MCU

U1 — MCU-GPCE500A-C-DICE

T6 T7
T5 V3.3 C18 0.1uF

Left pins:
- 20 — IOB9/Feedback Output1
- TE — 21 — IOB10/EX2/SPI2 SIO2
- IOB11 — 22 — IOB11/EX1/Feedback Input1/SPI2 SIO3
- LCD_CS — 23 — IOB12/SPI2_CS
- SPI2_CLK — 24 — IOB13/SPI2_CK
- SPI2_MISO — 25 — IOB14/UARD_RX/UARD_RXD
- SPI2_MOSI — 26 — IOB15/SPI2_TX/UARD_TXD — T3
- 27 — IOA0/PWM/SPI2_CS
- 28 — IOA1/PWM/SPI2_CK — T1
- IOA3 — 29 — IOA2/PWM/SPI2_RX — T2
- 30 — IOA3/PWM/SPI2_TX
- 31 — IOA4/PWM/IROUT
- LCD_RS — 32 — IOA5/PWM/SPI2 SIO2
- LCD_RES — 33 — IOA6/PWM/Crystal 32K
- 34 — NC

Top pins: IOB8(19) IOB7(18) IOB6(17) IOB5(16) IOB4(14) IOB3(13) IOB2(12) IOB1(11) IOB0(10) IOC0/ICE_SDA(9) IOC1/ICE_CLK(8) TEST(7) V5_REG(6) V5_REG(5) VSS_TRIM(4) VDD_TRIM(3)

Right pins:
- AVDD — 2
- AUDP — 1 — SP1 23mm 16R, 0.5W
- AUDN — 58
- AVSS — 57
- VREF — 56
- IOC7/SPI IO2 — 55 — SPI_WP
- IOC6/SPI RX — 54 — SPI_MISO
- IOC5/SPI CS — 53 — SPI_CS
- IOC4/SPI TX — 52 — SPI_MOSI
- IOC3/SPI CK — 51 — SPI_SCK — R5 470R
- IOC2/SPI IO3 — 50 — SPI_HOLD — C7 NC
- NC — 0

R4 0R — Vin
C1 104   C2 22uF

Bottom pins: IOA7/CPMADC INN4(35) IOA8/PWM/CPMADC INN3(36) IOA9/CPMADC INN2(37) IOA10/SDA/CPMADC INN1(38) IOA11/SCK/CPMADC INN0(39) IOA12/CPMADC INP(40) IOA13/CPMADC PGAO(41) IOA14/CPMADC PGAI(42) IOA15/CPMADC PGA_VM(43) V50_REG(44) V5_CMP(45) VSS_CPM(46) VSS(47) V3_REG(48) NC(49)

IOA7 IOA8 IOA9 IOA11 C20 470P IOA14
C5 22uF C6 104 V3.0
V3.3 C3 22uF C4 104
R3 0R

J1
1 — V3.0
2 — ICE_CLK
3 — ICE_DAT
4
Flash Programming
Only for development

LCD

TFT LCD
160X128
TFT LCD 1.77"
LCD1

LCD pins: AO/RS(1) VDD(2) GND(3) VDD(4) CS(5) SDA(6) SCLK(7) RESET(8) LEDA(9) LEDK(10)
LCD_RS VO33 LCD_CS SPI2_MOSI SPI2_CLK LCD_RES TE

V3.3 Q2 8550 VO33
R12 47K C17 22uF
R13 1K
IOA3

VO33
C15 0.1uF

LED Backlight

V3.3
R8 30R R9 30R R10 30R R11 30R
D1 YBO-3014WLGI D2 YBO-3014WLGI D3 YBO-3014WLGI D4 YBO-3014WLGI

IOA11 R7 1K Q1 8050

Spring Switch

S1
IOB11
C16 103
SW-18015P-15
V3.3

Push Switch

S2
IOA8 V3.3
Push button

Touch Switch

S3
IOA9
S4
V3.3

SPI Flash

U3
V3.0
C14 1uF

- SPI_CS — 1 — CS# — VCC
- SPI_MISO — 2 — DO(IO1) — HOLD — 7 — SPI_HOLD
- SPI_WP — 3 — WP(IO2) — CLK — 6 — SPI_SCK
- 4 — GND — DI(IO0) — 5 — SPI_MOSI

