

[illegible]

ESP-WROOM-32 MODULE

U3

38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

GPIO0/ADC2_CH1/TOUCH1/RTC_GPIO11/CLK_OUT1/EMAC_TX_CLK
GPIO1/U0TXD0/CLK_OUT3/EMAC_RXD2
GPIO2/ADC2_CH2/TOUCH2/RTC_GPIO12/HSPWP/H52_DATA0/SD_DATA0
GPIO3/U0RXD0/CLK_OUT2
GPIO4/ADC2_CH0/TOUCH0/RTC_GPIO10/HSPHD/H52_DATA1/SD_DATA1/EMAC_TX_ER
GPIO5/VSPIC0/H51_DATA6/EMAC_RX_CLK
GPIO6/SD_CLK/SPICLK/H51_CLK/U1CTS
GPIO7/SD_DATA0/SPIQ/H51_DATA0/U2RTS
GPIO8/SD_DATA1/SPIO/H51_DATA1/U2CTS
GPIO9/SD_DATA2/SPiHD/H51_DATA2/U1RXD
GPIO10/SD_DATA3/SPiWP/H51_DATA3/U1TXD
GPIO11/SD_CMD/SPIC0/H51_CMD/U1RTS
GPIO12/HSPHD/H52_DATA2/SD_DATA2/EMAC_TX_CLK
GPIO13/ADC2_CH4/TOUCH4/RTC_GPIO14/MTXC/H51_DATA3/SD_DATA3/EMAC_RX_ER
GPIO14/ADC2_CH6/TOUCH6/RTC_GPIO16/MTMS/HSPICLK/H52_CLK/SD_CLK/EMAC_TXD2
GPIO15/ADC2_CH3/TOUCH3/MTD0/HSPIC0/RTC_GPIO13/H52_CMD/SD_CMD/EMAC_RXD3
GPIO16/H51_DATA4/U2RXD0/EMAC_CLK_OUT
GPIO17/H51_DATA5/U2TXD0/EMAC_CLK_OUT_A0
GPIO18/VSPICLK/H51_DATA7
GPIO19/VSPiQ/U0CTS/EMAC_TXD0
GPIO21/VSPiHD/EMAC_TX_EN
GPIO22/VSPiWP/U0RTS/EMAC_TXD1
GPIO23/VSPiD/H51_STROBE
GPIO25/DAC_1/ADC2_CH8/RTC_GPIO6/EMAC_RXD0
GPIO26/DAC_2/ADC2_CH9/RTC_GPIO7/EMAC_RXD1
GPIO27/ADC2_CH7/TOUCH7/RTC_GPIO17/EMAC_RX_DV
GPIO32/XTAL_32K_P/ADCL_CH4/TOUCH9/RTC_GPIO9
GPIO33/XTAL_32K_N/ADCL_CH5/TOUCH8/RTC_GPIO8
GPIO34/ADCL_CH6/RTC_GPIO4
GPIO35/ADCL_CH7/RTC_GPIO5
GPIO36/SENSOR_VP/ADCL_H/ADCL_CH0/RTC_GPIO10
GPIO39/SENSOR_VN/ADCL_CH3/ADC_H/RTC_GPIO3

U2

25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

GPIO0/XTAL1/CLKIN
GPIO1/U0TXD0
GPIO2/H52_DATA0
GPIO3/U0RXD0
GPIO4/U1TXD0
GPIO5/CAN_TX
GPIO6/SD_CLK
GPIO7/SD_A0
GPIO8/SD_DATA1
GPIO9/SD_DATA2
GPIO10/SD_DATA3
GPIO11/SD_CMD
GPIO12/I2C_Transmit
GPIO13/I2C_SDA
GPIO14/H52_CLK
GPIO15/H52_CMD
GPIO16/I2C_SCL
GPIO17/5V1
GPIO18/ADIO(RMII)
GPIO19/EMAC_TXD0(RMII)
GPIO21/EMAC_TX_EN(RMII)
GPIO22/EMAC_TXD1(RMII)
GPIO23/ADC(RMII)
GPIO25/EMAC_RXD0(RMII)
GPIO26/EMAC_RXD1(RMII)
GPIO27/EMAC_RX_CS_DV
GPIO32/RE14
GPIO33/RE12
GPIO34/BU1A
GPIO35/CAN_RX
GPIO36/U0RXD0
GPIO39/IR_RECEIVE

