I. System jumper & connectors

X1 : external input +5V
1 - +5V
2 - GND

X2 : Processor BOOT mode enable jumper

X3 : Speaker Output
1 - OUT_P
2 - OUT_M

X4 : USB Type-C Power Jumper

X5 : +5V output from USB Type-C
1 - +5V
2 - GND

X6 : Watchdog timer jumper (1-2:WDTON) or (2-3:WDTOFF)
1 - Reset WDT & Button
2 - Reset
3 - Reset Button

II. Pin Connectors

Y1 : F1C200S
01 - GND
02 - VDD_3.3V
03 - F1C200S[66] - SPI1_CS
04 - F1C200S[65] - SPI1_MOSI
05 - F1C200S[63] - SPI1_MISO
06 - F1C200S[64] - SPI1_SCK
07 - F1C200S[72] - TV_OUT
08 - RESET
09 - F1C200S[79] - LRADC
10 - F1C200S[78] - TV_IN0
11 - F1C200S[86] - LINLC
12 - GNDA
13 - F1C200S[85] - FMINRC
14 - F1C200S[84] - FMINLC

Y3 : FPGA GW1NR-LV9
01 - GND
02 - VDD_3.3V
03 - GW1NRLV9[68] - HDMI_CKN
04 - GW1NRLV9[69] - HDMI_CKP
05 - GW1NRLV9[70] - HDMI_D0N
06 - GW1NRLV9[71] - HDMI_D0P
07 - GW1NRLV9[72] - HDMI_D1N
08 - GW1NRLV9[73] - HDMI_D1P
09 - GW1NRLV9[74] - HDMI_D2N
10 - GW1NRLV9[75] - HDMI_D2P

Y4 : SYSTEM
01 - GW1NRLV9[29] - TXD_M
02 - GD32F103[21] - PA9 - USART0_TX
03 - GW1NRLV9[28] - RXD_M
04 - GD32F103[22] - PA10 - USART0_RX
05 - VDD_3.3V
06 - GD32F103[25] - PA13 - SWDIO
07 - GW1NRLV9[32] - LED
08 - GD32F103[28] - PA14 - SWCLK
09 - RESET
10 - GND

Y5 : JTAG
01 - GND
02 - VDD_3.3V
03 - GW1NRLV9[18]-GW_RX - GD32F303[30]-PA9 -USART0_TX
04 - GW1NRLV9[17]-GW_TX - GD32F303[31]-PA10-USART0_RX
05 - GW1NRLV9[09]-nRECONF - GD32F103[29]-PA15
06 - GW1NRLV9[08]-JTAG_TDO - GD32F103[31]-PB4-SPI0_MISO
07 - GW1NRLV9[07]-JTAG_TDI - GD32F103[32]-PB5-SPI0_MOSI
08 - GW1NRLV9[06]-JTAG_TCK - GD32F103[30]-PB3-SPI0_SCK
09 - GW1NRLV9[05]-JTAG_TMS - GD32F103[33]-PB6
10 - GW1NRLV9[04]-JTAG_SEL

