

开发板 24-RADAR-EVB 使用说明书 V 1.1

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1. 概述

24-RADAR-EVB 是云帆瑞达第一版针对毫米波雷达模组量身定做的 Demo Board，为了让用户能更加方便直接的体验雷达模组的性能，更加为了让用户能快速的接入无线通用模组，雷达模组和通讯模组都支持可插拔的模式，用户可自由适配搭建属于自己的服务平台。还配有 MCU 板子对接口，用户可以使用自己的 MCU 分别和雷达和无线模组进行通讯。

24-RADAR-EVB 作用：

- **厂商嵌入式工程师：**使用 24-RADAR-EVB 进行嵌入式程序前期开发和调试
- **创客：**使用 24-RADAR-EVB 实现硬件产品 demo，配合通讯模组实现项目开发
- **技术爱好者：**使用 24-RADAR-EVB 快速体验雷达原理、输出参数和接口协议

2. 硬件组成

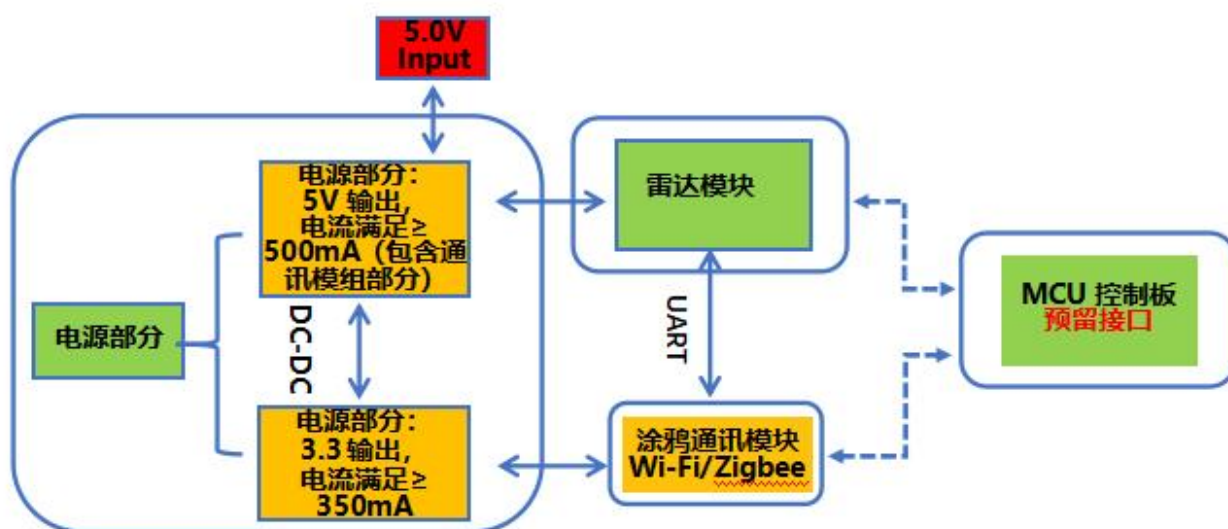
供电输入方式：Micro USB - DC 5.0V $\geq 500\text{mA}$

