U1 Z80 — CLK, D4, D5, D6, VCC, D2, D7, D0, D1, NC, INT, NMI, HALT, MREQ, IORQ, RD, WR, BUSACK, WAIT, BUSREQ, A15, A14, A13, A12, A11, A10, A9, A8, A7, A6, A5, A4, A3, A2, A1, A0, GND, RFSH, M1, RESET

U2 27C512 — A0–A15, D0–D7, ROM_A14, ROM_A15, ROMC5, OE/VPP, CE, VCC, GND

U3 BS62LV4006 — MA0–MA18, MD0–MD7, MWR, MRD, MCS0, WE, OE, CS, VCC, GND

U4 BS62LV4006 — MA0–MA18, MD0–MD7, MWR, MRD, MCS1, WE, OE, CS, VCC, GND

U6 EPM3256ATC144

U5F / U5A / U5B / U5C / U5E / U5D / U5G 74HC04

U9 AD724 — CE, NTSC/PAL, HSYNC, VSYNC, XTAL, RED, GREEN, BLUE, AVCC, DVCC, AGND, DGND, LUM_OUT, CHROM_OUT, COMP_OUT, TRAP

U13 LM1117-3.3 — VI, GND, VO

Q1 BC846B

D1 1N4148W

Crystals: Y1 28MHz, Y2 6MHz, Y3 4.43MHz

Resistors: R1 470, R2 470, R3 4k7, R4 470, R5 470, R6 4k7, R7 510, R8 1k, R9 2k, R10 510, R11 1k, R12 2k, R13 510, R14 1k, R15 2k, R16 75, R17 75, R18 75, R19 75, R20 2k2, R21 10k, R22 510, R23 10k, R24 10k, R25 33k, R26 10k, R27 10k, R28 10k

Resistor networks: RN1 10k, RN2 10k, RN3 10k, RN4 10k, RN5 10k

Capacitors: C1 100p, C2 22p, C3 100p, C4 22p, C5 100nF, C6 100nF, C7 100nF, C8 10p, C9 220uF, C10 10uF, C11 10uF, C12 10uF, C13 10uF, C14 10uF, C15 10nF, C16 100nF, C17 3n3, C18–C27 100nF

Connectors: J1 DC 5V, J2 TAPE IN/OUT, J3 RCA, J4 BUS, J5 KEYBOARD, J6 BUS, J7 JTAG

Switches: SW1 RESET, SW2 NMI

Mounting holes: H1, H2, H3, H4

Signals: CLK_CPU, CLK28, CLKX, CSYNC, RESET, BUSREQ, WAIT, NMI, TAPE_IN, TAPE_OUT, +3V3, VCC, GND

MountingHole

DC 5V

MountingHole

H1

H2

J6

BUS

J1

10uF
C11

R19
75

U9

AD724

C9
220uF

100nF
CB

U6

U1

U2

Z80

27C512

100nF
C5

C8
10p

C10
10uF

100nF
C5

100nF
C5

100nF
C5

10uF
C5

U13

R7
510
R8

R10
510
R11

R13
510
R14

10k
RN1

10k
RN2

10uF
C5

LM1117-3.3

1k
R9

1k
R12

1k
R15

RN3

EPM3256ATC144

2k
R10
75

2k
R7
75

2k
R15
75

10k

C14
10uF

C1
100p

22p
C2

R28
10k
R27

U3

BS62LV4006
BS62LV4006

U4

R2

470

470

U5

470 470 22p
C3

J7

R1

4k7

RN4

10k

RN5

10k

R4

470

4k7 470

RN4

JTAG

C5
22p

100p
74HC04

KEYBOARD

H4

J5

H3

MountingHole

MountingHole

J8

KEYBOARD

Sheet:
File: karabas-nano.kicad_pcb
Title:
Size: A4   Date:
KiCad E.D.A.   kicad 5.1.2-f72e74a84ubuntu18.04.1   Rev:
Id: 1/1

10k
R21

100nF 33k 3n3
C16 R25 C17

1N4148W

BC846B 10k
R23

10k
R22

100nF
C25

2k2
R28

100nF
C27

100nF
C3

10k
R26

D2

100nF
C22

100nF
C2N

1N4148W

Sheet:
File: karabas—nano.kicad_pcb
Title:
Size: A4   Date: Rev:
KiCad E.D.A.   kicad 5.1.2—f72e74a84ubuntu18.04.1   Id: 1/1

karabas-nano

Reference	Q-ty	Value	Package
C1, C3,	2	100p	0805
C2, C4,	2	22p	0805
C5, C6, C7, C16, C19, C20, C21, C22, C23, C24, C25, C26, C27, C18,	14	100nF	0805
C8,	1	10p	0805
C9,	1	220uF	
C10, C11, C12, C13,	4	10uF	0805
C14,	1	10uF	
C15,	1	10nF	0805
C17,	1	3n3	0805
D1, D9, D8, D7, D6, D5, D4, D3, D2,	9	1N4148W	
J1,	1	DC 5V	
J2,	1	TAPE IN/OUT	
J3,	1	RCA	
J4,	1	BUS	
J5,	1	KEYBOARD	
J6,	1	BUS	
J7,	1	JTAG	
J8,	1	KEYBOARD	
K1-Kspace,SW1,SW2	42	Switch buttons	5,2mm
Q1,	1	BC846B	
R1, R2, R4, R5,	4	470	0805
R3, R6,	2	4k7	0805
R8, R11, R14,	3	1k	0805
R9, R12, R15,	3	2k	0805
R10, R13, R7, R22,	4	510	0805
R16, R17, R18, R19,	4	75	0805
R20,	1	2k2	0805
R21, R23, R24, R26, R27, R28,	6	10k	0805
R25,	1	33k	0805
RN1, RN2, RN3, RN4, RN5,	5	10k	
U1,	1	Z80	QFP-44
U2,	1	27C512	PLCC32
U3, U4,	2	BS62LV4006	
U5,	1	74HC04	
U6,	1	EPM3256ATC144	TQFP-144
U9,	1	AD724	
U13,	1	LM1117-3.3	
Y1,	1	28MHz	
Y2,	1	6MHz	
Y3,	1	4.43MHz	