ESP-WROOM-32 MODULE

U3

38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

GPIO0/ADC2_CH1/TOUCH1/RTC_GPIO11/CLK_OUT1/EMAC_TX_CLK
GPIO1/U0TXD0/CLK_OUT3/EMAC_RXD2
GPIO2/ADC2_CH2/TOUCH2/RTC_GPIO12/HSPWP/H52_DATA0/SD_DATA0
GPIO3/U0RXD0/CLK_OUT2
GPIO4/ADC2_CH0/TOUCH0/RTC_GPIO10/HSPHD/H52_DATA1/SD_DATA1/EMAC_TX_ER
GPIO5/VSPIC0/H51_DATA6/EMAC_RX_CLK
GPIO6/SD_CLK/SPICLK/H51_CLK/U1CTS
GPIO7/SD_DATA0/SPIQ/H51_DATA0/U2RTS
GPIO8/SD_DATA1/SPIO/H51_DATA1/U2CTS
GPIO9/SD_DATA2/SPiHD/H51_DATA2/U1RXD
GPIO10/SD_DATA3/SPiWP/H51_DATA3/U1TXD
GPIO11/SD_CMD/SPIC0/H51_CMD/U1RTS
GPIO12/HSPHD/H52_DATA2/SD_DATA2/EMAC_TX_CLK
GPIO13/ADC2_CH4/TOUCH4/RTC_GPIO14/MTXC/H51_DATA3/SD_DATA3/EMAC_RX_ER
GPIO14/ADC2_CH6/TOUCH6/RTC_GPIO16/MTMS/HSPICLK/H52_CLK/SD_CLK/EMAC_TXD2
GPIO15/ADC2_CH3/TOUCH3/MTD0/HSPIC0/RTC_GPIO13/H52_CMD/SD_CMD/EMAC_RXD3
GPIO16/H51_DATA4/U2RXD0/EMAC_CLK_OUT
GPIO17/H51_DATA5/U2TXD0/EMAC_CLK_OUT_A0
GPIO18/VSPICLK/H51_DATA7
GPIO19/VSPiQ/U0CTS/EMAC_TXD0
GPIO21/VSPiHD/EMAC_TX_EN
GPIO22/VSPiWP/U0RTS/EMAC_TXD1
GPIO23/VSPiD/H51_STROBE
GPIO25/DAC_1/ADC2_CH8/RTC_GPIO6/EMAC_RXD0
GPIO26/DAC_2/ADC2_CH9/RTC_GPIO7/EMAC_RXD1
GPIO27/ADC2_CH7/TOUCH7/RTC_GPIO17/EMAC_RX_DV
GPIO32/XTAL_32K_P/ADCL_CH4/TOUCH9/RTC_GPIO9
GPIO33/XTAL_32K_N/ADCL_CH5/TOUCH8/RTC_GPIO8
GPIO34/ADCL_CH6/RTC_GPIO4
GPIO35/ADCL_CH7/RTC_GPIO5
GPIO36/SENSOR_VP/ADCL_H/ADCL_CH0/RTC_GPIO10
GPIO39/SENSOR_VN/ADCL_CH3/ADC_H/RTC_GPIO3

U2

25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

GPIO0/XTAL1/CLKIN
GPIO1/U0TXD0
GPIO2/H52_DATA0
GPIO3/U0RXD0
GPIO4/U1TXD0
GPIO5/CAN_TX
GPIO6/SD_CLK
GPIO7/SD_A0
GPIO8/SD_DATA1
GPIO9/SD_DATA2
GPIO10/SD_DATA3
GPIO11/SD_CMD
GPIO12/I2C_Transmit
GPIO13/I2C_SDA
GPIO14/H52_CLK
GPIO15/H52_CMD
GPIO16/I2C_SCL
GPIO17/5V1
GPIO18/ADIO(RMII)
GPIO19/EMAC_TXD0(RMII)
GPIO21/EMAC_TX_EN(RMII)
GPIO22/EMAC_TXD1(RMII)
GPIO23/ADC(RMII)
GPIO25/EMAC_RXD0(RMII)
GPIO26/EMAC_RXD1(RMII)
GPIO27/EMAC_RX_CS_DV
GPIO32/RE14
GPIO33/RE12
GPIO34/BU1A
GPIO35/CAN_RX
GPIO36/U0RXD0
GPIO39/IR_RECEIVE

