iW-RainboW-G23S RZ/G1C SBC	Renesas RZ/G1C	ARM Cortex-A7	2	1 GHz	PowerVR SGX Series 5	512 MB / 2 GB	800	32	DDR3
Libre Computer Board AML- S905X-CC <sup>[57]</sup>	Amlogic GXL	ARM Cortex-A53	4	1.5 GHz	Mali-450MP3	1 GB / 2 GB	2133	32	DDR3
Libre Computer Board ALL-H3- CC <sup>[56]</sup>	Allwinner H2+/H3/H5	ARM Cortex- A7/A7/A53	4	1 GHz	Mali 400MP2 / 450MP4	512 MB /1 GB /2 GB	1333	32	DDR3
Libre Computer Board ROC- RK3328-CC <sup>[58]</sup>	Rockchip RK3328	ARM Cortex-A53	4	1.5 GHz	Mali-450MP2	1 GB / 2 GB / 4 GB	2133	64	DDR4
MarsBoard A10 New <sup>[59]</sup>	Allwinner A10	ARM Cortex-A8	1	?	Mali-400MP2	1 GB	960	?	DDR3
MarsBoard A20 New <sup>[60]</sup>	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB / 2 GB	960	?	DDR3
MarsBoard RK3066 <sup>[61]</sup>	Rockchip RK3066	ARM Cortex-A9	2	1.6 GHz	Mali-400MP4	1 GB / 2 GB	?	?	DDR3
MinnowBoard <sup>[65]</sup>	Intel Atom E640	x86 Bonnell	1	1 GHz	Intel GMA600	1 GB	?	64	DDR2
MIPS Creator CI20 <sup>[66]</sup>	Ingenic JZ4780	Ingenic XBurst (mips32 rev.2)	2	1.2 GHz	PowerVR SGX540	1 GB	?	32	DDR3
MiraBox <sup>[67]</sup>	Marvell Armada 370	ARMv7	1	1.2 GHz	N/A	1 GB	1333	16	DDR3L
MK802 II	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	1 GB	960	?	DDR3
MK808	Rockchip RK3066	ARM Cortex-A9	2	1.6 GHz	Mali-400MP4 @250 MHz	1 GB	?	?	DDR3
MTB025	WonderMedia WM8850	ARM Cortex-A8	1	1.2 GHz	Mali-400	512 MB	?	?	?
NanoPC-T1	Samsung Exynos 4 (4412)	ARM Cortex-A9	4	?	Mali-400MP4	1 GB	960	?	DDR3
NanoPi 2	Samsung S5P4418	ARM Cortex-A9	4	1.4 GHz	?	1 GB	?	32	DDR3
NanoPi NEO	Allwinner H3	ARM Cortex-A7	4	1.2 GHz	Mali-400 MP2	256 MB / 512 MB	864	16	DDR3
Nitrogen6x <sup>[133]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC355 + GC320	1 GB / 2 GB	1066	64	DDR3
AV: 0.4[134][135]	Francis i My OM Overd	ARM Cortex-A53	4.4	1.5 GHz	Vivante	0.00	?	?	DDD4
Nitrogen8M <sup>[134][135]</sup>	Freescale i.MX 8M Quad	ARM Cortex-M4F	4+1	266 MHz	GC7000Lite	2 GB	,	· ·	DDR4
		ARM Cortex-A15	5	2.3 GHz	Nvidia GK20A (192 CUDA				
Nvidia Jetson TK1 <sup>[72]</sup>	Nvidia Tegra K1	"low-power core"	(4 + 1)	?	cores) @950 MHz	2 GB	933	64	DDR3L
		ADM 0 A57	0	1.0.011-	Nvidia GM20B				
Nvidia Jetson TX1	Nvidia Tegra X1	ARM Cortex-A57	8 (4 +	1.9 GHz	(256 CUDA cores)	4 GB	?	64	LPDDR4
		ARM Cortex-A53	4)	1.3 GHz	@1 GHz				
ODROID-C1/C1+ (https://web.arc hive.org/web/20151222154511/ht pr//www.hardkernel.com/main/pr oducts/prdt_info.php?g_code=G1 43703355573&tab_idx=1)	Amlogic S805	ARM Cortex-A5	4	1.5 GHz	Mali-450MP @600 MHz	1 GB	?	32	DDR3
ODROID-C2 (https://web.archive. org/web/20160305140110/http:// www.hardkernel.com/main/produ cts/prdt_info.php?g_code=G1454 57216438)	Amlogic S905	ARM Cortex-A53	4	1.5 GHz	Mali-450MP3 +2VS @700 MHz	2 GB	?	64	DDR3
ODROID-U3	Samsung Exynos 4 Quad	ARM Cortex-A9	4	1.7 GHz	Mali-400MP4 @440 MHz	2 GB	880	?	LPDDR2
ODROID-W <sup>[73]</sup>	Broadcom BCM2835	ARM11	1	700 MHz	Broadcom VideoCore IV	512 MB	?	32	LPDDR2
ODROID-XU <sup>[74]</sup>	Samsung Exynos 5 Octa (5410)	ARM Cortex-A15  ARM Cortex-A7	8 (4 + 4)	1.7 GHz 1.2 GHz	PowerVR SGX544MP3 @600 MHz	2 GB	800	32	LPDDR3
	0	ARM Cortex-A15		2 GHz	Mali-T628				
ODROID-XU3 <sup>[75]</sup>	Samsung Exynos 5 Octa (5422)	ARM Cortex-A7	8 (4+4)	1.4 GHz	MP6 @695 MHz	2 GB	933	32 <sup>[136]</sup>	DDR3L
ODROID-XU4 <sup>[77]</sup>	Samsung Exynos 5 Octa (5422)	ARM Cortex-A15  ARM Cortex-A7	8 (4 + 4)	2 GHz 1.4 GHz	Mali-T628 MP6 @695 MHz	2 GB	933	32 <sup>[136]</sup>	DDR3L
	Computer France 5.2	ARM Cortex-A15	8	1.4 GHz	Mali-T628				
ODROID-XU3 Lite <sup>[76]</sup>	Samsung Exynos 5 Octa (5422)	ARM Cortex-A7	(4 + 4)	1.3 GHz	MP6 @695 MHz	2 GB	933	32 <sup>[136]</sup>	DDR3L
ODROID-HC1	Samsung Exynos 5 (5422)	ARM Cortex-A15	8	2 GHz	Mali-T628	2 GB	933	32	LPDDR3

		ARM Cortex-A7	4)		@695 MHz				
ODDOID HOS	Samsung Exynos 5 Octa	ARM Cortex-A15	8			0.05			
ODROID-HC2	(5422)	ARM Cortex-A7	(4 + 4)			2 GB			LPDDR3
OLinuXino A10 LIME	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	512 MB	?	?	DDR3
OLinuXino A13	Allwinner A13	ARM Cortex-A8	1	1 GHz	Mali-400	512 MB	?	32	DDR3
OLinuXino A13 MICRO	Allwinner A13	ARM Cortex-A8	1	1 GHz	Mali-400	256 MB	?	16	DDR3
OLinuXino A13 WIFI	Allwinner A13	ARM Cortex-A8	1	1 GHz	Mali-400	512 MB	?	16	DDR3
OLinuXino A20 LIME	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	512 MB	?	?	DDR3
OLinuXino A20 LIME2	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	32	DDR3
OLinuXino A20 MICRO	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	?	DDR3
OLinuXino A64	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400MP2	1-2 GB	?	?	DDR3L
Omega2	MediaTek MT7688	MIPS32 (24KEc)	1	580 MHz	N/A	64 MB	?	?	DDR2
Orange Pi (http://www.orangepi.o rg/)	Allwinner A20		4	?	Mali-400 MP2		?	32	DDR3
Orange Pi Mini				?			?	32	DDR3
Orange Pi 2 <sup>[87]</sup>						1 GB	?	32	DDR3
Orange Pi Mini 2 <sup>[89]</sup>				1 520 011-			?	32	DDR3
Orange Pi PC <sup>[90]</sup>		ADM Contour AZ		1.536 GHz [note 1]			?	32	DDR3
Orange Pi Plus		ARM Cortex-A7			M-1: 400 MD0		?	32	DDR3
Orange Pi Plus 2 <sup>[88]</sup>	Allwinner H3		4		Mali-400 MP2 @600 MHz	2 GB	?	32	DDR3
Orange Pi One				1.2 GHz		E12 MD	?	32	DDR3
Orange Pi Lite				[note 2]		512 MB	?	32	DDR3
Orange Pi PC Plus				1.536 GHz		1 GB	?	32	DDR3
Orange Pi Plus 2E				[note 1]		2 GB	?	32	DDR3
Orange Pi PC 2	Allwinner H5	ARM Cortex-A53	4	?	Mali-450MP4	1 GB	?	64	DDR3
Orange Pi One Plus	Alle de la constant	ADM 0 A50		?	Mali-T720	1 GB	?	?	LPDDR
Orange Pi Lite 2	Allwinner H6	ARM Cortex-A53	4	?	MP2	1 GB	?	?	LPDDR:
Orange Pi Win	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400MP2	1 GB	?	64	DDR3
Orange Pi Zero Plus 2	Allwinner H3	ARM Cortex-A7	4	1.2 GHz	Mali-400 MP2	512 MB	?	32	DDR3
Orange Pi Zero <sup>[137]</sup>	Allwinner H2	ARM Cortex-A7	4	1.2 GHz	Mali-400 MP2	256 MB / 512 MB	?	?	DDR3
Orange Pi 2G-IOT <sup>[138]</sup>	RDA8810	ARM Cortex-A5	4	?	?	256 MB	?	?	LPDDR2
Orange Pi Win Plus <sup>[139]</sup>	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400 MP2	2 GB	?	?	DDR3
Orange Pi Prime <sup>[140]</sup>	Allwinner H5	ARM Cortex-A53	4	1.2 GHz	Mali-450	2 GB	?	?	DDR3
Orange Pi i96 <sup>[141]</sup>	RDA8810	ARM Cortex-A5	?	?	Vivante GC860	256 MB	?	?	LPDDR
Orange Pi Zero Plus <sup>[142]</sup>	Allwinner H5	ARM Cortex-A53	4	?	Mali-450	512 MB	?	?	DDR3
Orange Pi R1 <sup>[143]</sup>	Allwinner H2	ARM Cortex-A7	4	?	Mali-400 MP2	256 MB	?	?	DDR3
Orange Pi RK3399	Rockchip RK3399	Cortex-A72 + Cortex-A53	6 (2+4)	?	Mali-T860 MP4	2 GB	?	?	DDR3
Orange Pi 4G-IOT	MediaTek MT6737	Cortex-A53	4	?	Mali-T720 MP1	1 GB	?	?	DDR3
Ouya	Nvidia Tegra 3 T33-P-A3	ARM Cortex-A9	4	1.7 GHz	Nvidia ULP GeForce	1 GB	1600	?	DDR3
P112	Zilog Z8018216FSC	Zilog Z180	1	16 MHz	N/A	1 MB	?	8	SRAM
PandaBoard ES <sup>[93]</sup>	TI OMAP4460	ARM Cortex-A9	2	1.2 GHz	PowerVR SGX540	1 GB	?	?	LPDDR
pcDuino Lite <sup>[94]</sup>	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	512 MB	?	?	?
pcDuino v2 <sup>[95]</sup>	Allwinner A10	ARM Cortex-A8	1	1 GHz	Mali-400	1 GB	?	?	?
pcDuino3 <sup>[96]</sup>	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400MP2	1 GB	?	?	?
pcDuino3Nano <sup>[97]</sup>	Allwinner A20	ARM Cortex-A7	2	1 GHz	Mali-400 MP2	1 GB	?	?	?
PC Engines APU.1D	AMD Embedded G-Series T40E APU	x86-64 Bobcat	2	1 GHz	N/A (disabled in BIOS)	2 GB	1066	64	DDR3
PC Engines APU.1D4	AMD Embedded G-Series T40E APU	x86-64 Bobcat	2	1 GHz	N/A (disabled in BIOS)	4 GB	1066	64	DDR3
PC Engines APU.2C2	AMD Embedded G-Series GX-412TC APU	x86-64 Jaguar	4	1 GHz	N/A	2 GB	1333	64	DDR3
PC Engines APU.2C4	AMD Embedded G-Series GX-412TC APU	x86-64 Jaguar	4	1 GHz	N/A	4 GB	1333	64	DDR3 ECC
phyBOARD-Wega	TI Sitara AM335x	ARM Cortex-A8	1	800 MHz	PowerVR SGX530	512 MB	?	?	DDR3

