# DMG80480C070_04WTC

**Features:**

- **Based on T5L0, running DGUS II system, commercial grade.**

- **7.0-inch, 800*480 pixels resolution, 262K colors, TN TFT display.**

- **Capacitive touch screen.**
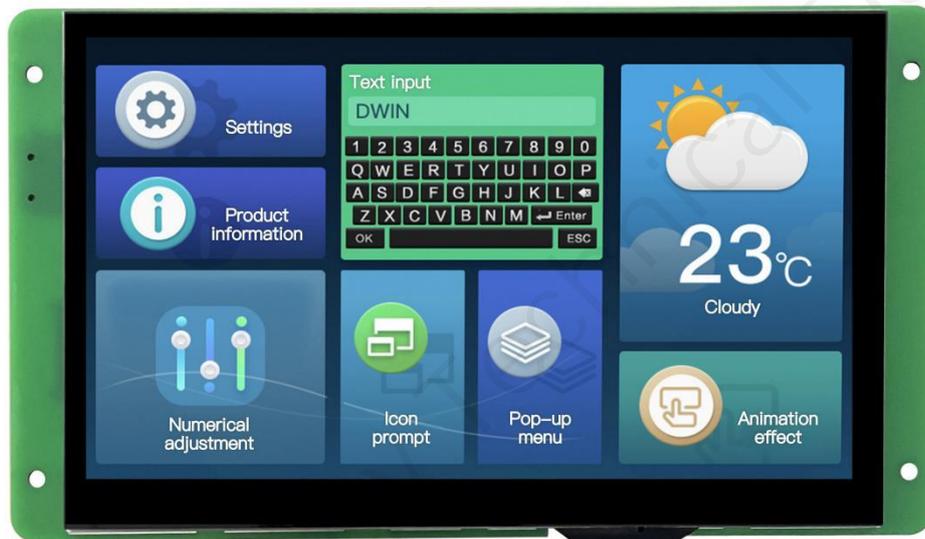
# 1. Hardware and interface

## 1.1 Hardware interface



Hardware interface

Professional, Creditable, Successful
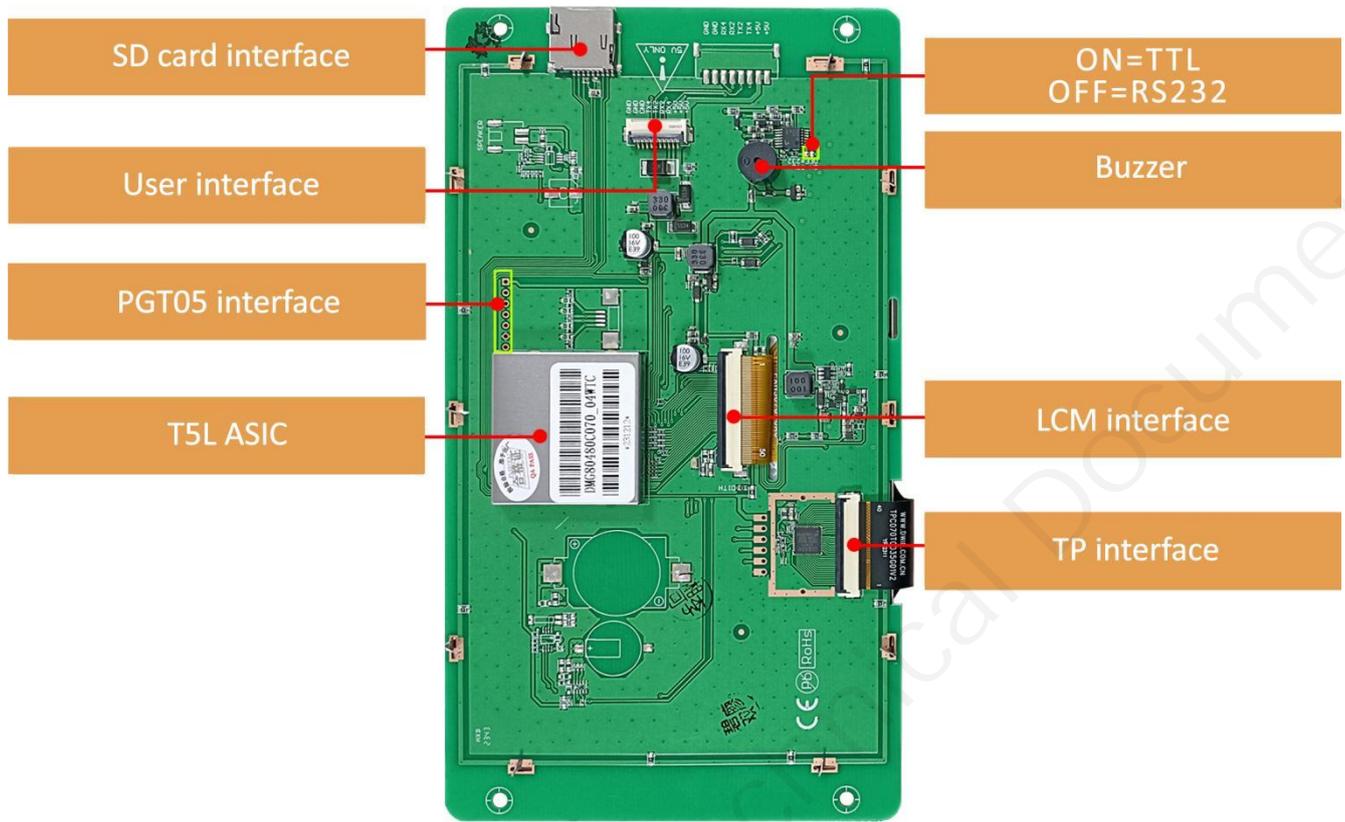
## 1.2 Hardware and interface description