ESP-WROOM-32

Extension

		EXT1		
GPIO0/XTAL1/CLKIN	1	2	GPIO0/I0TXD0	
GPIO2/HS2_DATA0	3	4	GPIO3/I0RXD0	
GPIO4/I1TXD	5	6	GPIO5/CAN-TX	
GPIO6/SD_CLK	7	8	GPIO7/SD_DATA0	
GPIO8/SD_DATA1	9	10	GPIO9/SD_DATA2	
GPIO10/SD_DATA3	11	12	GPIO14/SD_CMD	
GPIO12/IR_Transmit	13	14	GPIO12/IR-CS	
GPIO14/HS2_CLK	15	16	GPIO15/HS2_CMD	
GPIO16/I2C-SCL	17	18	GPIO17/SPL_CS	
GPIO18/MIO0(RMI0)	19	20	GPIO19/EMAC_TXD0(RMI1)	
GPIO21/EMAC_TX_EN(RMI1)	21	22	GPIO22/EMAC_TXD1(RMI1)	
GPIO23/MIC0(RMI1)	23	24	GPIO25/EMAC_RXD0(RMI1)	
GPIO26/EMAC_RXD1(RMI1)	25	26	GPIO27/EMAC_RX_CS0_VP	
GPIO32/REL1	27	28	GPIO33/REL2	
GPIO34/BU1	29	30	GPIO35/CAN-RX	
GPIO36/I1RXD	31	32	GPIO39/IR_RECEIVE	
ESP_EN	33	34		
	35	36		
	37	38		
	39	40		

GND

+3.3V

+5V

GND

+3.3V

+5V

NA(HN2x20)

Ethernet

The diagram illustrates the Ethernet interface for the LAN8710A-EZC (QFN32) connected to a LAN91C03 (LPJ4013EDNL) via an RJ45 connector. The LAN91C03 is shown on the left, the LAN8710A-EZC in the center, and the LAN91C03 on the right. The LAN8710A-EZC is connected to the LAN91C03 via an RJ45 connector. The LAN8710A-EZC is also connected to a crystal oscillator circuit for the LAN8710A-EZC. The diagram includes power supply connections for +3.3V and GND, and various signal lines for TX, RX, and control signals. A note indicates the PHY is set up as follows: MODE: All capabilities (10/100Base), Auto-negotiation enabled, -RMII Configuration, -SMI address: 0x00. The diagram also shows a crystal oscillator circuit for the LAN8710A-EZC.

LAN91C03 (LPJ4013EDNL) - RJ45 SIDE

LAN8710A-EZC (QFN32)

