Koruza compute module board

CONTENTS:

REVISION HISTORY:

TODO:

* RPi zero reader

Title	Koruza 2.0 compute module board		
Size	Number		Revision
A3			1.0
Date:	01/30/2017	Sheet of	Vojislav Milivojevic
File:	C:\Users\..\PAGE1 - CONTENTS.SchDoc	Drawn By:	vojislav@irnas.eu

Power

Galvanically isolated

Route red ringed signals as matched length 100R differential pair

For USB to be connected to the header zero ohm resistors need to be soldered.

Route red bold-ringed signals as matched length 90R differential pair

VDD_CORE used for module test only (do not use in normal operation, do not draw current from this pin!)

USB BOOT ENABLE:

Jumper position:
3-2 = USB BOOT ENABLED
2-1 = USB BOOT DISABLED

CAMERA_DIF

Koruza move driver connector

Koruza SFP connector

Koruza GPIO connector

Future PoE pins

IR Link connector

CM3/Lite

CON1

DDR2 SODIMM

CON2

RPi Camera connector

Camera

U1 PAM2306AYPKE

U3 ITX2405SA

U4 SPM15-05Q-Q12P-C

GND

| C23 20pF | C24 20pF | C25 20pF | C26 20pF | C27 100nF |

507-1431-ND
T1

RX+ J1
RX- J2
TX+ J3
TX- J6
J4
J5
J7
J8

RD+ 1
TCT 7
RD- 8
TD+ 2
RCT
TD- 9
VC12 5 R32 0R
VC36 10 R33 0R
VC45 6 POE_V+
VC78 11 POE_V-

4X 22nF 100V
4X 75Ω
1000pF/2kV
Shield

Ethernet RJ45

R34 49.9R R35 49.9R R36 49.9R R37 49.9R R38 10R 3V3

C28 100nF   C29 100nF

GND   GND

TP13
TP14
TP15
TP16

12 Yellow 13
+ R40 1K
3V3
NSPD_LED

14 Green 15
+ R41 1K
3V3
NLNKA_LED

ETH_RX_N
ETH_RX_P
ETH_TX_N
ETH_TX_P

GND   R42 12K4

VDD18ETHPLL

3V3   R39 10K   VDD18CORE   3V3

GND

U5
LAN9512

48 VDD18ETHPLL
47 TEST4
46 VDD33IO
45 VDD33IO
44 CLK24_OUT
43 CLK24EN
42 GPIO7
41 GPIO6
40 AUTOMDXL_EN
39 VDD33IO
38 VDD18CORE
37 GPIO5
36 GPIO4
35 GPIO3
34 TEST2
33 VDD33IO

32 TCK   3V3
31 TDO
30 TDI   R43 10K
29 TMS   nTRST This pin should be tied high if it
28 NTRST   is not used.
27 VCC33IO 3V3
26 EEDI
25 EEDO
24 EECS
23 EECLK
22 NSPD_LED/GPIO2   NSPD_LED
21 NLNKA_LED/GPIO1 NLNKA_LED
20 NFDX_LED/GPIO0
19 VDD33IO   3V3
18 NC
17 NC

3V3   3V3   3V3
C30 100nF C31 100nF
C32 100nF C33 100nF C34 100nF

L4 Inductor   VDD33A

C35 100nF C36 100nF C37 100nF

GND   GND   GND

If USB MUX is not used

C38 100nF C39 100nF C40 100nF C41 100nF

GND

49 VDD33A
50 EXRES
51 VDD33A
52 RXP
53 RXN
54 VDD33A
55 TXP
56 TXN
57 VDD33A
58 USBDM0
59 USBDP0
60 XO
61 XI
62 VDD18USBPLL
63 USBRBIAS
64 VDD33A

VDD33A
VDD33A
VDD33A
VDD33A

XO 1 Y1 2 XI
25MHz
C42 33pF   C43 33pF

GND

XO
XI
VDD18USBPLL
VDD33A   R44 12K

GND

VDD18USBPLL L5 Inductor VDD18ETHPLL
Place 100nF by
LAN9512-62

C44 1uF   C45 100nF

GND   GND

1 USBDM2
2 USBDP2
3 USBDM3
4 USBDP3
5 VDD33A
6 NC
7 NC
8 NC
9 NC
10 VDD33A
11 VBUS_DET
12 NRESET
13 TEST1
14 PRTCTL2
15 VDD18CORE
16 PRTCTL3

USB_2_P
USB_2_N

VDD33A   3V3   NRESET

GND

CON4
USB Type A RA TH
Shield
GND
D+ 3
D- 2
VBUS 1

5V
C50 10uF
GND

VDD18CORE
C46 100nF C47 100nF C48 10uF
+1.8 V power from the internal core
voltage regulator. All VDD18CORE
pins must be tied together for proper
operation.

3V3   R45 10K
GPIO6/HUB_NRESET
TP19
GND

C49 100nF 3V3
564479
U6
9 VCC
USB_D USB_SW_N D-
USB_P USB_SW_P D+
6 HSD2-
7 HSD2+ USB_HUB_N
USB_HUB_P TP17
TP18

3V3   R46 47K
10 SEL
8 OE
3 GND
4 HSD1-
5 HSD1+ USB_PROG_N
USB_PROG_P TP20
FSUSB42UMX
GND
TP22

Q3 MOSFET-N
R47 47K
GND   GND   GND

VBUSB
CON3
1 VBUS
2 D-
3 D+
4 GND
0 Shield
USB Type A RA TH

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