Y2 : COMMON

01 - VDD_5.0V
02 - GND
03 - F1C200S[06] - LCD_D2
04 - F1C200S[07] - LCD_D3
05 - F1C200S[08] - LCD_D4
06 - F1C200S[09] - LCD_D5
07 - F1C200S[10] - LCD_D6
08 - F1C200S[11] - LCD_D7
09 - F1C200S[12] - LCD_D10
10 - F1C200S[13] - LCD_D11
11 - F1C200S[14] - LCD_D12
12 - F1C200S[15] - LCD_D13
13 - F1C200S[16] - LCD_D14
14 - F1C200S[17] - LCD_D15
15 - F1C200S[18] - LCD_D18
16 - F1C200S[19] - LCD_D19
17 - F1C200S[21] - LCD_D20
18 - F1C200S[23] - LCD_D21
19 - F1C200S[24] - LCD_D22
20 - F1C200S[25] - LCD_D23
21 - F1C200S[26] - LCD_CLK
22 - F1C200S[28] - LCD_HS
23 - F1C200S[29] - LCD_VS
24 - F1C200S[27] - LCD_DE
25 - F1C200S[37] - CSI_DA
26 - F1C200S[38] - CSI_CLKO
27 - GW1NRLV9[56] - PIO_D7
28 - F1C200S[39] - CSI_D7
29 - GW1NRLV9[57] - PIO_D6
30 - F1C200S[40] - CSI_D6
31 - GW1NRLV9[63] - PIO_D5
32 - F1C200S[41] - CSI_D5
33 - GW1NRLV9[30] - PIO_D4
34 - F1C200S[42] - CSI_D4
35 - F1C200S[43] - CSI_D3
36 - F1C200S[44] - CSI_D2
37 - F1C200S[45] - CSI_D1
38 - F1C200S[46] - CSI_D0
39 - GND
40 - F1C200S[47] - CSI_PCLK
41 - GW1NRLV9[76] - PIO_VS
42 - F1C200S[48] - CSI_VS
43 - GW1NRLV9[77] - PIO_HS
44 - F1C200S[49] - CSI_HS
45 - GW1NRLV9[79] - IOT12B
46 - GW1NRLV9[80] - IOT12A
47 - GW1NRLV9[81] - IOT11B
48 - GW1NRLV9[82] - IOT11A
49 - GW1NRLV9[83] - IOT10B
50 - GW1NRLV9[84] - IOT10A
51 - GW1NRLV9[85] - IOT8B
52 - GW1NRLV9[86] - IOT8A
53 - GW1NRLV9[03] - IOT2A
54 - GW1NRLV9[14] - IOL22B
55 - GW1NRLV9[15] - IOL25B
56 - GW1NRLV9[16] - IOL26B
57 - ADC121U14[03]- IN_ADC1
58 - ADC121U16[03]- IN_ADC2
59 - GD32F303[10] - PA0 - TMR14_CH0/ADC012_IN0
60 - GD32F303[11] - PA1 - TMR14_CH1/ADC012_IN1
61 - GD32F303[14] - PA4 - DAC_OUT0 /ADC01_IN4
62 - GD32F303[15] - PA5 - DAC_OUT1 /ADC01_IN5
63 - VDDA_3.3V
64 - GNDA

Y6 : CMSIS-DAP-S

01 - VDDIN
02 - GD32F103[13]-PA6 - nRST control
03 - GD32F103[12]-PA5 - TDO control
04 - GD32F103[11]-PA4 - TDI control
05 - GD32F103[08]-PA1 - SWDIO control
06 - GD32F303[34]-PA13- SWDIO in
07 - GD32F103[07]-PA0 - SWCLK control
08 - GD32F303[37]-PA14- SWCLK in
09 - VDD_3.3V
10 - GND

Y7 : ANALOG

01 - VDDA - +2.5V(default)/+3.3V(switch by resistor) or external
02 - GNDA
03 - ADS1120[10] - AIN1 -2.5V...+2.5V
04 - ADS1120[09] - REFP0
05 - ADS1120[11] - AIN0 -2.5V...+2.5V
06 - ADS1120[06] - AIN3 -2.5V...+2.5V
07 - DAC7311-OPA[1]-DACB -2.5V...+2.5V
08 - DAC7311-OPA[7]-DACA -2.5V...+2.5V
09 - ADS1120[08] - REFN0
10 - ADS1120[07] - AIN2 -2.5V...+2.5V

Y8 : GD32F303
01 - GD32F303[45] - PB8 - I2C0_SCL / TIMER3_CH2 / CAN_RX
02 - GD32F303[46] - PB9 - I2C0_SDA / TIMER3_CH3 / CAN_TX
03 - GD32F303[02] - PC13 - SPI1_CS_S / TAMPER-RTC
04 - GD32F303[17] - PA7 - ADC01_IN7 / TIMER2_CH1
05 - GD32F303[29] - PA8 - SPI1_RST_S / TIMER0_CH0 / CK_OUT0
06 - GD32F303[28] - PB15 - SPI1_MOSI
07 - GD32F303[26] - PB13 - SPI1_SCK
08 - VDD_3.3V
09 - GND
10 - GD32F303[27] - PB14 - SPI1_MISO
11 - VDD_3.3V
12 - GD32F303[44] - BOOT0