phyBOARD-Mira	Freescale i.MX6	ARM Cortex-A9	4	1 GHz	N/A	1 GB	?	?	DDR3
PINE A64	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400MP2	512 MB	?	64	DDR3
PINE A64+ 1GB	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400MP2	1 GB	?	64	DDR3
PINE A64+ 2GB	Allwinner A64	ARM Cortex-A53	4	1.2 GHz	Mali-400MP2	2 GB	?	64	DDR3
PINE RockPRO64 2GB	Rockchip RK3399	ARM Cortex- A53/A72	6	1.8 GHz	Mali-T864	2 GB	?	64	LPDDR
PINE RockPRO64 4GB	Rockchip RK3399	ARM Cortex- A53/A72	6	1.8 GHz	Mali-T864	4 GB	?	64	LPDDR
Radxa Rock	Rockchip RK3188	ARM Cortex-A9	4	1.6 GHz	Mali-400MP4	2 GB	?	?	DDR3
Radxa Rock Lite	Rockchip RK3188	ARM Cortex-A9	4	1.6 GHz	Mali-400MP4	1 GB	?	?	DDR3
Raspberry Pi Model A / B rev 1	Broadcom BCM2835	ARM11	1	700 MHz	Broadcom VideoCore IV	256 MB	?	?	?
Raspberry Pi Model B rev 2 / B+	Broadcom BCM2835	ARM11	1	700 MHz	Broadcom VideoCore IV	512 MB	?	?	?
Raspberry Pi 2 Model B	Broadcom BCM2836	ARM Cortex-A7	4	900 MHz	Broadcom VideoCore IV	1 GB	?	?	LPDDR
Raspberry Pi 3 Model B	Broadcom BCM2837	ARM Cortex-A53	4	1.2 GHz	Broadcom VideoCore IV	1 GB	?	?	LPDDR
Raspberry Pi 4 Model B	Broadcom BCM2711	ARM Cortex-A72	4	1.5 GHz	Broadcom VideoCore VI	1/2/4 GB	?	?	LPDDR
Raspberry Pi Zero / Zero W	Broadcom BCM2835	ARM11	1	1 GHz	Broadcom VideoCore IV	512 MB	?	?	LPDDR
MYIR Rico Board	TI AM437x	ARM Cortex-A9	1	1 GHz		512 MB			DDR3
Rikomagic MK802 <sup>[109]</sup>	Allwinner A10	ARM Cortex-A8	1	1 GHz	AMD Z430/Z160	512 MB	?	?	DDR3
Rikomagic MK802+ <sup>[109]</sup> / MK802 II <sup>[110]</sup>	Allwinner A10	ARM Cortex-A8	1	1 GHz	AMD Z430/Z160	1 GB	?	?	DDR3
RIoTboard	Freescale i.MX6 Solo	ARM Cortex-A9	1	1 GHz	Vivante GC880 + GC320	1 GB	?	?	DDR
MikroTik RouterBOARD RB450G <sup>[111]</sup>	Qualcomm Atheros AR7161	MIPS 24K	1	680 MHz	N/A	256 MB	?	?	DDR
MikroTik RouterBOARD RB953GS-5HnT <sup>[112]</sup>	Qualcomm Atheros QCA9558	MIPS 74Kc	1	720 MHz	N/A	128 MB	?	?	DDR
SkateBoard SKATE-212	Qualcomm Snapdragon 212 (APQ8009)	ARM-Cortex-A7	4	1.3 GHz	Adreno 304	1 GB	?	32	LPDDF
Snowball SKY-S9500	ST-Ericsson Nova A9500	ARM Cortex-A9	2	1 GHz	Mali-400	1 GB	?	?	LPDDF
Supermicro E100-8Q <sup>[114]</sup>	Intel Quark SoC X1021 <sup>[144]</sup>	x86 Quark	1	400 MHz	N/A	512 MB	800/ 1600	?	DDR3 ECC
TBS 2910 Matrix <sup>[116]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC335 + GC320	2 GB	?	?	DDR
Tinkerforge RED Brick 1.0	Allwinner A10s	ARM Cortex-A	1	1 GHz	Mali-400	512 MB	?	?	DDR
Tronsmart Draco Meta	Allwinner A80	ARM Cortex-A15 x4 /ARM Cortex-A7 x4	8	1.3 GHz	PowerVR 64- core 6230	2 GB	1600	64	DDR
Tronsmart Draco Telos	Allwinner A80	ARM Cortex-A15 x4 /ARM Cortex-A7 x4	8	1.3 GHz	PowerVR 64- core 6230	4 GB	1600	64	DDR
TS-7250-V2 <sup>[117]</sup>	Marvell Armada PXA168	PJ1/Mohawk (ARM-based)	1	1 GHz	N/A	512 MB	?	16	DDR
TS-7680 <sup>[118]</sup>	Freescale i.MX286	ARM9E	1	454 MHz	N/A	128 MB / 256 MB	?	16	DDR2
TS-7970 <sup>[119]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC355 + GC320	1 GB / 2 GB	1066	64	DDR
UDOO Dual Basic	Freescale i.MX6 Dual Lite	ARM Cortex-A9	3 (2+	1 GHz	Vivante GC880 +	1 GB	800	32	DDR3
	Atmel SAM3X8E	ARM Cortex-M3	1)	84 MHz	GC320				
UDOO Dual	Freescale i.MX6 Dual Lite  Atmel SAM3X8E	ARM Cortex-A9 ARM Cortex-M3	3 (2 + 1)	1 GHz 84 MHz	Vivante GC880 + GC320	1 GB	800	32	DDR
	Freescale i.MX6 Quad	ARM Cortex-A9	5	1 GHz	Vivante GC2000 +	4.5-	4.5.5		
UDOO Quad	Atmel SAM3X8E	ARM Cortex-M3	(4 + 1)	84 MHz	GC355 + GC320	1 GB	1066	64	DDR:
UDOO X86 Advanced	Intel N3160	x86	4	2.24 GHz	Intel HD 400 Graphics, 12 execution units up to 640 MHz	4 GB	?	?	DDR3 DUAI CHANN
	Intel x5-E8000	x86	-			2 GB	?	?	DDR3