| No. | Name | Description |
|---|---|---|
| 1 | T5L0 ASIC | T5L0 ASIC Developed by DWIN. Mass production in 2020,1MBytes Nor Flash on the chip, 512KBytes used to store the user database. Rewrite cycle: over 100,000 times |
| 2 | LCM interface | FPC50_0.5mm, RGB interface |
| 3 | CTP interface | COB structure, IIC interface |
| 4 | User interface | 10Pin_1.0mm socket for power supply and serial communication. Download rate(typical value): 12KByte/s |
| 5 | Flash | 16MBytes NOR Flash, for fonts, pictures and audio files. Rewrite cycle: over 100,000 times |
| 6 | Buzzer | 3V passive buzzer. Power: <1W |
| 7 | SD card interface | FAT32. Download files by SD interface can be displayed in statistics. Download rate: 4Mb/s |
| 8 | PGT05 interface | When product crashes by accident, you can use PGT05 to update DGUS kernel and make the product return to normal |

## 2. Specification parameters

### 2.1 Display parameters

| LCD Type | TV-TN, TFT LCD |
|---|---|
| Viewing Angle | TV viewing angle, 70°/70°/40°/30°（L/R/U/D） |
| Resolution | 800×480 pixels (support 0°/90°/180°/270°) |
| Color | 18-bit 6R6G6B |
| Active Area (A.A.) | 154.08mm (W)×85.92mm (H) |
| View Area (V.A.) | - |
| Backlight Mode | LED |
| Backlight Service Life | >20000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness) |
| Brightness | 200nit |
| Brightness Control | 0~100 grade (When the brightness is adjusted to 1%~30% of the maximum brightness, flickering may occur and is not recommended to use in this range) |
| **Note:You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed page display for a long time.** | |

### 2.2 Touch parameters

| Type | CTP (Capacitive touch panel) |
|---|---|
| Structure | G+G structure with surface cover of Asahi tempered glass |
| Touch Mode | Single touch and support continuous sliding touch |
| Surface Hardness | 6H |
| Light Transmittance | Over 85% |
| Life | Over 1,000,000 times touch |

## 2.3 Serial interface parameters

| Mode | UART2: ON=TTL/CMOS; OFF=RS232 | | | | |
|------|-------------------------------|---|---|---|---|
| | UART4: ON=TTL/CMOS; OFF=RS232 (Only available after OS configuration) | | | | |
| **Voltage Level** | Test Condition | Min | Typ | Max | Unit |
| | Output 1, Iout = 1mA | 3.0 | 3.3 | - | V |
| | Output 0, Iout = -1mA | - | 0 | 0.3 | V |
| | Input 1, Iin = 1mA | 2.4 | 3.3 | 5.0 | V |
| | Input 0, Iin = -1mA | 0 | - | 0.5 | V |
| **Baud Rate** | 3150~3225600bps, typical value of 115200bps | | | | |
| **Data Format** | UART2: N81 | | | | |
| | UART4: N81/E81/O81/N82 , 4 modes (OS configuration) | | | | |
| **Interface Cable** | 10Pin_1.0mm | | | | |