输出电压：DC 5.0V 、3.3V

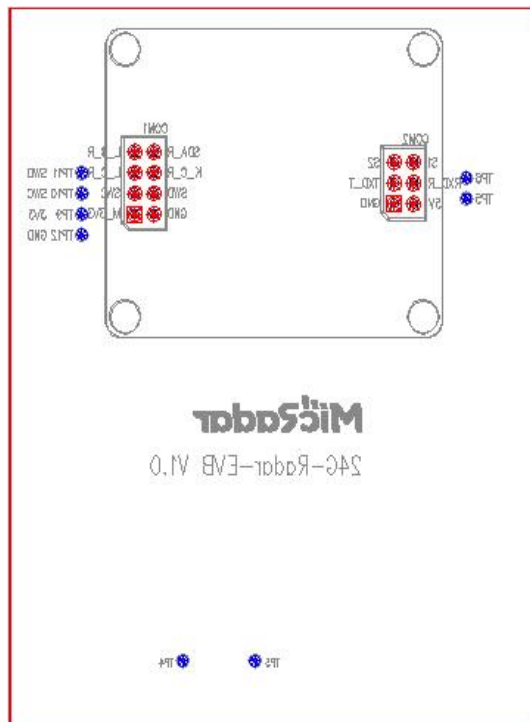
TTL 串口：可支持选配作为调试口

功能板接口：雷达模组、无线模组通讯板、MCU 板、光感板

其他：轻触按键 1 个，指示灯 4 个



The image shows a detailed PCB layout for the STM32F407VGT6 board. The board is rectangular with a red border. Dimensions are indicated: 70.000mm on the left and 55.000mm at the bottom. The layout includes various components labeled with callouts: J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100, J101, J102, J103, J104, J105, J106, J107, J108, J109, J110, J111, J112, J113, J114, J115, J116, J117, J118, J119, J120, J121, J122, J123, J124, J125, J126, J127, J128, J129, J130, J131, J132, J133, J134, J135, J136, J137, J138, J139, J140, J141, J142, J143, J144, J145, J146, J147, J148, J149, J150, J151, J152, J153, J154, J155, J156, J157, J158, J159, J160, J161, J162, J163, J164, J165, J166, J167, J168, J169, J170, J171, J172, J173, J174, J175, J176, J177, J178, J179, J180, J181, J182, J183, J184, J185, J186, J187, J188, J189, J190, J191, J192, J193, J194, J195, J196, J197, J198, J199, J200, J201, J202, J203, J204, J205, J206, J207, J208, J209, J210, J211, J212, J213, J214, J215, J216, J217, J218, J219, J220, J221, J222, J223, J224, J225, J226, J227, J228, J229, J230, J231, J232, J233, J234, J235, J236, J237, J238, J239, J240, J241, J242, J243, J244, J245, J246, J247, J248, J249, J250, J251, J252, J253, J254, J255, J256, J257, J258, J259, J260, J261, J262, J263, J264, J265, J266, J267, J268, J269, J270, J271, J272, J273, J274, J275, J276, J277, J278, J279, J280, J281, J282, J283, J284, J285, J286, J287, J288, J289, J290, J291, J292, J293, J294, J295, J296, J297, J298, J299, J300, J301, J302, J303, J304, J305, J306, J307, J308, J309, J310, J311, J312, J313, J314, J315, J316, J317, J318, J319, J320, J321, J322, J323, J324, J325, J326, J327, J328, J329, J330, J331, J332, J333, J334, J335, J336, J337, J338, J339, J340, J341, J342, J343, J344, J345, J346, J347, J348, J349, J350, J351, J352, J353, J354, J355, J356, J357, J358, J359, J360, J361, J362, J363, J364, J365, J366, J367, J368, J369, J370, J371, J372, J373, J374, J375, J376, J377, J378, J379, J380, J381, J382, J383, J384, J385, J386, J387, J388, J389, J390, J391, J392, J393, J394, J395, J396, J397, J398, J399, J400, J401, J402, J403, J404, J405, J406, J407, J408, J409, J410, J411, J412, J413, J414, J415, J416, J417, J418, J419, J420, J421, J422, J423, J424, J425, J426, J427, J428, J429, J430, J431, J432, J433, J434, J435, J436, J437, J438, J439, J440, J441, J442, J443, J444, J445, J446, J447, J448, J449, J450, J451, J452, J453, J454, J455, J456, J457, J458, J459, J460, J461, J462, J463, J464, J465, J466, J467, J468, J469, J470, J471, J472, J473, J474, J475, J476, J477, J478, J479, J480, J481, J482, J483, J484, J485, J486, J487, J488, J489, J490, J491, J492, J493, J494, J495, J496, J497, J498, J499, J500, J501, J502, J503, J504, J505, J506, J507, J508, J509, J510, J511, J512, J513, J514, J515, J516, J517, J518, J519, J520, J521, J522, J523, J524, J525, J526, J527, J528, J529, J530, J531, J532, J533, J534, J535, J536, J537, J538, J539, J540, J541, J542, J543, J544, J545, J546, J547, J548, J549, J550, J551, J552, J553, J554, J555, J556, J557, J558, J559, J560, J561, J562, J563, J564, J565, J566, J567, J568, J569, J570, J571, J572, J573, J574, J575, J576, J577, J578, J579, J580, J581, J582, J583, J584, J585, J586, J587, J588, J589, J590, J591, J592, J593, J594, J595, J596, J597, J598, J599, J600, J601, J602, J603, J604, J605, J606, J607, J608, J609, J610, J611, J612, J613, J614, J615, J616, J617, J618, J619, J620, J621, J622, J623, J624, J625, J626, J627, J628, J629, J630, J631, J632, J633, J634, J635, J636, J637, J638, J639, J640, J641, J642, J643, J644, J645, J646, J647, J648, J649, J650, J651, J652, J653, J654, J655, J656, J657, J658, J659, J660, J661, J662, J663, J664, J665, J666, J667, J668, J669, J670, J671, J672, J673, J674, J675, J676, J677, J678, J679, J680, J681, J682, J683, J684, J685, J686, J687, J688, J689, J690, J691, J692, J693, J694, J695, J696, J697, J698, J699, J700, J701, J702, J703, J704, J705, J706, J707, J708, J709, J710, J711, J712, J713, J714, J715, J716, J717, J718, J719, J720, J721, J722, J723, J724, J725, J726, J727, J728, J729, J730, J731, J732, J733, J734, J735, J736, J737, J738, J739, J740, J741, J742, J743, J744, J745, J746, J747, J748, J749, J750, J751, J752, J753, J754, J755, J756, J757, J758, J759, J760, J761, J762, J763, J764, J765, J766, J767, J768, J769, J770, J771, J772, J773, J774, J775, J776, J777, J778, J779, J780, J781, J782, J783, J784, J785, J786, J787, J788, J789, J790, J791, J792, J793, J794, J795, J796, J797, J798, J799, J800, J801, J802, J803, J804, J805, J806, J807, J808, J809, J810, J811, J812, J813, J814, J815, J816, J817, J818, J819, J820, J821, J82