		С	PU				F	RAM	!
Name	SoC	Architecture	Cores	Frequency	GPU	Size	Data rate [MT/s]	Data path width [bits]	Туре
MYS-6ULX (http://www.myirtech. com/list.asp?id=561)	NXP i.MX 6UL/6ULL	ARM Cortex-A7	1	528 MHz		256 MB	?	?	DDR3
om/list.asp?id=565)	Xilinx Zynq-7010	, a divi contex A3	2	007 WII IZ		OTT IVID		<u> </u>	DDING
Z-turn Lite (http://www.myirtech.c	Xilinx Zynq-7007S	ARM Cortex-A9	_ 1	667 MHz		512 MB	?	?	DDR3
h.com/list.asp?id=502)	Xilinx Zynq-7020	ARM Cortex-A9	2	667 MHz		1 GB	?		DDR3
Z-turn Board (http://www.myirtec	Xilinx Zynq-7010	ADM 6 46		667 1411-		1.00		?	DDDC
Rico Board (http://www.myirtech. com/list.asp?id=510)	TI AM437x	ARM Cortex-A9	1	1 GHz	POWERVR SGX	512 MB	?	?	DDR3
Graperain G6818 SBC	Samsung S5P6818	ARM Cortex-A53	8	1.4 GHz	Mali-400	2 GB	?	32	DDR3
Graperain G4418 SBC	Samsung S5P4418	ARM Cortex-A9	4	1.4 GHz	Mali-400	1 GB	?	32	DDR3
WandPi 8M Pro	Freescale i.MX 8M Quad	ARM Cortex-A53 ARM Cortex-M4F	4 + 1	1.5 GHz 266 MHz	Vivante GC7000Lite	2 GB	?	?	DDR4
Wandboard Solo	Freescale i.MX6 Solo	ARM Cortex-A9	1	1 GHz	Vivante GC880 + GC320	512 MB	?	?	DDR3
Wandboard Quad	Freescale i.MX6 Quad	ARM Cortex-A9	4	1 GHz	Vivante GC2000 + GC355 + GC320	2 GB	?	?	DDR3
Wandboard Dual	Freescale i.MX6 Dual	ARM Cortex-A9	2	1 GHz	Vivante GC880 + GC320	1 GB	?	?	DDR3
VIA Springboard VAB-600 <sup>[126]</sup>	WonderMedia WM8950	ARM Cortex-A9	1	800 MHz	Mali-400	1 GB	1066	32	DDR3
VIA APC 8750 / Rock	WonderMedia WM8750	ARM1176JZF	1	800 MHz	Mali-200	512 MB	?	?	DDR3
Utilite Value <sup>[123]</sup>	Freescale i.MX6 Solo	ARM Cortex-A9	1	1 GHz	Vivante GC880 + GC320	512 MB	1066	?	DDR3
Utilite Standard <sup>[123]</sup>	Freescale i.MX6 Dual	ARM Cortex-A9	2	1 GHz	Vivante GC2000 + GC355 + GC320	2 GB	1066	?	DDR3
Utilite Pro <sup>[123]</sup>	Freescale i.MX6 Quad	ARM Cortex-A9	4	1.2 GHz	Vivante GC2000 + GC355 + GC320	2 GB	1066	?	DDR3
UP	Intel x5-Z8350	x86-64	4	1.44 GHz	Intel HD 400 Graphics, 12 EU GEN 8, up to 500 MHz	1 GB / 2 GB / 4 GB	1600	64	DDR3L
UDOO BOLT V8	Ryzen V1605B	x86	4	up to 3.6 GHz	AMD Radeon Vega 8, 8 GPU CU	up to 32 GB	2400	64	DDR4 DUAL CHANNE
UDOO BOLT V3	Ryzen V1202B	x86	2	up to 3.2 GHz	AMD Radeon Vega 3, 3 GPU CU	up to 32 GB	2400	64	DDR4 DUAL CHANNE
UDOO X86 Ultra	Intel N3710	x86	4	2.56 GHz	Intel HD 405 Graphics, 16 execution units up to 700 MHz	8 GB	?	64	DDR3L DUAL CHANNE
					execution uints up to 320 MHz				

<sup>1.</sup> This requires 1.5 V, which is above the recommended maximum and heats up the chip quickly without proper cooling, which in turn lowers the frequency and voltage or even completely turns off processor cores to let the temperature drop.

### I/O interfaces and ports

<sup>2.</sup> The Orange Pi One and Lite use a different voltage regulator compared to the previous H3-based Orange Pi boards. This regulator will be operating at at most 1.3 V, likely resulting in a maximum frequency of 1.2 GHz.[1] (http://www.orangepi.org/orangepibbsen/forum.php?mod=vi ewthread&tid=895&page=4&authorid=101586)

	Ba:		USB <sup>[2]</sup>						Storage		Netv	vorking	(
Name	PCIe	2.0	3.0	3.1	3.2	4.0	Device	On- board	Flash slots	SATA	Eth.	Wi-Fi	
Embedded Now Piconium	No	7	2				No	No	No	1	GbE	a/c	4. ED
Novasom M7	No	3	1				1	up to 16 GB Flash	microSD	No	10/100	a/b/g/n	4. ED
Novasom M8	No	4	No				1	up to 16 GB Flash	microSD	No	GbE	a/b/g/n	4. ED
Novasom M11	2 mini or 1 full 4 lane	2	3				1	up to 128 GB Flash	microSD	2 x SATA III	2 x GbE	a/b/g/n	4. ED
Novasom U5	No	3	No				1	up to 1 GB Flash	microSD	No	10/100	a/b/g/n	4. ED
Novasom U1	No	No	No				No	4 MB Flash	microSD	No	No	a/b/g/n	4.0
Novasom N1	2 mini + 1 full 1 lane	1	3				1	up to 64 MB Flash	microSD	No	2 x GbE + 1 100Mb	No	
Novasom P6/7/8	No	2	No				1	up to 32 GB Flash	microSD	on P8	10/100	No	
Novasom S6/7/8	No	2	No				1	up to 32 GB Flash	microSD	on P8	10/100	No	
armStoneA5	No	2	No				1	1 GB Flash	microSD	No	10/100	No	
armStoneA8	No	1	No				1	1 GB Flash	No	No	10/100	No	
armStoneA9	1 mini	4	No				1	1 GB Flash	SD	Yes	GbE	No	
Arndale Board <sup>[145][146]</sup>	No	2	1				OTG	4GB eMMC	microSD	SATA 3.0	10/100	a/b/g/n (AR6003)	4.0 BI
Asus Tinker Board	No	4	No				No	No	microSD	No	GbE	b/g/n	
Banana Pi <sup>[19]</sup>	No	2	No				OTG	No	SD	SATA 2.0	GbE	No	
Banana Pi M2	No	2	No				OTG	No	microSD	No	GbE	a/b/g/n	
Banana Pi M3 <sup>[147]</sup>	No	2	No				OTG	8GB eMMC	microSD	USB to SATA 2.0 adapter	GbE	a/b/g/n	
BeagleBoard	No	1	No				OTG	512 MB Flash	SD	No	No	No	
BeagleBoard-xM	No	4	No				Yes	?	SD	No	10/100	No	
BeagleBone	No	1	No				Yes	4 GB Flash	microSD	No	10/100	No	
BeagleBone Black	No	1	No				Yes	4 GB eMMC	microSD	No	10/100	No	
Boardcon EM210 [20]	1 mini	2	No				1	4 GB eMMC	microSD	No	10/100	b/g	
Boardcon EM3399 <sup>[21]</sup>	1 mini	2	1				Type-C	8 GB eMMC	microSD	mSATA	GbE	a/b/g/n/ac	

C.H.I.P. <sup>[148][149]</sup>	No	2	No	No	4 GB	No	No	No	a/b/g/n	
Cosmic+ Board <sup>[24]</sup>	No	1	No	OTG	512 MB Flash	microSD (SDHC)	No	10/100	No	
Cubieboard1, Cubieboard2	No	2	No	OTG	4 GB Flash	microSD	SATA 2.0	10/100	No	
Cubietruck (Cubieboard3)	No	3	No	OTG	8 GB Flash	microSD	SATA 2.0	GbE	a/b/g/n (BCM4329)	2.1
CuBox-i2 <sup>[25][26]</sup>	No	2	No	No	No	microSD	No	10/100	n opt.	
CuBox-i2eX <sup>[25][26]</sup>	No	2	No	RS- 232	No	microSD	eSATA 2.0	GbE	n opt.	
CuBox- i4Pro <sup>[25][26]</sup>	No	2	No	RS- 232	No	microSD	eSATA 2.0	GbE	b/g/n (BCM4329)	2.1
Dragonboard 410c	No	2	No	1	8 GB eMMC	microSD	No	No	a/b/g/n (2.4 GHz)	
DreamPlug	No	2	No	No	4 GB microSD	microSD	eSATA 2.0	2x GbE	b/g/n (88W8787)	3.
Embest SBC8600B <sup>[29]</sup>	No	2	No	OTG	512 MB Flash	microSD	No	2x GbE	No	
Espressobin	1 mini	1 <sup>[150]</sup>	1 <sup>[150]</sup>	Yes	No	microSD (UHS)	Yes	3x GbE	a/b/g/n/ac via mPCle	4.1 v
Firefly-RK3288 (Plus) <sup>[32]</sup>	No	6	No	OTG	16 GB eMMC	microSD	No	GbE RTL8211E	a/b/g/n/ac AP6335	4.0
GameStick <sup>[36]</sup>	No	1	No	No	8 GB Flash	microSD	No	Dock	b/g/n	4
Gizmo Board <sup>[37]</sup>	No	2	No	No	No	No	Yes	GbE	No	
GoWarrior <sup>[38]</sup>	No	2	No	OTG	4 GB Flash	microSD	No	10/100	b/g/n	
Gumstix Overo EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>	No	2	No	OTG	512 MB Flash	microSD	No	No	No	
Hackberry A10 <sup>[43]</sup>	No	2	No	No	4 GB Flash	SDHC	No	10/100	b/g/n (RTL8188)	
HiKey	No	2	No	1	4 GB eMMC	microSD	No	No	a/b/g/n	
HummingBoard- i1/2 <sup>[48][49]</sup>	No	2	No	?	No	microSD (UHS)	No	10/100	No	
HummingBoard- i2eX <sup>[48][49]</sup>	1 mini	2	No	?	No	microSD (UHS)	mSATA	GbE	No	
IFC6410 <sup>[151]</sup>	No	2	No	OTG	4 GB eMMC	microSD	Yes	GbE (AR8151)	a/b/g/n (QCA6234)	4.0 (
IFC6540 <sup>[132][152]</sup>	No	2	2	OTG	4 GB eMMC	microSD	Yes	GbE	a/b/g/n/ac (2.4 GHz/5 GHz)	
Intel Galileo Gen 2 <sup>[54]</sup>	1 mini	1	No	Yes	8 MB Flash + 8 KB EEPROM	SD	No	10/100	No	
Inventami Entry <sup>[55]</sup>	1 mini	2 + 1 header	No	OTG	4 GB eMMC	microSD	mSATA	GbE	No	
Inventami Full <sup>[55]</sup>	1 mini	2 + 1 header	No	OTG	16 GB eMMC	microSD	mSATA	GbE	No	
iW-RainboW- G23S RZ/G1C SBC	No	2	No	OTG	8 GB eMMC	microSD	No	GbE	No	