XM25QH64D
BY25Q64E
WX25QH64D
XT25F64FS

2.4G

U4 PAN1026
E1 Ant-2.4G
L1 2.2NH C8 4P C22 1P C19 1P

- IOB0 — 1 — CSN — ANT — 8
- SPI2_CLK — 2 — SCK — GND — 7
- SPI2_MISO — 3 — DATA — XC2 — 6 — C23
- V3.3 — 4 — VDD — XC1 — 5
- R15 NC
- Y1 16MHZ
- C25 10uF C26 104 C24 NC

Power Supply

PTC1 0.5A Vin
C9 22uF C11 22uF C12 104
BX6205-3.3V(SOT23)
Vin Vout U2
GND
V3.3
C13 22uF C21 104

BT1 AAA*3
R1 510k1%
R2 430k1%
IOA7 C10 104
IOA14

BIT DogHouse Revise Sheet

Version	Revise Date	Description
V1.00	2024/3/14	Original
V1.01	2024/3/15	1.Add a motor driver on the rotor. 2.Use LiPo battery and charging circuit on the stator. 3.Move the IR pair to the rotor. 4.Add 4 extra switches in Stator.
		5.Bond the DEVICE pin for U3 N55P242 to GND and U2 N55P242 to VLed .
V1.02	2024/3/18	1.Add Net IOA8,IOB7,IOB11.
V1.03	2024/3/21	1.Changed the IR Retlector to YBO-ITR8307,add Q1.
V1.04	2024/3/24	LCD version
V1.05	2024/3/28	1.Add a transistor control LCD screen. 2.Changed the Spring switch IO to IOB11. 4.Changed the white LED to 5050.
V1.06	2024/4/10	1.Updated LCD model and IO PIN.
V1.07	2024/4/15	1.Add 12 PIN header(J2).
V1.08	2024/6/19	1.Changed the MCU to GPCE500A.
V1.09	2024/7/26	1.Change the LCD power control PIN to IOB9 and the voltage and voltage detection PIN to IOA7. 2.Add C20 470PF.
V1.12	2024/7/26	1.Change the LCD power control PIN to IOA3.
V1.13	2024/8/6	1.Change the LED to YBO-3014WLGI.
V1.14	2024/9/10	1.Del MCU PIN3 V3.3,PIN4 GND. 2.Change the LED Power to V3.3. 3. Add DC-DC
V1.15	2024/9/27	1. Removed DC-DC
V1.16	2024/10/10	1. Added 2.4G communication.
V1.17	2024/10/14	1. Del Power switch,del D5,R3.
V1.18	2024/10/22	1. Change the 2.4G communication connection SPI. 1. Change the 2Spring Switch connection V3.3.
V1.19	2024/10/23	1. Increase the PCB size by 3mm.
V1.20	2024/11/01	1.Move the LED position.
V1.21	2024/12/05	1.R15 change to NC.
V1.22	2024/12/25	1.PTC moved to B+. 2.Added B1,B2 bead options. 3.Spring switch change to SW-18015P-15. 4.L1 change to 2.2NH. 5.C19,C22 change to 1PF. 6.R5 change to 470R.
V1.23	2025/1/17	1.Del B1,B2. 2.LDO from BX6208-3.3 change to BX6205-3.3. 2. Change the PTC1 to 0.5A.
V1.24	2025/3/24	1.Remove C7/4.7PF/0603.

Spin Master DongGuan Technical Consultancy Servicing Co. Ltd

Drawing By: Dennis Deng	Date: 03/04/2025	Title: BIT_Dog House
Checked By:	Date:	Model NO: T.22909
Approved By:	Date:	Size: A4 — Sheet 2 of 2 — Revision V1.24