III. Board Connectors

Z1 : USB-A
01 - VDD_5.0V
02 - F1C200S[68] - DM
03 - F1C200S[69] - DP
04 - GND

Z2 : AUDIO JACK
01 - MIC
02 - HPCOM
03 - HPR
04 - HPL

Z3 : micro SD
01 - SSP_DAT2 - GW1NRLV9[33]
02 - SSP_DAT3 - GW1NRLV9[34]
03 - SSP_CMD - GW1NRLV9[35]
04 - VDD_3.3V
05 - SSP_SCK - GW1NRLV9[36]
06 - GND
07 - SSP_DAT0 - GW1NRLV9[37]
08 - SSP_DAT1 - GW1NRLV9[38]
09 - NC

Z4 : USB Type-C
01 - GND
02 - VBUS
03 - NC
04 - NC
05 - DP - GD32F103[24]-PA12-USBDP
06 - DM - GD32F103[23]-PA11-USBDM
07 - DP - GD32F103[24]-PA12-USBDP
08 - DM - GD32F103[23]-PA11-USBDM
09 - NC
10 - NC
11 - VBUS
12 - GND

Z5 : micro USB
01 - VBUS
02 - DM - GD32F303[32]-PA11-USBDM
03 - DP - GD32F303[33]-PA12-USBDP
04 - ID - GND
05 - GND

CAM : CAMERA (bottom side of the board)
01 - NC
02 - GND
03 - F1C200S[06] - PD2/I2C0_SDA - Y2[03]
04 - VDD_2.8V
05 - F1C200S[18] - PD12/I2C0_SCL - Y2[15]
06 - C101-R46 - DCMI_RST
07 - F1C200S[48] - CSI_VS - Y2[42]
08 - R47 - DCMI_PDN
09 - F1C200S[49] - CSI_HS - Y2[44]
10 - VDD_1.2V
11 - VDD_2.8V
12 - F1C200S[39] - CSI_D7 - Y2[28]
13 - F1C200S[38] - CSI_CLKO - Y2[26]
14 - F1C200S[40] - CSI_D6 - Y2[30]
15 - GND
16 - F1C200S[41] - CSI_D5 - Y2[32]
17 - F1C200S[47] - CSI_PCLK - Y2[40]
18 - F1C200S[42] - CSI_D4 - Y2[34]
19 - F1C200S[46] - CSI_D0 - Y2[38]
20 - F1C200S[43] - CSI_D3 - Y2[35]
21 - F1C200S[45] - CSI_D1 - Y2[37]
22 - F1C200S[44] - CSI_D2 - Y2[36]
23 - NC
24 - NC

LCD : DISPLAY

01 - V_LED_M - PT4103_U32[03] (bottom)
02 - V_LED_P - PT4103_U32[05] (bottom)
03 - GND
04 - VDD_3.3V
05 - GND
06 - GND
07 - LCD_D2 - F1C200S[06]
08 - LCD_D3 - F1C200S[07]
09 - LCD_D4 - F1C200S[08]
10 - LCD_D5 - F1C200S[09]
11 - LCD_D6 - F1C200S[10]
12 - LCD_D7 - F1C200S[11]
13 - GND
14 - GND
15 - LCD_D10 - F1C200S[12]
16 - LCD_D11 - F1C200S[13]
17 - LCD_D12 - F1C200S[14]
18 - LCD_D13 - F1C200S[15]
19 - LCD_D14 - F1C200S[16]
20 - LCD_D15 - F1C200S[17]
21 - GND
22 - GND
23 - LCD_D18 - F1C200S[18]
24 - LCD_D19 - F1C200S[19]
25 - LCD_D20 - F1C200S[21]
26 - LCD_D21 - F1C200S[23]
27 - LCD_D22 - F1C200S[24]
28 - LCD_D23 - F1C200S[25]
29 - GND
30 - LCD_CLK - F1C200S[26]
31 - VDD_3.3V
32 - LCD_HS - F1C200S[28]
33 - LCD_VS - F1C200S[29]
34 - LCD_DE - F1C200S[27]
35 - NC
36 - GND
37 - XR - NS2009_U10[02]
38 - YB - NS2009_U10[03]
39 - XL - NS2009_U10[04]
40 - YT - NS2009_U10[05]