LCP ROC- RK3328-CC (Renegade)	No	2	1		OTG	No	microSD	No	GbE	No	
LCP AML-S905X- CC (Le Potato)	No	4	No		OTG	No	microSD	No	10/100	No	
LCP ALL-H3-CC (Tritium)	No	4	No		OTG	No	microSD	No	10/100	No	
MarsBoard A10/A20 New <sup>[59][60]</sup>	No	4	No		OTG	8 GB Flash	microSD	Yes	10/100	b/g/n (RTL8188)	
MarsBoard RK3066 <sup>[61]</sup>	No	4	No		OTG	4 GB Flash	microSD	No	10/100	b/g/n (RTL8188)	
MinnowBoard <sup>[65]</sup>	No	2	No		Yes	No	microSD	Yes	GbE	No	
MIPS Creator Ci20 <sup>[66]</sup>	No	2	No		OTG	8 GB Flash	SD	No	10/100	b/g/n (BCM4330)	4.0 (E
MiraBox <sup>[67]</sup>	1 mini	2	2		No	1 GB Flash	microSD	No	2x GbE	b/g/n (88W8787)	
MTB025	No	1	No		No	4 GB Flash	?	No	No	b/g/n	
NanoPC-T1	No	2	No		OTG	8 GB eMMC	SD	No	10/100	No	
NanoPi 2	No	1	No		OTG	No	microSD (2x)	No	No	b/g/n (AP6212)	4.0 (AF
NanoPi NEO	No	1 + 2 on pads	No		OTG	No	microSD	No	10/100	No	(
Nitrogen6x	1 mini opt. [153]	2	No		OTG	No	microSD (2x)	SATA	GbE	b/g/n (WL1271)	(
Nitrogen8M	1 Mini	No	3		OTG	Optional eMMC	1 microSD	No	GbE	ac (BD- SDMAC QCA9377)	4.1(BI QC
Nvidia Jetson TK1 <sup>[72]</sup>	1 mini	1	1		OTG	16 GB eMMC	SD	Yes	GbE	No	
ODROID-C1	No	4	No		OTG	eMMC module opt.	microSD	No	GbE	No	
ODROID-C2	No	4	No		OTG	eMMC module opt.	microSD	No	GbE	No	
ODROID-C1+	No	4	No		OTG	eMMC module opt.	microSD	No	GbE	No	
ODROID-U3	No	3	No		OTG	eMMC module opt.	microSD	No	10/100	No	
ODROID-W <sup>[73]</sup>	No	Pads	No		?	eMMC module opt.	microSD	No	No	No	
ODROID-XU3 <sup>[75]</sup>	No	4	1		OTG 3.0	eMMC module opt.	microSD	No	10/100 (LAN9514)	No	
ODROID-XU3 Lite <sup>[76]</sup>	No	4	1		OTG 3.0	eMMC module opt.	microSD	No	10/100 (LAN9514)	No	
ODROID-XU4 <sup>[77]</sup>	No	1	2		No	eMMC module opt.	microSD	No	GbE (LAN9514)	No	

OLinuXino A10 LIME	No	2	No	ОТС	8GB NAND opt.	microSD	Yes	10/100	No	
OLinuXino A13 base	No	3 + 1 header	No	OTG	No	microSD	No	No	No	
OLinuXino A13 MICRO	No	1	No	OTG	No	microSD	No	No	No	
OLinuXino A13 WIFI	No	3	No	OTG	4 GB NAND	microSD	No	No	b/g/n (RTL8188)	ı
OLinuXino A20 LIME	No	2	No	OTG	4/16GB eMMC; 8GB NAND; 16MB SPI opt.	microSD	Yes	10/100	No	ı
OLinuXino A20 LIME2	No	2	No	OTG	4/16GB eMMC; 8GB NAND; 16MB SPI opt.	microSD	Yes	GbE	No	ı
OLinuXino A20 MICRO	No	2	No	OTG	4/16GB eMMC; 8GB NAND; 16MB SPI opt.	microSD, SD	Yes	10/100	No	ı
OLinuXino A64	No	1	No	OTG	4/16 GB Flash opt.	microSD	No	GbE	Optional	BL
Omega2	No	1	No	No	16 MB Flash	microSD	No	No	b/g/n	1
Orange Pi		4				microSD				
Orange Pi Mini		2				microSD (2x)	SATA 2.0	GbE	b/g/n (RTL8189ETV)	
Orange Pi 2 <sup>[87]</sup>		_			No					
Orange Pi Mini 2 <sup>[89]</sup>		4					No	10/100	No	
Orange Pi PC <sup>[90]</sup>		3								
Orange Pi Plus		_			8 GB Flash				b/g/n	
Orange Pi Plus 2 <sup>[88]</sup>		4			16 GB eMMC		SATA 2.0	GbE	(RTL8189ETV)	
Orange Pi One <sup>[91]</sup>	No	1	No	OTG	No			10/100	No	
Orange Pi Lite		2				microSD		No		-
Orange Pi PC Plus					8 GB Flash			10/100	b/g/n (RTL8189FTV)	
Orange Pi Plus 2E		3			16 GB eMMC				(((120200111)	
Orange Pi PC 2		-			8 GB NOR flash	-	No	GbE	No	
Orange Pi Win		4		-	No	-				
Orange Pi Zero Plus 2		(header)			8 GB eMMC			No	b/g/n	4.0 LE
Ouya	No	1	No	Yes	8 GB Flash	No	No	10/100	b/g/n	4.0
PandaBoard ES <sup>[93]</sup>	No	2	No	ОТС	No	SDHC	No	10/100	b/g/n (WL1271)	2.1 -
pcDuino Lite <sup>[94]</sup>	No	2	No	OTG	No	microSD	No	10/100	No	1
pcDuino v2 <sup>[95]</sup>	No	1	No	OTG	4 GB Flash	microSD	No	10/100	b/g/n (RTL8188)	
pcDuino3 <sup>[96]</sup>	No	1	No	OTG	4 GB Flash	microSD	Yes	10/100	b/g/n (RTL8188)	
pcDuino3Nano <sup>[97]</sup>	No	2	No	OTG	4 GB Flash	microSD	Yes	GbE	No	
PC Engines APU	2 mini	2	No	No	No	SD	SATA, mSATA	3x GbE	Opt.	C
phyBOARD- Wega <sup>[104]</sup>	No	2	No	OTG	512 MB Flash, 4 kB EEPROM	microSD	No	10/100	No	ı

phyBOARD- Mira <sup>[105]</sup>	1 mini	2	No		OTG	1 GB Flash, 4 kB EEPROM	microSD	Yes	GbE	Yes	l
PINE A64									10/100		+
PINE A64+	No	2	No		?	No	microSD	No	GbE	Opt.	С
PINE RockPRO64	1 Full 4 Iane	2	1		No	128MB SPI, up to 128GB eMMC	microSD (SDXC)	No	GbE	b/g/n/ac+	4.(
Radxa Rock	No	2	No		OTG	8 GB Flash	microSD (SDXC)	No	10/100	b/g/n (RTL8723)	4.0 (W andr not o
Radxa Rock Lite	No	2	No		OTG	4 GB Flash	microSD (SDXC)	No	10/100	b/g/n (RTL8188)	ı
Raspberry Pi Model A		1							No		
Raspberry Pi Model B		2					SD				
Raspberry Pi Model B+		4			No			-		No	1
Raspberry Pi 2 Model B	No	4	No		-	No		No	10/100		
Raspberry Pi 3 Model B		4					microSD			b/g/n	
Raspberry Pi Zero		No			OTG	-			No	No	
Raspberry Pi Zero W	No	No	No		OTG	No	microSD	No	No	b/g/n	4.1
MK802 / MK802+	No	2	No		?	4 GB Flash	microSD	No	No	b/g/n	
MK802 II <sup>[165]</sup>	No	2	No		OTG	4 GB Flash	microSD	No	No	b/g/n	
MK808	No	2	No		OTG	8 GB Flash	microSD	No	No	b/g/n	ı
RIoTboard	No	4	No		OTG	4 GB Flash	microSD and SD	No	GbE	No	ı
RouterBOARD RB450G <sup>[111]</sup>	No	No	No		No	512 MB Flash	microSD	No	5x GbE (AR8316)	No	1
RouterBOARD RB953GS- 5HnT <sup>[112]</sup>	2 mini	1	No		No	128 MB Flash	No	No	3x GbE (AR8327)	a/n (QCA9558)	ı
SKATE-212	No	2	No		отс	4 GB eMMC	microSD	No	10/100	a/b/g/n	4.1
Snowball	No	1	No		?	?	microSD	No	10/100	b/g/n (CW1200)	2.1 · (CG29
Supermicro E100-8Q <sup>[114]</sup>	2 mini	2	No		Yes	No	microSD (SDHC)	No	2 x 10/100	No	ı
TBS 2910 Matrix <sup>[116]</sup>	1 mini	3	No		OTG	16 GB eMMC	microSD and SD	SATA 2.0	GbE	b/g/n	ı
TS-7250-V2 <sup>[117]</sup>	No	2	No		No	2 GB eMMC	microSD and SD	No	2x 10/100	No	ı
TS-7680 <sup>[118]</sup>	No	2	No		No	2 GB eMMC	microSD	No	2x 10/100	b/g/n	4.0 E[
TS-7970 <sup>[119]</sup>	1 mini	4	No		Yes	4 GB eMMC	microSD	1 mSATA	2x GbE	b/g/n	4.0 EI
UDOO Dual Basic	No	2+1	No		OTG	No	microSD	No	No	No	ı
UDOO Dual	No	2+1	No		OTG	No	microSD	No	GbE	n (RT5370)	ı
UDOO Quad	No	2+1	No		OTG	No	microSD	SATA	GbE	n (RT5370)	1

UP	No	4+2	1	OTG	16/32/64 GB eMMC	No	No	GbE	No	1
Utilite Pro <sup>[123]</sup>	No	4	No	OTG	32 GB mSATA [locked]	microSD (SDXC)	mSATA [166][locked]	2x GbE	b/g/n (88W8787)	:
Utilite Standard <sup>[123]</sup>	No	4	No	OTG	8 GB microSD	microSD (SDXC)	mSATA [166][locked]	2x GbE	b/g/n (88W8787)	:
Utilite Value <sup>[123]</sup>	No	4	No	OTG	4 GB microSD	microSD (SDXC)	mSATA [166][locked]	GbE	No	1
VIA APC 8750	No	4	No	No	2 GB Flash	microSD	No	10/100	No	ı
VIA APC Rock	No	2	No	OTG	4 GB Flash	microSD	No	10/100	No	ı
VIA Springboard VAB-600 <sup>[126]</sup>	1 mini	4	No	No	4 GB eMMC	microSD	No	10/100 (VT6113)	b/g/n opt. (AR9271)	1
Wandboard Dual	No	1	No	OTG	No	microSD (2x)	No	GbE	n (BCM4329)	١
Wandboard Quad	No	1	No	OTG	No	microSD (2x)	Yes	GbE	n (BCM4329)	١
Wandboard Solo	No	1	No	OTG	No	microSD (2x)	No	GbE	No	ı
WandPi 8M	No	No	1	No	8 GB eMMC	No	No	GbE	ac (Atheros QCA9377)	BR+EI (At QC/
Graperain G4418 SBC	No	1	No	отс	8 GB eMMC	2x TF	No	GbE	b/g/n (RTL8723BU) (2.4 GHz)	4.0 (RTL8
Graperain G6818 SBC	No	1	No	OTG	8 GB eMMC	2x TF	No	GbE	b/g/n (RTL8723BU) (2.4 GHz)	4.0 (RTL8
Name	PCle	2.0	3.0	Device	On- board	Flash slots	SATA	Eth.	Wi-Fi	
			USB			Storage		Net	working	(

### Notes

^USB roles: The USB standard defines 'host' and 'device' roles. A USB bus may only have one host and up to 127 devices. In this table the USB 2.0 and 3.0 columns document the number of host ports available on the single-board computer (SBC) that can be used to connect USB devices such as flash drives or cameras to the SBC. The USB Device column documents if the SBC has at least one 'device' role USB port so that the SBC can be connected to a computer. If the SBC uses USB On-The-Go (OTG) ports then that is noted in this column as OTG ports can operate in both host and device roles.