## 2.4 Electrical specifications

| Rated Power | <5W | |
|-------------|-----|---|
| Operating Voltage | 4.5~5.5V, typical value of 5V | |
| **Operating Current** | 510mA | VCC = +5V, Backlight on |
| | 170mA | VCC = +5V, Backlight off |
| **Recommended power supply: 5V 1A DC** | | |

## 2.5 Operating environment

| Operating Temperature | -10℃~60℃ (5V @ 60% RH) |
|-----------------------|------------------------|
| Storage Temperature | -20℃~70℃ |
| Conformal Coating | None |
| Operating Humidity | 10%~90%RH, typical value of 60% RH |

# 3. Reliability test

## 3.1 Electrostatic discharge test

Test temperature: 25°C. Test humidity: 50%RH.

Test process: the product was placed on the test bench to perform contact and air discharge in turn of the serial screen iron frame and display area as shown in Fig.3.1 below. During the experimental process, it was observed whether the screen is dead, black, white, splash, or reboot. According to the experiment results, the performance is in line with the criteria GB/T 17626.2 B level and above.



3.1 Electrostatic discharge test

| Discharge Type | Discharge Value | Result |
|----------------|-----------------|--------|
| Contact discharge | ±4KV | Normal operation |
| Air discharge | ±4KV | Normal operation |

Professional, Creditable, Successful

## 4. Packaging & dimensions

| Form Factor | 190.50mm (W)×105.40mm (H)×13.60mm (T) |
|---|---|
| Installation Dimensions | Positioning hole: 166.00 (+0.3mm)×101.20(+0.3mm) |
| Net Weight | 260g |

Packaging Standards

| Model | Dimensions | Layer | Quantity/Layer | Quantity(Pcs) |
|---|---|---|---|---|
| Carton1： | 220mm(L)×160mm(W)×47mm (H) | - | - | - |
| Carton2： | 250mm(L)×200mm(W)×80mm (H) | 1 | 2 | 2 |
| Carton3： | 320mm(L)×270mm(W)×80mm (H) | 1 | 4 | 4 |
| Carton4： | 450mm(L)×350mm(W)×300mm(H) | 2 | 10 | 20 |
| Carton5： | 600mm(L)×450mm(W)×300mm(H) | 2 | 17 | 34 |

Disclaimer: The product design is subject to alternation and improvement without prior notice.

Professional, Creditable, Successful
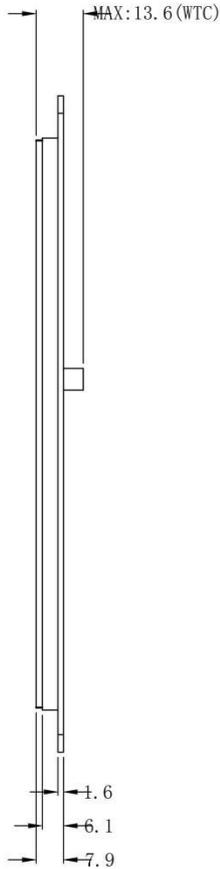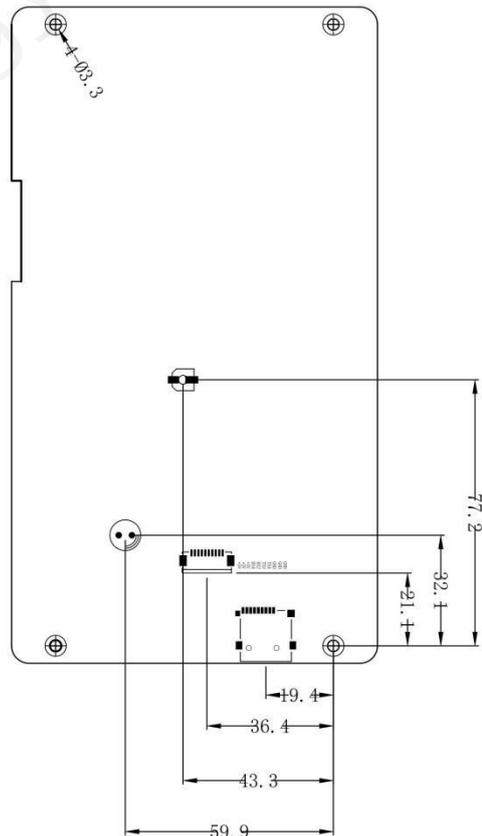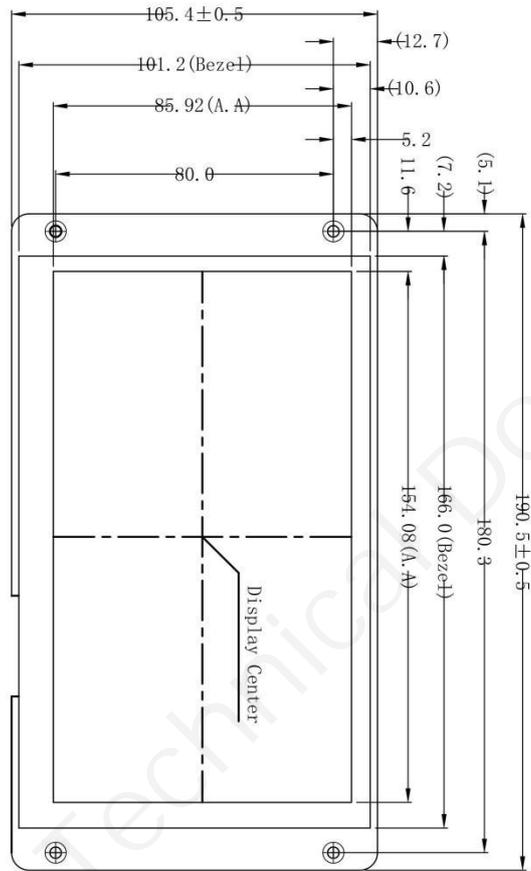
| Definition | Pin# | Type | Description |
|---|---|---|---|
| GND | 8,9,10 | P | GND |
| TX4 | 7 | O | UART4 Output |
| TX2 | 6 | O | UART2 Output |
| RX2 | 5 | I | UART2 Input |
| RX4 | 4 | I | UART4 Input |
| +5V | 1,2,3 | P | Power Input |

