

FPGA Boot Camp \$20 FPGA kit with full user IO, some assembly required: soldering & breadboard wiring

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item	avail	web link	2nd web link	need	part #	high vol price	# per order	min quant price	per kit cost	# kits/item	dx mm	dy mm	IO	K LUTs	Mb block RAM	MB D-RAM	MB flash	Q	vendor	mfg	comments
Seeed Tang Nano-9K	yes	https://www.aliexpress.us/item/3256804089225102.html		\$20 KIT	Tang Nano-9K		1	\$13.04	13.04	1.0	25.4	60.0	36	8.6	0.48	8.0	8.0	Y	AliExpres	gowinsem	2PB, 6LED, HDMI & LCD conn, 27MHz os
Spartan6 Alinx AX309	yes	https://www.aliexpress.us/item/3256803558575660.html	https://github.com/alinx	full board sans switc	Alinx AX 309		1	\$19.79	19.79	1.0	90.0	130.0	68	9.2	0.59	32.0	2.0	Y	AliExpres	Alinx	no programmer! no slide switch, high sp
Accessories																					
8 7-seg, 8 PB, 8 LED	yes	https://handsontec.com/index.php/product/tm1638-7-segment-display-keypadled-modu		Tang 9K User IO	TM1638 7-Segment Dis	\$2.90	1	\$2.90	2.900	1.0	50.8	76.2	5 pins						HandsOn Tech		user IO except slide switches, used in ap
16 PCS 400 Pin Solderless Board	yes	https://www.amazon.com/MCIGICM-Breadboard-Solderless-Prototype-Protoboard/dp/B		Breadboard	MCIGICM Breadboard 4	\$19.99	16	\$6.69	1.249	1.0	58.0	83.8							amazon	MCIGICM	connectable, e.g. connect two for more :
12 position DIP switch	yes	https://www.digikey.com/en/products/detail/cts-electrocomponents/210-12MS/250378		12 pos slide switch	23-DS04-254-1L-12BK-H	\$3,511.00	5000	\$1.35	0.702	1.0	8.0	32.0							digikey	CUI device	DIP size pins, somewhat larger lettering
male-female Jumper Cables	yes	https://www.digikey.com/en/products/detail/adafruit-industri/https://www.adafruit.com	https://www.adafruit.com	(20) m/f jumpers	1528-1964-ND	\$156.00	100	\$1.95	0.624	2.5	2.5	152.4							adafruit	adafruit	6" long, insulated
HOOK-UP 22AWG SOLID - 5FT	yes	https://www.digikey.com/en/products/detail/cnc-tech/10982	digikey	breadboarding	1175-2683-5-ND	\$318.54	500	\$0.99	0.637	1.0									digikey	CNC Tech	green insulation, no spool
xilinx JTAG programmer	yes	https://www.aliexpress.us/item/3256803293064199.html	https://www.aliexpress.us	spartan-6 bd prog	Hw-usb-ii-g Dlc10	\$11.30	1	\$11.30	0.565	20.0									Aliexpress		for full set of cables use 2nd web link
CONN JUMPER SHORTING .100" GC	yes	https://www.digikey.com/en/products/detail/sullins-connector-solutions/QPC02SXGN		shunt with pull tab	S9341-ND	\$102.60	2500	\$0.11	0.410	250.0									Digikey	Sullins	for use with Spartan-6 board
TinyFPGA A1	no	https://tinyfpga.com/a-series-guide.html		under \$20	TinyFPGA A1			\$12.00					22	0.3	0.00			N	Tinyfpga	Lattice	no USB prog, XO2-256, \$18 for XO2-120
ICESugar-nano FPGA dev board	yes	https://www.aliexpress.us/item/3256802808608431.html		under \$20	ICESugar-nano		1	\$19.50	19.50	1.0	18.0	39.0	16	1.3	0.06			N	AliExpres	Muse Lab	**2 Pmod, iCE40, not much else
Gaoyun Little Bee GW1N-1	yes	https://www.aliexpress.us/item/3256804359720791.html		under \$20	Tang Nano 1K			\$3.28	3.28		21.3	58.3	30	1.2	0.07		0.1	N	AliExpres	gowinsem	LCD screen conn, version w PSRAM

narrow FPGA boards

cheap FPGA boards

Check Newark sale prices on DIP & tact switches

Shipping and taxes not included

AliExpress prices and availability vary, shipping typically takes one month

Seeed Tang Nano-9K quant 1

Spartan6 Alinx AX309 quant 1

Spartan6 Alinx AX309 per kit

\$25.93

\$31.20

\$20.77

soldering and assembly required

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JTAG device shared; no assembly required