^Utilite mSATA : the mSATA slot in Utilite is considered non-user-serviceable and the procedure to access it causes the warranty to be void. [167][168]

### **Audiovisual interfaces**

Name	Mic In	Audio Out	HDMI	LVDS	Other Video Out
Embedded Now Piconium	No	No	Yes	Yes	No
Novasom M7	No	Yes	Yes	No	RGB 18
Novasom M8	Header	Yes	Yes	No	DSI
Novasom M11	Header	Yes	Yes	Yes	DSI
Novasom U5	Header	Yes	No	No	RGB
Novasom U1	No	No	No	No	SPI
Novasom N1	No	No	No	No	SPI
Novasom P6/7/8	Header	Yes	Yes	Yes	DSI
Novasom S6/7/8	Header	Yes	Yes	Yes	DSI
armStoneA5	Yes	Yes	No	Yes	?
armStoneA8	Yes	Yes	No	Yes	?
armStoneA9	Yes	Yes	1.x	Yes	DVI, RGB
Arndale Board	Yes	Yes	1.4	Yes	No
Asus Tinker Board	Yes	Yes	Yes	No	DSI
Banana Pi M3 <sup>[19]</sup>	Pads	Yes	1.4	Yes	Composite
BeagleBoard	Yes	Yes	1.x DVI compatible	No	No
BeagleBoard-xM	Yes	Yes	1.x	No	DVI-D, S-Video
BeagleBone	No	No	No	1.x	No
BeagleBone Black	No	HDMI	1.4a (Micro)	No	No
Boardcon EM210 <sup>[20]</sup>	Yes	Yes	1.3	Yes	No
Boardcon EM3399 [21]	Yes	Yes	1.4/2.0	eDP	No
C.H.I.P. <sup>[169]</sup>				?	
	Yes	Yes	1.x		VGA, composite
Cosmic+ Board <sup>[24]</sup>	No	No	1.x (Micro)	No	No
Cubieboard 2	No	3.5 mm, HDMI	1.x	Headers	Headers
Cubieboard 3	Header	3.5 mm, HDMI, S/PDIF	1.4	No	VGA
CuBox-i <sup>[25][26]</sup>	No	Optical S/PDIF	1.4	No	No
Dragonboard 410c	No	HDMI	1.x	No	4-lane DSI
DreamPlug	Yes	3.5 mm, Optical S/PDIF	No	N/A	N/A
Embest SBC8600B <sup>[29]</sup>	Yes	Yes	No	Yes	Optional VGA module
ESPRESSObin	No	No	No	1.x	No
Firefly-RK3288 (Plus)[32]	Yes	3.5mm, S/PDIF, HDMI	2.0	eDP, 2xMIPI DSI	VGA
GameStick <sup>[36]</sup>	No	HDMI	1.x	No	No
Gizmo Board <sup>[37]</sup>	Yes	Yes	No	Part of "High Speed Connector"	VGA
GoWarrior	No	3.5mm jack, HDMI	1.x	No	No
Gumstix Overo EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>	Yes	Yes	1.x DVI compatible	No	No
Hackberry A10 <sup>[43]</sup>	Yes	?	Partial DVI incompatible[170]	?	?
HiKey	No	HDMI	1.x	No	4-lane DSI
HummingBoard-i1/2 <sup>[48][49]</sup>	No	3.5mm jack, S/PDIF	1.x	LCD header	No
HummingBoard-i2eX <sup>[48][49]</sup>	Yes	3.5mm jack, S/PDIF	1.x	LCD header	No
IFC6410 <sup>[151]</sup>	3.5 mm	3.5 mm	1.x (Micro)	LCD header	No
IFC65410 <sup>[132]</sup>					
	3.5 mm	3.5 mm	1.4a (Micro)	LCD header	No
Intel Galileo Gen 2 <sup>[54]</sup>	No No	No No	No	N/A	N/A
Inventami Entry <sup>[55]</sup>	3.5 mm Combo, Line In	3.5 mm Combo, Line Out, HDMI	1.x (Mini)	Yes	No
Inventami Full <sup>[55]</sup>	3.5 mm Combo, Line In	3.5 mm Combo, Line Out, HDMI	1.x (Mini)	Yes	No
W-RainboW-G23S RZ/G1C SBC	No	HDMI	1.x	LCD header	Composite
MarsBoard A10/A20 New <sup>[59][60]</sup>	Yes	Yes	1.x	RGB, LVDS pads	Composite in/out, VG
MarsBoard RK3066 <sup>[61]</sup>	Yes	Yes	1.x	RGB	No
MinnowBoard <sup>[65]</sup>	Yes	Yes	1.x	No	No
MIPS Creator CI20 <sup>[66]</sup>	No	3.5 mm, HDMI	1.x	No	No
MiraBox <sup>[67]</sup>	N/A	N/A	No	N/A	N/A
IVIII abux. 3		t and the second			I .

MK808	No	No	1.x	No	No
MTB025	?	?	1.x	?	?
MYIR MYD-AM335X <sup>[69]</sup>	Yes	Yes	1.x	LCD header	No
NanoPC-T1	Yes	Yes	1.x	Yes	?
NanoPi 2	No	No	1.x	Yes	Parallel RGB, DVP camera input
NanoPi NEO	Pads	stereo line-out and I <sup>2</sup> S on pads	No	No	No
Nitrogen6x	Header	3.5 mm, HDMI	1.x DVI compatible[171]	3 screen options	Parallel RGB
Nitrogen8M	Yes	3.5 mm, HDMI	2.0	No	MIPI DSI 1080p60 (4-lane)
Nvidia Jetson TK1 <sup>[72]</sup>	Yes	Yes	1.x	LCD header	No
ODROID-C1	No	HDMI	1.x	No	No
ODROID-C1+	No	HDMI, I2S	1.x	No	No
ODROID-C2	No	HDMI	2.0	N/A	No
ODROID-U3	3.5 mm	3.5 mm, HDMI	1.x	No	No
ODROID-W <sup>[73]</sup>	No	No	1.x	No	Pads: Composite <sup>[172]</sup>
ODROID-XU3 <sup>[75]</sup>	No	3.5 mm, HDMI	1.x	No	DisplayPort
ODROID-XU3 Lite <sup>[76]</sup>	No	3.5 mm, HDMI	1.x	No	No No
ODROID-XU3 Lite(* - )	No	HDMI	1.x 1.4a	No	No
				LCD header	
OLinuXino A10 LIME	No Vos	No Yos	1.x		No VCA
OLinuXino A13 base / WIFI	Yes	Yes	No No	LCD header	VGA
OLinuXino A13 MICRO	Pads	Yes	No	LCD header	VGA
OLinuXino A20 LIME	No	No	1.x	LCD header	No
OLinuXino A20 LIME2 OLinuXino A20 MICRO	No Yes	No Yes	1.x	LCD header	No VGA 6-pin 1.25 mm step
					connector
OLinuXino A64	Yes	Yes	Yes	LCD header	No
Omega2	No	No	No	No	No
Orange Pi	Yes	3.5 mm, HDMI	1.x	Yes	DSI, VGA, Composite video
Orange Pi Mini	Yes	3.5 mm, HDMI	1.x	Yes	DSI, Composite video
Orange Pi 2 <sup>[87]</sup>	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Mini 2 <sup>[89]</sup>	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi PC <sup>[90]</sup>	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Plus	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Plus 2 <sup>[88]</sup>	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi One <sup>[91]</sup>	No	HDMI	1.x	No	Pads: Composite video
Orange Pi Lite	Yes	HDMI	1.x	No	Pads: Composite video
Orange Pi PC Plus	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Plus 2E	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi PC 2	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Win	Yes	3.5 mm, HDMI	1.x	No	Composite video
Orange Pi Zero Plus 2	Yes	HDMI	1.x	No	Composite video
Ouya	No	HDMI	1.4	No	No
PandaBoard ES <sup>[93]</sup>	Yes	3.5 mm, HDMI	1.x	LCD header	DSI, DVI-D (non-standard plug)
pcDuino Lite <sup>[94]</sup>	No	No	1.x	No	No
pcDuino v2 <sup>[95]</sup>	No	No	1.x	No	No
pcDuino3 <sup>[96]</sup>	No	Yes	1.x	LCD header	No
pcDuino3Nano <sup>[97]</sup>	No	No	1.x	No	No
PC Engines APU	No	No	No	N/A	N/A
phyBOARD-Wega <sup>[104]</sup>	No	Yes	1.x	Yes	No
phyBOARD-Mira <sup>[105]</sup>	No	Yes	1.x	Yes	No
PINE A64	Yes	3.5 mm, HDMI, S/PDIF	1.4 DVI incompatible[173]	Yes	DSI
PINE RockPRO64	Yes	3.5 mm, HDMI, S/PDIF, I2S	1.4, 2.2	Yes	DSI, eDP, MIPI (stereo)
Radxa Rock	?	3.5 mm, HDMI, S/PDIF	1.4	Yes	AV output
i launa Ruuk		טיט וווווו, הטועוו, ארטור	1.4	169	Αν σαιραί