MAX:13.6(WTC)

1.6
6.1
7.9

105.4±0.5
101.2(Bezel)
85.92(A.A)
80.0
(12.7)
(10.6)
5.2
11.6
(7.2)
(5.1)
190.5±0.5
180.3
166.0(Bezel)
154.08(A.A)

Display Center

4-Ø3.3

77.2
32.1
21.1
19.4
36.4
43.3
59.9

| Model | | DMG80480C070_04WTC | | | | | DWIN Technology |
|---|---|---|---|---|---|---|---|
| Drawing | A 4 | Drawn | J.G | Date | | | |
| Scale | 1:1 | Review | Date | 2021.11 | | | |
| Unit | MM | Approval | Date | | | | |

1.Location hole is used as position reference.
2.Unmarked Tolerance is +/-0.3mm
Note: Active area is marked in Dash lines

## 5. Debugging tools

It is recommended for new users of DWIN smart LCMs to purchase official accessories. For more details, please refer to customer service center.

SD001
SD card

Interface:FCC1015A
10PIN_1.0mm FOB

Adapter board:HDL662B
Serial to USB

Dual-male-USB:HDLUSB1
Connect to adapter board
and computer

Professional, Creditable, Successful
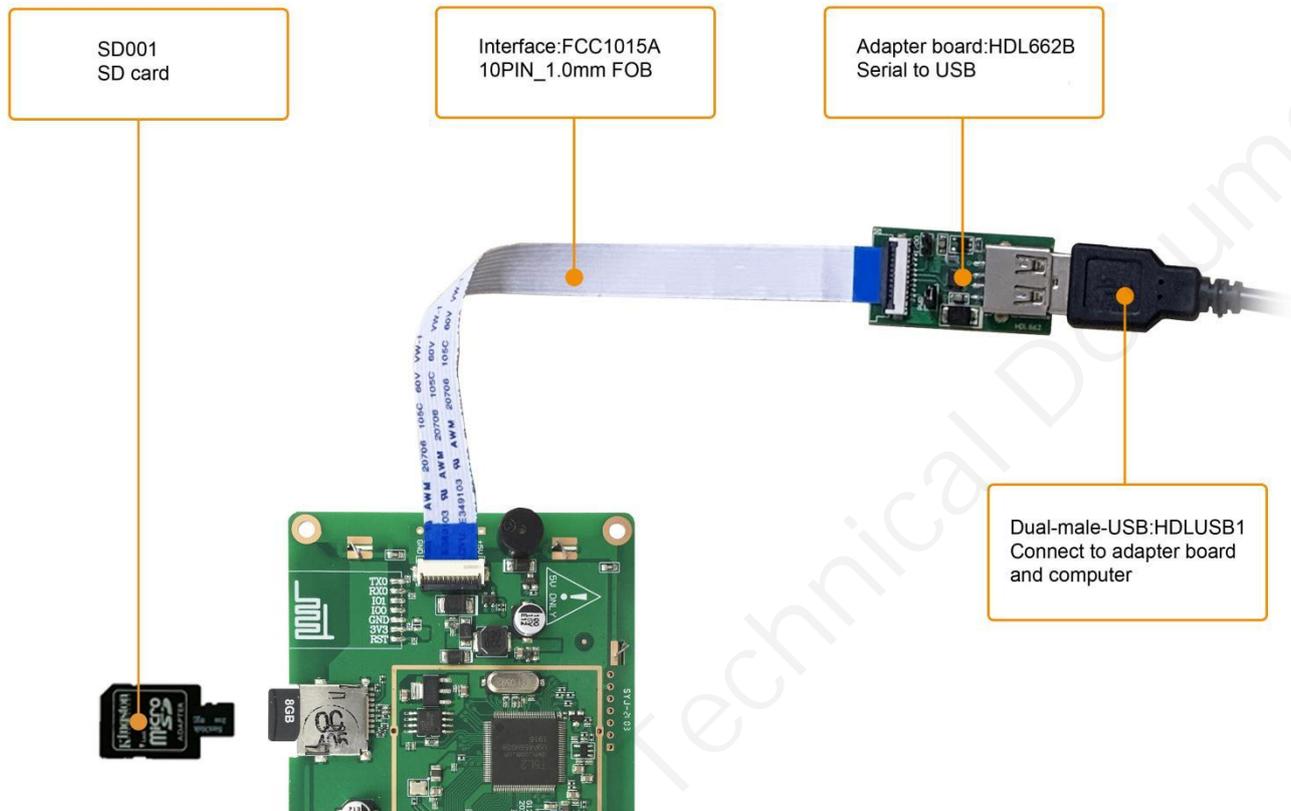
## 6. T5L series IC features

(1) Mature and stable 8051 core which is the most widely used with the maximum operating frequency of T5L is up

to 250MHz, 1T(single instruction cycle)high speed operation.

(2) Separate GUI CPU Core running DGUS II System:

● High-speed display memory, 2.4GB/S bandwidth.

● 2D hardware acceleration, the decompression speed of JPEG is up to 200fps@1280*800 and the UI with

animation and icons as its main feature is extremely cool and smooth.

● Images and icons stored in JPEG format. Adopt Low-cost 16Mbytes SPI Flash.

● Support CTP or RTP with adjustable sensitivity and maximum 400 Hz touch frequency.

● 1-way 15bit 32Ksps PWM digital power amplifier driver loudspeaker, save power amplifier cost and achieve