LAN91C03 (LPJ4013EDNL) - RJ45 SIDE

Power Supply: +3.3V, GND

Signal Lines: TX0, TX1, TX2, TX3, TXEN, TXCLK, TXN, TXD, TXD1, TXD2, TXD3, TXD4, TXD5, TXD6, TXD7, TXD8, TXD9, TXD10, TXD11, TXD12, TXD13, TXD14, TXD15, TXD16, TXD17, TXD18, TXD19, TXD20, TXD21, TXD22, TXD23, TXD24, TXD25, TXD26, TXD27, TXD28, TXD29, TXD30, TXD31, TXD32, TXD33, TXD34, TXD35, TXD36, TXD37, TXD38, TXD39, TXD40, TXD41, TXD42, TXD43, TXD44, TXD45, TXD46, TXD47, TXD48, TXD49, TXD50, TXD51, TXD52, TXD53, TXD54, TXD55, TXD56, TXD57, TXD58, TXD59, TXD60, TXD61, TXD62, TXD63, TXD64, TXD65, TXD66, TXD67, TXD68, TXD69, TXD70, TXD71, TXD72, TXD73, TXD74, TXD75, TXD76, TXD77, TXD78, TXD79, TXD80, TXD81, TXD82, TXD83, TXD84, TXD85, TXD86, TXD87, TXD88, TXD89, TXD90, TXD91, TXD92, TXD93, TXD94, TXD95, TXD96, TXD97, TXD98, TXD99, TXD100, TXD101, TXD102, TXD103, TXD104, TXD105, TXD106, TXD107, TXD108, TXD109, TXD110, TXD111, TXD112, TXD113, TXD114, TXD115, TXD116, TXD117, TXD118, TXD119, TXD120, TXD121, TXD122, TXD123, TXD124, TXD125, TXD126, TXD127, TXD128, TXD129, TXD130, TXD131, TXD132, TXD133, TXD134, TXD135, TXD136, TXD137, TXD138, TXD139, TXD140, TXD141, TXD142, TXD143, TXD144, TXD145, TXD146, TXD147, TXD148, TXD149, TXD150, TXD151, TXD152, TXD153, TXD154, TXD155, TXD156, TXD157, TXD158, TXD159, TXD160, TXD161, TXD162, TXD163, TXD164, TXD165, TXD166, TXD167, TXD168, TXD169, TXD170, TXD171, TXD172, TXD173, TXD174, TXD175, TXD176, TXD177, TXD178, TXD179, TXD180, TXD181, TXD182, TXD183, TXD184, TXD185, TXD186, TXD187, TXD188, TXD189, TXD190, TXD191, TXD192, TXD193, TXD194, TXD195, TXD196, TXD197, TXD198, TXD199, TXD200, TXD201, TXD202, TXD203, TXD204, TXD205, TXD206, TXD207, TXD208, TXD209, TXD210, TXD211, TXD212, TXD213, TXD214, TXD215, TXD216, TXD217, TXD218, TXD219, TXD220, TXD221, TXD222, TXD223, TXD224, TXD225, TXD226, TXD227, TXD228, TXD229, TXD230, TXD231, TXD232, TXD233, TXD234, TXD235, TXD236, TXD237, TXD238, TXD239, TXD240, TXD241, TXD242, TXD243, TXD244, TXD245, TXD246, TXD247, TXD248, TXD249, TXD250, TXD251, TXD252, TXD253, TXD254, TXD255, TXD256, TXD257, TXD258, TXD259, TXD260, TXD261, TXD262, TXD263, TXD264, TXD265, TXD266, TXD267, TXD268, TXD269, TXD270, TXD271, TXD272, TXD273, TXD274, TXD275, TXD276, TXD277, TXD278, TXD279, TXD280, TXD281, TXD282, TXD283, TXD284, TXD285, TXD286, TXD287, TXD288, TXD289, TXD290, TXD291, TXD292, TXD293, TXD294, TXD295, TXD296, TXD297, TXD298, TXD299, TXD300, TXD301, TXD302, TXD303, TXD304, TXD305, TXD306, TXD307, TXD308, TXD309, TXD310, TXD311, TXD312, TXD313, TXD314, TXD315, TXD316, TXD317, TXD318, TXD319, TXD320, TXD321, TXD322, TXD323, TXD324, TXD325, TXD326, TXD327, TXD328, TXD329, TXD330, TXD331, TXD332, TXD333, TXD334, TXD335, TXD336, TXD337, TXD338, TXD339, TXD340, TXD341, TXD342, TXD343, TXD344, TXD345, TXD346, TXD347, TXD348, TXD349, TXD350, TXD351, TXD352, TXD353, TXD354, TXD355, TXD356, TXD357, TXD358, TXD359, TXD360, TXD361, TXD362, TXD363, TXD364, TXD365, TXD366, TXD367, TXD368, TXD369, TXD370, TXD371, TXD372, TXD373, TXD374, TXD375, TXD376, TXD377, TXD378, TXD379, TXD380, TXD381, TXD382, TXD383, TXD384, TXD385, TXD386, TXD387, TXD388, TXD389, TXD390, TXD391, TXD392, TXD393, TXD394, TXD395, TXD396, TXD397, TXD398, TXD399, TXD400, TXD401, TXD402, TXD403, TXD404, TXD405, TXD406, TXD407, TXD408, TXD409, TXD410, TXD411, TXD412, TXD413, TXD414, TXD415, TXD416, TXD417, TXD418, TXD419, TXD420, TXD421, TXD422, TXD423, TXD424, TXD425, TXD426, TXD427, TXD428, TXD429, TXD430, TXD431, TXD432, TXD433, TXD434, TXD435, TXD436, TXD437, TXD438, TXD439, TXD440, TXD441, TXD442, TXD443, TXD444, TXD445, TXD446, TXD447, TXD448, TXD449, TXD450, TXD451, TXD452, TXD453, TXD454, TXD455, TXD456, TXD457, TXD458, TXD459, TXD460, TXD461, TXD462, TXD463, TXD464, TXD465, TXD466, TXD467, TXD468, TXD469, TXD470, TXD471, TXD472, TXD473, TXD474, TXD475, TXD476, TXD477, TXD478, TXD479, TXD480, TXD481, TXD482, TXD483, TXD484, TXD485, TXD486, TXD487, TXD488, TXD489, TXD490, TXD491, TXD492, TXD493, TXD494, TXD495, TXD496, TXD497, TXD498, TXD499, TXD500, TXD501, TXD502, TXD503, TXD504, TXD505, TXD506, TXD507, TXD508, TXD509, TXD510, TXD511, TXD512, TXD513, TXD514, TXD515, TXD516, TXD517, TXD518, TXD519, TXD520, TXD521, TXD522, TXD523, TXD524, TXD525, TXD526, TXD527, TXD528, TXD529, TXD530, TXD531, TXD532, TXD533, TXD534, TXD535, TXD536, TXD537, TXD538, TXD539, TXD540, TXD541, TXD542, TXD543, TXD544, TXD545, TXD546, TXD547, TXD548, TXD549, TXD550, TXD551, TXD552, TXD553, TXD554, TXD555, TXD556, TXD557, TXD558, TXD559, TXD560, TXD561, TXD562, TXD563, TXD564, TXD565, TXD566, TXD567, TXD568, TXD569, TXD570, TXD571, TXD572, TXD573, TXD574, TXD575, TXD576, TXD577, TXD578, TXD579, TXD580, TXD581, TXD582, TXD583, TXD584, TXD585, TXD586, TXD587, TXD588, TXD589, TXD590, TXD591, TXD592, TXD593, TXD594, TXD595, TXD596, TXD597, TXD598, TXD599, TXD600, TXD601, TXD602, TXD603, TXD6