Rikomagic MK802 / MK802+ / MK802 II	No	HDMI	Partial DVI incompatible[170]	No	No
RIoTboard	Yes	3.5 mm, HDMI	1.x	Yes	?
RouterBOARD RB450G <sup>[111]</sup>	N/A	N/A	No	N/A	N/A
RouterBOARD RB953GS-5HnT <sup>[112]</sup>	N/A	N/A	No	N/A	N/A
SkateBoard SKATE-212	No	Yes	Yes	No	MIPI-CSI
Snowball	?	Yes	1.x	?	?
TBS 2910 Matrix <sup>[116]</sup>	No	Yes	1.x	No	No
TS-7970 <sup>[119]</sup>	Yes	3.5 mm, HDMI	1.x	Yes	No
UDOO	Yes	3.5 mm, HDMI, S/PDIF	1.x	LCD header	No
UP	No	HDMI	1.x	Convert from DSI	DSI/eDP
Utilite <sup>[123]</sup>	3.5 mm	3.5 mm	1.4	?	Optional DVI-D
VIA APC 8750 / Rock	Yes	Yes	1.x	No	VGA
VIA Springboard VAB-600 <sup>[126]</sup>	3.5 mm	3.5 mm	1.4 (Mini)	DVO connector	No
Wandboard	Yes	3.5 mm, S/PDIF	1.x	expansion board	No
WandPi 8M	No	No	Yes	No	No
Graperain G4418 SBC	Yes	3.5 mm, HDMI	1.4a	Yes	RGB, MIPI, LVDS
Graperain G6818 SBC	Yes	3.5 mm, HDMI	1.4a	Yes	RGB, MIPI, LVDS
Name	Mic In	Audio Out	НОМІ	LVDS	Other Video Out

# **Operating system**

Notes

^DVI compatible HDMI signal can be converted to DVI by passive adapter.

^DVI incompatible HDMI signal not convertible to DVI by passive adapter. Watch out for HDMI screens that require DVI signalling.

Name	Linux	Android	BSD	Windows	Other
Embedded Now Piconium	Yes; Mainline	?	?	Yes; Windows 10	-
Novasom M7	Partial; Custom kernel	Yes; 7.1, 8.1	No	No	-
Novasom M8	Partial; Custom kernel	Yes; 5.1, 6	No	Yes; Windows 10 IoT	-
Novasom M11	Partial; Custom kernel	No	No	Yes; Windows 10	-
Novasom U5	Partial; Custom kernel	No	No	No	-
Novasom U1		No	No	No	Free RTOS
Novasom N1	Partial; Custom kernel	No	No	No	-
Novasom P6/7/8	Partial; Custom kernel	Yes	No	No	_
Novasom S6/7/8	Partial; Custom kernel	Yes	No	No	_
armStoneA5	Partial; Custom kernel 3.0.15	No	No	Yes; Compact 2013	MQX
armStoneA8	Partial; Custom kernel 3.3	No	No	Yes; CE 6.0, WEC 7	
armStoneA9	Partial; Custom kernel 3.3	Yes	No	Yes; CE 6.0, WEC 7, WEC 2013	
Arndale Board	?	?	?	?	seL4 <sup>[17</sup>
Banana Pi <sup>[19]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes OpenBSD <sup>[175]</sup> NetBSD <sup>[176]</sup>	?	
BeagleBoard	Partial; With out-of-tree patches (and BLOBs?)[177]	?	Yes OpenBSD <sup>[175]</sup>	Yes; CE 6, WEC 7 <sup>[178]</sup>	seL4 <sup>[17</sup>
BeagleBoard-xM	Partial; With out-of-tree patches (and BLOBs?)[177]	Yes	Yes OpenBSD <sup>[175]</sup>	Yes; CE 6, WEC 7 <sup>[178]</sup>	
BeagleBone	Partial; With out-of-tree patches (and BLOBs?) <sup>[Sitara]</sup>	?	Yes FreeBSD <sup>[179]</sup> OpenBSD <sup>[175]</sup>	Yes; CE 6, WEC 7 <sup>[180]</sup>	
BeagleBone Black	Yes; Mainline	Yes <sup>[181]</sup>	Yes FreeBSD <sup>[182]</sup> OpenBSD <sup>[175]</sup>	Yes; CE 6, WEC 7 <sup>[180]</sup>	Minix [18
Boardcon EM210 <sup>[20]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	Yes; CE 6	
Boardcon EM3399 [21]	Partial;Custom kernel 4.4.55	Yes	No	No	Debia
C.H.I.P. <sup>[184]</sup>	Partial; With out-of-tree patches and BLOBs for Mali GPU)	No	?	No	
Cosmic+ Board <sup>[24]</sup>	Partial; With out-of-tree patches (and BLOBs?)	No	?	No	MQX RTOS
Cubieboard	With out-of-tree patches <sup>[185]</sup> (and BLOBs?)	Yes <sup>[186]</sup>	Yes FreeBSD <sup>[187]</sup> OpenBSD <sup>[188]</sup>	?	
Cubieboard 2	Partial; With out-of-tree patches <sup>[185]</sup> (and BLOBs?)	Yes <sup>[189]</sup>	Yes FreeBSD <sup>[187]</sup> OpenBSD <sup>[188]</sup> NetBSD <sup>[190]</sup>	?	?
Cubieboard 3	Partial ?	Yes <sup>[191]</sup>	?	?	
CuBox-i <sup>[25][26]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	Yes <sup>[192]</sup>	Yes OpenBSD <sup>[175]</sup>	?	
Dragonboard 410c	pard 410c Yes; Mainline		No	Yes; Windows 10 IoT Core <sup>[193]</sup>	
DreamPlug	Yes; Mainline	?	Yes <sup>[194]</sup>	?	
Embest SBC8600B <sup>[29]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	Yes; WEC	
ESPRESSObin	Yes	?	?	?	?
Firefly-RK3288 (Plus)[32]	Partial; With out-of-tree patches and BLOBs for VPU and Mali GPU	Yes; Yes; 5.1	?	?	
GameStick <sup>[36]</sup>	Partial ?	Yes	?	?	
Gizmo Board <sup>[37]</sup>	Yes; Mainline	?	?	Yes	RTOS
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Gumstix Overo EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>	Partial; With out-of-tree patches (and BLOBs?)			Yes; CE 6, WEC 7 <sup>[195]</sup>	
Hackberry A10 <sup>[43]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	?	
HiKey	Partial; With out-of-tree patches (and BLOBs?)	Yes	No	No	
HummingBoard <sup>[48][49]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	Yes	?	?	
IFC6410 <sup>[151]</sup>	Yes; Mainline	Yes	?	No	seL4 <sup>[174]</sup>
IFC6540 <sup>[132][152]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	No	
Intel Galileo Gen 2 <sup>[54]</sup>	Yes; Mainline	No	?	Yes	
Inventami Entry <sup>[55]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i,MX6]</sup>	TBA	No	No	
Inventami Full <sup>[55]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	TBA	No	No	
iW-RainboW-G23S RZ/G1C SBC	Linux 3.10.31	No	?	No	
MarsBoard	Partial ? Picuntu based on Ubuntu 12 and 14, Linaro, openSUSE, Debian Wheezy ports	Yes	?	No	
MinnowBoard <sup>[65]</sup>	Yes; Mainline	No	No	No	
MIPS Creator Cl20 <sup>[66]</sup>	With out-of-tree patches <sup>[196]</sup>	Yes	No	No	
MiraBox <sup>[67]</sup>	Partial; With out-of-tree patches (and BLOBs?)	?	?	?	
MK802 II	Partial; Ubuntu, custom kernel 3.0.36 <sup>[197]</sup>	Yes	?	?	
MK808	Partial; Picuntu, custom kernel 3.0.36 <sup>[198]</sup>	Yes	?	?	
MTB025	?	?	?	?	
NanoPC-T1	Partial; With out-of-tree patches (and BLOBs?)	?	?	?	
NanoPi 2	Partial; Forked kernel 3.4	?	No	?	
Nitrogen6x	Forked kernel recommended, BLOB required for GPU use <sup>[i,MX6][199]</sup>	Yes	Yes OpenBSD <sup>[175]</sup>	Yes; CE	QNX
Nitrogen8M	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	No	FreeRTOS (M4 Core)
Nvidia Jetson TK1 <sup>[72]</sup>	Partial; With out-of-tree patches (and BLOBs?)	?	?	?	
ODROID-C1	Partial; Custom kernel 3.10.xx	Yes	Yes NetBSD	No	
ODROID-C2	Partial; Custom kernel	Yes	No	No	
ODROID-C1+	Partial; Custom kernel 3.10.xx	Yes	Yes NetBSD	No	
ODROID-U3	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes NetBSD	No	
ODROID-W <sup>[73]</sup>	Partial; With out-of-tree Broadcom GPU firmware as binary BLOB	No	No	No	
ODROID-XU3 <sup>[75]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes NetBSD	No	seL4 <sup>[174]</sup>
ODROID-XU3 Lite <sup>[76]</sup>	Partial; With out-of-tree patches (and BLOBs?) <sup>[200]</sup>	Yes	Yes NetBSD	No	
ODROID-XU4	Partial; Ubuntu, Custom kernel 4.9 <sup>[200]</sup>	Yes	Yes NetBSD	No	
OLinuXino A10	Partial; With out-of-tree patches (and BLOBs?)	?	?	?	
OLinuXino A13	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	?	
OLinuXino A20	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	?	
Omega2	Partial; Custom kernel (OpenWRT)	No	No	No	
Orange Pi	Partial; With out-of-tree patches <sup>[185]</sup> (and BLOBs?) Debian (Armbian, Bananian)	Yes <sup>[201]</sup>			
Orange Pi Mini	Debian (Ambian, Bananian)		-		
Orange Pi 2 <sup>[87]</sup>					
Orange Pi Mini 2 <sup>[89]</sup>	[195]				
Orange Pi PC <sup>[90]</sup>	Partial; With out-of-tree patches <sup>[185]</sup> (and BLOBs?) Debian (Armbian, DietPi, Raspbian), Ubuntu, Lubuntu, OpenMediaVault, Kali		Vac		
Orange Pi Plus	OpenElec ArchLinux		Yes FreeBSD <sup>[202]</sup>	No	?
Orange Pi Plus 2 <sup>[88]</sup>	Fedora Gentoo	Yes <sup>[201]</sup>			
Orange Pi One <sup>[91]</sup>	openSUSE				
Orange Pi Lite	OpenWRT Slackware				
Orange Pi PC Plus					
Orange Pi Plus 2E					
Orange Pi PC 2	ibid	Yes	ibid	No	?
Orange Pi Win	ibid	Yes	ibid	No	?
Orange Pi Zero Plus 2	ibid	Yes	ibid	No	?
Ouya	Partial ?	Yes	No	No	