high signal-to-noise ratio and sound quality restoration.

● 128Kbytes variable storage space for exchanging data with OS CPU Core and memory.

● Support DGUS development and simulation on PC. Support background remote upgrade.

(3) Separate CPU (OS CPU) core runs user 8051 code or DWIN OS system and user CPU is omitted in practical

application:

● Standard 8051 architecture and instruction set, 64Kbytes code space, 32Kbytes on-chip RAM.

● 64 bit integer mathematical operation unit (MDU), including 64 bit MAC and 64 bit divider.

● 28 IOs, 4-channel UARTs, 1-channel CAN, up to 8-channel 12-bit A/Ds and 2-channle 16-bit PWM of

adjustable resolution.

● Support IAP on-line simulation and debugging with unlimited number of breakpoints.

● Upgrade code online through DGUS system.

(4) 1Mbytes on-chip Flash with DWIN patent encryption technology ensure code and data security.

(5) Operating temperature ranges from -40°C  to +85°C(IC operating temperature customizable from

-55°C  to 105°C).

**DWIN encourages users to design your own customized product based on T5L**

# 7. Revision records

| Rev | Revise Date | Content | Editor |
|:---:|:---:|:---:|:---:|
| 00 | 2024-01-11 | First Edition | Xu Ying |

Please contact us if you have any questions about the use of this document or our products, or if you would like to know the latest information about our products:

● Customer service Tel: +86 400 018 9008

● Customer service email: dwinhmi@dwin.com.cn

● DWIN Developer Forum: https://forums.dwin-global.com/

Thank you all for continuous support of DWIN, and your approval is the driving force of our progress!