Infrared Communication

The diagram illustrates an Infrared Communication system with two main sections: a transmitter and a receiver.

Transmitter Section (Top):

- A **GPIO12/IR_Transmit** signal line is connected to the anode of an **LED3** (LED/IR333-A/5mm).
- The anode is also connected to a **+3.3V** supply through a resistor labeled **R53** with a value of **6.8K/R1206**.
- The cathode of the LED is connected to ground (**GND**).
- The signal line continues through a resistor **R55** (14K/80603) to a pin labeled **14/R8603**.
- Another resistor **R56** (10K/80603) connects the signal line to ground (**GND**).
- The signal line is also connected to a component labeled **Q7** (BC817) and a pin labeled **14/R8603**.
- The component **Q7** is connected to ground (**GND**).

Receiver Section (Bottom):

- The **GPIO39/IR_RECEIVE** signal line is connected to the **Vout** pin of a component labeled **U7** (RPM7236-HB).
- The **VCC** pin of **U7** is connected to a **+3.3V** supply.
- The **GND** pin of **U7** is connected to ground (**GND**).
- A capacitor **C27** (100nF/20V/205/15K/C0603) is connected between the **VCC** and **GND** pins of **U7**.

[illegible][illegible]

Buttons

The diagram shows two buttons, BUT1 and RST1, connected to an ESP8266. BUT1 is connected to GND, GPIO34, and +3.3V through resistors R14 (220Ω), R45 (10k), and R46 (NA). RST1 is connected to GND and ESP_EN through a 2.2k resistor. The diagram is titled "Buttons" in blue.

[illegible]

CAN Driver

The diagram illustrates the wiring for a CAN driver circuit. Key components and connections include:

- Power Supply:** A 5V supply is connected to the circuit. A 5.0V/3.3V1 voltage divider (resistors R48 and R49) is used to provide a 3.3V supply. A 3.3V supply is also connected to the circuit.
- Resistors:**
 - R48: 10k/0603
 - R49: 10k/0603
 - R47: 120Ω/R1206
 - R50: 330Ω/R0603
 - R51: 330Ω/R0603
 - R52: 680Ω/R0603
- Capacitors:**
 - C25: 100nF
 - C26: 10nF/2.3V/0603
- IC:** U6, MCP2551-1/SN(SOIC-8_150mil)
- Connectors:** CAN1 (TB3-3.5mm), GPIO5/CAN-TX, GPIO35/CAN-RX.
- Wiring:**
 - The 5V supply is connected to the CANH pin of the CAN1 connector and the TxD pin of the IC.
 - The 3.3V supply is connected to the CANL pin of the CAN1 connector and the CANL VDD pin of the IC.
 - The CANH pin of the CAN1 connector is connected to the CANH pin of the IC.
 - The CANL pin of the CAN1 connector is connected to the CANL pin of the IC.
 - The CANH pin of the IC is connected to the GPIO5/CAN-TX pin.
 - The CANL pin of the IC is connected to the GPIO35/CAN-RX pin.
 - The IC is connected to ground at multiple points.
 - The IC is connected to a 100nF capacitor (C25) and a 10nF/2.3V/0603 capacitor (C26).

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