PandaBoard ES <sup>[93]</sup>	Partial; With out-of-tree patches (and BLOBs?)	?	Yes OpenBSD <sup>[175]</sup>	?	seL4 <sup>[174]</sup>
pcDuino Lite <sup>[94]</sup>	Partial; With out-of-tree patches (and BLOBs?)	No	Yes OpenBSD <sup>[175]</sup>	?	
pcDuino v2 <sup>[95]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes OpenBSD <sup>[175]</sup>	?	
pcDuino3 <sup>[96]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes OpenBSD <sup>[175]</sup>	?	
pcDuino3Nano <sup>[97]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	Yes OpenBSD <sup>[175]</sup>	?	
PC Engines APU (http://www.pcengines.ch/apu2.htm)	Yes; Mainline	Yes	Yes FreeBSD OpenBSD pfSense	?	
phyBOARD-Wega <sup>[104]</sup>	phyBOARD-Wega <sup>[104]</sup> Yes; Mainline, Yocto 1.7 based		?	Yes; Compact 2013	
phyBOARD-Mira <sup>[105]</sup>	phyBOARD-Mira <sup>[105]</sup> Yes; Mainline, Yocto 1.7 based		?	No	
PINE A64+	Partial; Ubuntu Snappy and Lubuntu with BLOBs for VPU and Mali GPU	Yes	Yes OpenBSD <sup>[203]</sup> FreeBSD <sup>[204]</sup>	Not yet	
PINE RockPRO64	Yes; Mainline	YesOpenBSD NetBSD <sup>[205]</sup>	Yes	Recalbox, Odroid	
Radxa Rock	Ubuntu/Linaro 13.09 With out of tree patches. No bluetooth support.[206]	Yes <sup>[207]</sup>	?	No	
Raspberry Pi	With out-of-tree Broadcom GPU firmware as binary BLOB <sup>[208]</sup> or as source not yet merged upstream due to MPEG licensing <sup>[209]</sup>	?	Yes FreeBSD <sup>[210]</sup> NetBSD <sup>[211]</sup>	No	RISC OS, <sup>[212]</sup> Plan 9 <sup>[213]</sup>
Raspberry Pi Zero	With out-of-tree Broadcom GPU firmware as binary BLOB <sup>[208]</sup> or as source not yet merged upstream due to MPEG licensing <sup>[209]</sup>	?	Yes FreeBSD, <sup>[210]</sup> NetBSD <sup>[211]</sup>	No	RISC OS, <sup>[212]</sup> Plan 9 <sup>[213]</sup>
Raspberry Pi 2	Partial; With out-of-tree Broadcom GPU firmware as binary BLOB <sup>[208]</sup> or as source not yet merged upstream due to MPEG licensing <sup>[209]</sup> Snappy: Ubuntu Core	?	Yes FreeBSD, <sup>[210]</sup> NetBSD <sup>[211]</sup>	Yes; Windows 10 IoT Core <sup>[214]</sup>	RISC OS, <sup>[212]</sup> Plan 9 <sup>[213]</sup>
Raspberry Pi 3	?	?	Yes OpenBSD <sup>[203]</sup>	Yes; Windows 10 IoT Core	
Rikomagic MK802	?	?	?	?	
RIoTboard	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	?	?	?	
RouterBOARD RB450G <sup>[111]</sup>	Partial ?	No	?	No	RouterOS 5
RouterBOARD RB953GS- 5HnT <sup>[112]</sup>	Partial ?	No	?	No	RouterOS 5
SKATE-212	Under Development	Yes (Android N)	?	No	No
Snowball	?	?	?	?	
TBS 2910 Matrix <sup>[116]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	Yes	?	?	
TS-7250-v2	Partial; Custom kernel 3.14.16	No	No	No	No
TS-7680	Partial; Custom kernel 3.14.28	No	No	No	No
TS-7970	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	No	No	No	QNX
UDOO	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	Yes	No	No	
UP	Ubilinux(Debian), Yocto, Ubuntu	Yes	No	Yes	
Utilite <sup>[123]</sup>	Forked kernel recommended, BLOB required for GPU use <sup>[i.MX6]</sup>	Yes	Yes OpenBSD <sup>[175]</sup>	?	
VIA APC 8750 / Rock	Yes Firefox OS	Yes	?	?	
VIA Springboard VAB- 600 <sup>[126]</sup>	Partial; With out-of-tree patches (and BLOBs?)	Yes	?	?	
Wandboard (http://www.wan dboard.org)	With out-of-tree patches <sup>[215]</sup> (and BLOBs?) <sup>[I.MX6]</sup>	Yes <sup>[216]</sup>	Yes OpenBSD <sup>[175]</sup> FreeBSD <sup>[215]</sup>	?	
Graperain G4418 SBC	Partial; Custom kernel 3.4.39	Yes; 4.4, 5.1	Yes	No	
Graperain G6818 SBC	Partial; Custom kernel 3.4.39	Yes; 5.1	Yes	No	
Name	Name Linux			Windows	Other

### Notes

^i.MX6: mainline Linux has basic support (device trees) for most i.MX6 boards<sup>[217]</sup> (including Nitrogen6x, Wandboard, RIoTboard), but board vendors may still recommend forked kernels for full functionality. Vivante GPU drivers are provided as userspace library BLOBs;<sup>[218]</sup> a future open-source alternative might be etnaviv (https://github.com/laanwj/etna\_viv) (Kosagi Novena).<sup>[175][219]</sup>

^Sitara : Future SDKs for Sitara AM335x, AM4x, AM5x and Keystone SoCs will be based on a mainline kernel: "The Sitara Linux SDK based on the 2014 LTS kernel is expected to be available from TI during the fourth quarter of 2014."[220]

# Physical and electrical comparison

Name	Size [mm]	Weight [g]	Input voltage [V]	Idle Power consumption	Max Power consumption	Power source
Embedded Now Piconium	130 × 55	?	10 - 24	?	12	DC jack
Novasom M7	85 × 56	?	12 (6.5 - 18 protected)	?	2.5	DC jack
Novasom M8	85 × 56	?	12 (6.5 - 18 protected)	?	6	DC jack
Novasom M11	170 × 170	?	12 (6.5 - 18 protected redundant)	?	15	DC jack
Novasom U5	85 × 56	?	12 (6.5 - 18 protected)	?	1.5	DC jack
Novasom U1	37.5 × 31	?	5	?	0.9	Terminal blocks
Novasom N1	170 × 170	?	12 (6.5 - 18 protected redundant)	?	3	DC jack
Novasom P6	86 × 54	?	5	?	5	DC jack
Novasom P7	86 × 54	?	12 (6.5 - 18 protected)	?	6	DC jack
Novasom P8	86 × 56	?	12 (6.5 - 18 protected)	?	9	DC jack
Novasom S6	85 × 56	?	5	?	6	DC jack
Novasom S7	85 × 56	?	5	?	6	DC jack
Novasom S8	85 × 56	?	12 (6.5 - 36 protected)	?	9	DC jack
armStoneA5	100 x 72 x 15	55	5	?	3	?
armStoneA8	100 x 72 x 15	40	5	?	4	?
armStoneA9	100 x 72 x 15	60	5	?	4	?
Arndale Board	195 × 140 × 20	?	5	?	11.5	?
Banana Pi <sup>[19]</sup>	92 × 60	48	5	1.15 idle in Linux <sup>[221]</sup>	10 supply	micro USB
Banana Pi M2	92 × 60	48	5	?	10 supply	micro USB
Banana Pi M3	92 × 60	45	5	?	10 supply	micro USB
BeagleBoard	78.74 × 76.2	?	2.7–4.5	?	?	miniUSB or DC jack
BeagleBoard-xM	82.5 × 82.5	?	5	?	?	DC jack
BeagleBone	86 × 53	?	5	?	0.85	miniUSB or DC jack
BeagleBone Black	86.4 × 53.3	40	5	1.05	2.3	miniUSB or DC jack or via expansior header
Boardcon EM210 [20]	108 × 141	122.3	5	?	?	DC jack
Boardcon EM3399 [21]	100 × 145	?	12	?	?	DC jack
C.H.I.P. <sup>[222]</sup>	?	?	3, 5	?	?	USB, microUSB, LiPo battery
Cosmic+ Board <sup>[24]</sup>	100 × 72	64.2	5	1.83	5 supply	Mini USB or DC jack
Cubieboard <sup>[223]</sup>	100 × 60	45	5	?	?	DC jack or USB OTG input
Cubieboard 2 <sup>[223]</sup>	100 x 60	?	5	?	?	DC jack or USB OTG input
Cubieboard 3 <sup>[223]</sup>	110 × 80		5	?	?	miniUSB or DC jack or LiPo batteries
		220 (kit)				,
CuBox-i2, i2eX <sup>[25][26]</sup>	55 × 55 × 42	?	5	?	10 supply	DC jack
CuBox-i4Pro <sup>[25][26]</sup> Dragonboard 410c	55 × 55 × 42 85 × 54 × 12	?	5 6.5-18	?	15 supply 24 supply	DC jack  DC jack
DreamPlug	170 × 82 × 33	310	5	0.5	recommended 1.5	PSU included
Embest SBC8600B <sup>[29]</sup>	95 × 95	?	12	?	?	
				?	?	DC jack
Firefly-RK3288 (Plus) <sup>[32]</sup>	118 x 85	77	5			DC jack
GameStick <sup>[36]</sup>	?	?	5	?	?	Micro USB
Gizmo Board <sup>[37]</sup>	102 × 102	?	12	?	?	DC jack
GoWarrior  Gumstix Overo	93 × 60	42	5	?	?	Micro USB or DC jack
EarthSTORM <sup>[41]</sup> + Summit <sup>[42]</sup>	80 × 39	20.8	3.5-5	?	?	DC jack
Hackberry A10 <sup>[43]</sup>	110 × 76 × 20	?	5	?	6 supply	DC jack
HiKey	85 × 54 × 12	?	8-18	?	16	DC jack
HummingBoard <sup>[48][49]</sup>	85.6 × 54 × 19.5 100 × 72 (Pico-	48	5	?	10 supply	Micro USB
IFC6410 <sup>[151]</sup>	ITX)	?	5	?	15 supply	DC jack