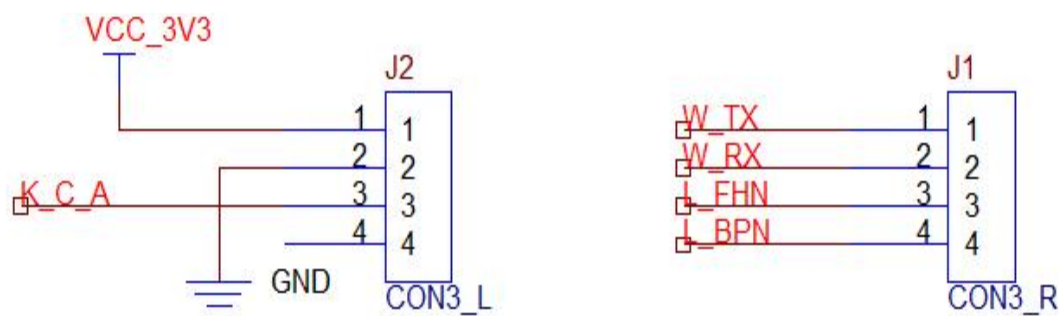


各个接口功能介绍如下：

- 1、通讯板接口：2.0mm 单排排母，分别串口接口对接 MCU 接口和雷达接口
- 2、MCU 预留接口：2.0mm 单排排母，分别串口对接通讯板和雷达接口
- 3、雷达接口：2.0mm 排母，标准接口
- 4、光感接口：BH1710
- 5、JP5、JP6、JP7、JP8、JP9：跳转插针，接口选择
- 6、状态指示灯：从左到右依次为蓝灯、红灯、红灯、绿灯
- 7、按键：配网触发或者用户自定义
- 8、Micro USB：5.0V $\geq$ 500mA 供电