IFC6540 <sup>[132][152]</sup>	100 × 72 (Pico-	?	12	?	36 supply	DC jack
Intel Galileo Gen 2 <sup>[54]</sup>	123.8 × 72	?	7-15	?	?	DC jack or PoE
Inventami Entry <sup>[55]</sup>	116 x 92 x 31	?	7-24	?	?	?
Inventami Full <sup>[55]</sup>	116 x 92 x 31	?	7-24	?	?	?
iW-RainboW-G23S RZ/G1C SBC	85 x 56 x 16	?	?	?	?	?
MarsBoard <sup>[59][60][61]</sup>	105 x 78	90	5	?	10 supply	DC jack
MinnowBoard <sup>[65]</sup>	106.68 x 106.68	?	3.6-10	?	?	DC jack
MIPS Creator CI20 <sup>[66]</sup>	90 x 95	?	5	?	?	DC jack
MiraBox <sup>[67]</sup>	133 × 93 × 20	?	5	?	15	DC jack
MK808	?	?	?	?	?	?
MTB025	?	?	?	?	?	?
NanoPC-T1	100 x 60	?	5 (USB) or 7.5–9.0 (DC jack)	?	?	DC jack or micro USB
NanoPi 2	75 x 40	22	5	?	?	micro USB or GPIO pin header
NanoPi NEO	40 x 40	?	5	?	10 supply	micro USB, pin header or pads
Nitrogen6x	116 × 75	?	5 DC	?	1.5	Separate plug or PoE
Nitrogen8M	136.7mm × 87mm	?	5 DC	?	?	DC jack
Nvidia Jetson TK1 <sup>[72]</sup>	127 × 127	120 <sup>[224]</sup>	12	?	30 stressed, 60 supply	DC jack
ODROID-C1	85.6 × 54 x 19.5	45	5	?	?	Micro USB (with user modification), 2.5mm DC jack or GPIO header
ODROID-C2	85 × 56 × 18	56 (with heatsink)	5	?	?	2.5mm DC jack or GPIO header
ODROID-C1+	85.6 × 54 x 19.5	45 (without heatsink)	5	?	?	Micro USB, 2.5mm DC jack or GPIC header
ODROID-U3	83 × 48	48	5	?	?	2.5mm DC jack or GPIO header
ODROID-W <sup>[73]</sup>	60 × 36 × 7	8	5	?	?	Micro USB, GPIO header or LiPo batteries
ODROID-XU3 <sup>[75]</sup>	94 × 70 × 18	78	5	1.8?	20 supply	5.5mm DC jack
ODROID-XU3 Lite <sup>[76]</sup>	94 × 70 × 18	78	5	1.8?	20 supply	5.5mm DC jack
ODROID-XU4	82 × 58 × 22 (with active cooler)	60 (with active cooler)	5	1.8?	20 supply	5.5mm DC jack
OLinuXino A10 LIME	84 × 60	?	5	?	1.3	DC jack or USB OTG input or LiPo batteries
DLinuXino A13 base / WIFI	120 × 120	?	6–16	?	?	DC jack or USB OTG input or LiPo batteries
OLinuXino A13 MICRO	100 × 85	?	6–16	?	?	DC jack or USB OTG input
OLinuXino A20 LIME	84 × 60	?	5	?	?[225]	DC jack or LiPo batteries
OLinuXino A20 LIME2	84 × 60	?	5	?	?[225]	DC jack or LiPo batteries
OLinuXino A20 MICRO	142.24 × 82.55	?	6–16	?	?	DC jack or LiPo batteries
Omega2	42.9 x 26.4	?	3.3	?	?	GPIO header
Orange Pi	112.0 × 60.0	?	5	3.3	10 supply	Micro USB, 4.0mm DC jack or GPIC header
Orange Pi Mini	94.0 × 59.0	?	5	?	10 supply	Micro USB, 4.0mm DC jack or GPIC header
Orange Pi 2 <sup>[87]</sup>	93.0 × 60.0	46	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi Mini 2 <sup>[89]</sup>	93.0 × 60.0	45	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi PC <sup>[90]</sup>	85.0 × 55.0	38	5	1.02	10 supply	4.0mm DC jack or GPIO header
Orange Pi Plus	108.0 × 60.0	50	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi Plus 2 <sup>[88]</sup>	108.0 × 67.0	83	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi One <sup>[91]</sup>	69.0 × 48.0	36	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi Lite	69.0 × 48.0	36	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi PC Plus	85.0 × 55.0	38	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi Plus 2E	108.0 × 67.0	52	5	?	15 supply	4.0mm DC jack or GPIO header
Orange Pi PC 2	85.0 × 55.0	38	5	?	10 supply	4.0mm DC jack or GPIO header
Orange Pi Win	93.0 × 60.0	48	5	?	?	4.0mm DC jack or GPIO header
Orange Pi Zero Plus 2	46.0 × 48.0	20	5	?	?	4.0mm DC jack or GPIO header
Ouya	75 × 75 × 82	300 (with case)	12	1	4.5	DC jack
PandaBoard ES <sup>[93]</sup>	114.3 × 101.6	81.5	5	?	3.5	Micro USB or DC jack

pcDuino Lite <sup>[94]</sup>	125 × 52	?	5	?	10 supply	Micro USB
pcDuino v2 <sup>[95]</sup>	125 × 52	?	5	?	10 supply	Micro USB
pcDuino3 <sup>[96]</sup>	121 × 65	?	5	?	10 supply	Micro USB
pcDuino3Nano <sup>[97]</sup>	92 × 54	?	5	?	10 supply	Micro USB
PC Engines APU	152.4 × 152.4	250	12	6	12	DC jack
phyBOARD-Wega <sup>[104]</sup>	100 × 72 (Pico- ITX)	57	5, 12-24	?	?	DC jack, Micro USB
phyBOARD-Mira <sup>[105]</sup>	100 × 72 (Pico- ITX)	67	5, 12-24	?	?	DC jack
PINE A64	127 x 79 x 21	46	5	?	?	Micro USB or GPIO header
PINE RockPRO64	127 x 79 x 21	?	12	? 3A (supply)	DC jack	
Radxa Rock	100 x 80 x 30	?	5	?	?	DC jack or USB OTG input
Raspberry Pi Model A+	85.6 × 54.0 × 19.5	45	5	0.5 <sup>[226]</sup>	1.15 (5 supply)	Micro USB or GPIO header
Raspberry Pi Model A	85.6 × 54.0 × 19.5	45	5	0.7	5 supply	Micro USB or GPIO header
Raspberry Pi Model B	85.6 × 54.0 × 19.5	45	5	1.8	2.4 (5 supply)	Micro USB or GPIO header
Raspberry Pi Model B+	85.6 × 54.0 × 19.5	45	5	1.25 <sup>[227]</sup>	5 supply	Micro USB or GPIO header
Raspberry Pi 2 Model B+	85.6 × 56.5 × 17.0	45	5	1.3 <sup>[227]</sup>	2.1 (10 supply)	Micro USB or GPIO header
Raspberry Pi 3 Model B	85.6 × 56.5 × 17.0	45	5	1.6 <sup>[227]</sup>	3 (12 supply)	Micro USB or GPIO header
Raspberry Pi Zero	65.0 × 30.0 × 5.0	9.0 <sup>[228]</sup>	5	0.45 <sup>[229]</sup>	5 supply	Micro USB or GPIO header
RED Brick	40 x 40 x 16	14	5	0.75	1.1	micro USB or Stack Connector
Rikomagic MK802 / MK802+	87 x 35 x 12	?	?	?	?	?
Rikomagic MK802 II	90 x 30 x 12	?	?	?	?	?
RIoTboard	120 x 75	?	5	?	5 supply	DC jack
RouterBOARD RB450G <sup>[111]</sup>	115 × 90	105	8-30	?	?	DC jack or PoE
RouterBOARD RB953GS- 5HnT <sup>[112]</sup>	183 × 105 × 24	?	8-30	?	25	DC jack
SKATE-212	90 x 70	?	12			DC jack or Lion batteries
Snowball	?	?	5	?	?	?
TBS 2910 Matrix <sup>[116]</sup>	135 x 90 x 45	?	5	?	15 supply	DC jack
TS-7250-V2	97 x 114	?	5 V, 8-28	1.6	2.27	Terminal blocks
TS-7680	112 x 122	?	8-40 DC, 10-28 AC	1.5	1.8	Terminal blocks
TS-7970	112 x 122	?	5, 8-28 DC	2.8	10	Terminal blocks
UDOO	110 x 85	?	6-18	?	?	DC jack, or GPIO header or pin header
Utilite <sup>[123][230][231]</sup>	135 x 100 x 21	?	10-16	3.6	8.4	DC Jack
VIA APC 8750 / Rock	170 × 85 (Neo- ITX)	?	12	3	13.5	DC jack or internal 4-pin power connector
VIA Springboard VAB- 600 <sup>[126]</sup>	100 × 72 (Pico- ITX)	?	12-24	?	?	DC jack
Wandboard	95 × 95	?	5	1.15 typ. <sup>[232]</sup>	10 supply	DC jack
WandPi 8M	85 × 56 × 17.5	?	5	?	?	USB C
Graperain G4418 SBC	100 x 68	70	5	0.02	3	5V DC jack or USB OTG input
Graperain G6818 SBC	100 x 68	70	5	0.025	4	5V DC jack or USB OTG input
Name	Size [mm]	Weight [g]	Input voltage [V]	Idle Power consumption [W]	Max Power consumption [W]	Power source

### See also

- List of Arduino compatibles
- List of open-source hardware projects
- Open-source computing hardware
- Single-board microcontroller

- Nettop
- Stick PC
- Small form factor
- Raspberry Pi

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### **External links**

- Board-DB The Single Board Computer Database (http://hackerboards.com)
- Catalog of 125 open-spec hacker boards (updated Jun 3, 2019) (http://linuxgizmos.com/catalog-of-125-open-spec-hacker-boards/)

Retrieved from "https://en.wikipedia.org/w/index.php?title=Comparison\_of\_single-board\_computers&oldid=930268230"

This page was last edited on 11 December 2019, at 09:40 (UTC).

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