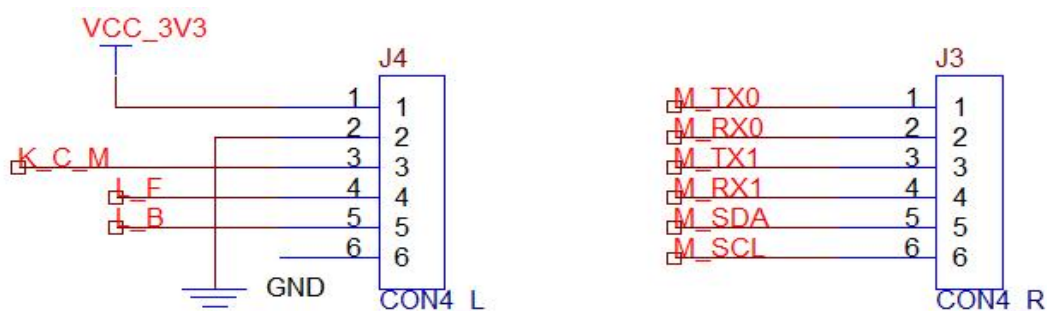
5. 原理图电路指导

A、通讯板接口



如板子丝印一致，W_TX、W_RX 为连接模组串口，L_FHN、L_BPN 分别为连接模组 IO。

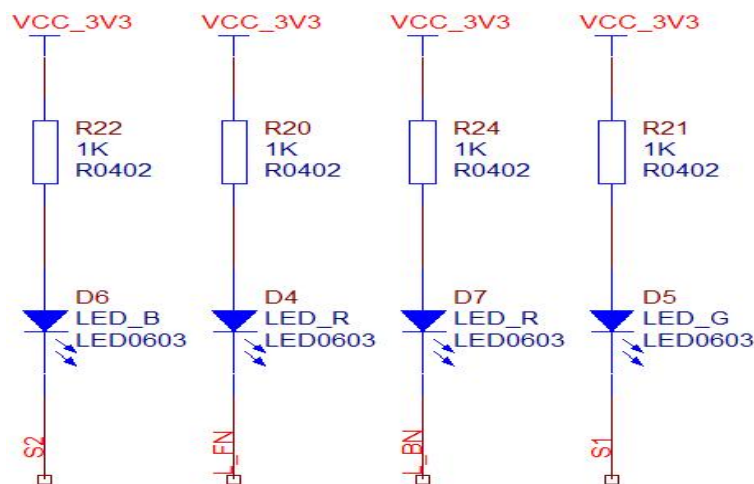
B、MCU 接口



如板子丝印一致，M_TX0、M_RX0 为 MCU 串口 1，M_TX1、M_RX1 为 MCU 串口 2，

M_SDA、M_SCL 为光感驱动接口（IIC）

C、指示灯定义



如板子正面，从左到右，依次为静止活跃、预留、预留、有人无人

6. 开发接口选配

A、雷达模组与涂鸦通用模组交互

连接选配：

JP7-K_CN 接 K_C_R 按键由雷达模组 IO 控制，长按 5s 进入快速配网模式

JP8-L_BN 接 L_B 配网指示灯由雷达模组 IO 控制，配网模式快闪

JP5-W_T 接 W_TX W_R 接 W_RX 涂鸦模组串口接到一端

JP6-TXD_TT 接 TXD_T RXD_RR 接 RXD_R 雷达模组串口接口接到一端

B、MCU 分别和通讯模组、雷达模组交互

连接选配：

JP7-K_C_M 接 K_CN 按键由 MCU 的 IO 控制

JP8- L_F 接 L_FN 配网指示灯由 MCU 的 IO 控制

JP6- M_TX0 接 TXD_T M_RX0 接 RXD_R MCU 串口 0 和雷达模组交互

JP5- M_TX1 接 W_TX M_RX1 接 W_RX MCU 的串口 1 和通讯模组交互

C、更多自由选配，用户可参考原理图搭建

7. 历史版本更新说明

Revision	Release Data	Summary	Author
V1.0_0728	2021/07/28	初稿	OF_Frank
V1.1_0606	2022/6/6	调整文档的封面	Mark