SPECIFICATIONS

CUSTOMER	:	CNO003
SAMPLE CODE	:	SMA800480T030-ZHC
MASS PRODUCTION CODE	:	HMA800480T030-ZHC
SAMPLE VERSION	:	01
SPECIFICATIONS EDITION	:	003
DRAWING NO. (Ver.)	:	LMD-HMA800480T030-ZHC(Ver.002)
PACKAGING NO. (Ver.)	:	PKG- HMA800480T030-ZHC(Ver.002)

Customer Approved

Date:

Approved	Checked	Designer
林裘中 Daniel Lin	呂清溪 Marcs Lu	陳漢霖 Hans Chen

POWERTIP 2024.05.27 TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

POWERTIP TECH. CORP.

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1. SPECIFICATIONS

1.1 Features

Hardware

CPU	RISC Processor	STM32H750 480 MHz, ARM Cortex-M7
	RAM	16MB SDRAM
	Flash	32MB QSPI FLASH 8GB eMMC
	External Storage	1 x Micro SD (max. 32G)
Display	Resolution	800 * 3 (RGB) * 480 Dots
	Viewing Direction	Full Viewing Angle
	Interface	Parallel RGB 24 bits
I/O	USB	1 x USB2.0 Device
	Serial	1 x UART, 1 x SPI, 1 x I2C, 1 x CAN
	RMII	1 x Ethernet
Power Input	DC	5V

Note:

1. Support Micro USB Power Supply.
2. Support USB Device Full Speed.
3. Support CAN Bus (Compatible with ISO11898-2).
4. Support Ethernet (10BASE-T / 100BASE-T).
5. Support RTC.

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	131.0(W) x 90.5(L) x 14.0(H) MAX	mm
Active Area	108.0 (W) x 64.8(L)	mm

1.3 Absolute Maximum Ratings

Ta = 25°C

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply	VIN	—	4.5	6.0	V
Operating Temperature	TOP	—	-20	70	°C
Storage Temperature	TST	—	-30	80	°C
Humidity	HD	Ta=60 ℃	10	90	%RH

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the product may be permanently destroyed.

1.4 DC Electrical Characteristics

Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage	VIN	-	4.5	5	5.5	V
Power Supply Voltage of RTC	VBAT	-	2.0		3.6	V
Power Supply Current	IIN	VIN = 5V	-	600	-	mA
Power Consumption of System	PIN	VIN = 5V	-	3	-	W
High-Level voltage of digital input	VIH	-	2.3	-	-	V
Low-Level voltage of digital input	VIL	-	-	-	0.9	V
High level voltage of digital output	VOH	-	2.4	-	-	V
Low level voltage of digital output	VOL	-	-	-	0.4	V

1.5 Optical Characteristics

VDD= 3.3 V, Ta=25°C

Item	Symbol		Condition	Min.	Typ.	Max.	unit	-
Response time	Tr+Tf		Ta = 25°C θX, θY = 0°	-	37	56	ms	Note 2
Viewing angle	Top	θY+	CR ≥ 10		80	-	Deg.	Note 4
	Bottom	θY-			80	-		
	Left	θX-			80	-		
	Right	θX+			80	-		
Contrast ratio	CR		Ta = 25°C θX , θY = 0°	650	800	-	-	Note 3
Color of CIE Coordinate （With B/L & T/P）	White	X		0.27	0.32	0.37	-	Note1
		Y		0.30	0.35	0.40		
	Red	X		0.56	0.61	0.66		
		Y		0.30	0.35	0.40		
	Green	X		0.31	0.36	0.41		
		Y		0.53	0.58	0.63		
	Blue	X		0.08	0.13	0.18		
		Y		0.06	0.11	0.16		
Average Brightness Pattern=white display （With B/L & T/P）*1	IV		PWM=”High” (Duty=100%)	680	850	-	cd/m2	Note1
Uniformity （With B/L & T/P）*2	△ B		PWM=”High” (Duty=100%)	70	-	-	%	Note1

Note 1:

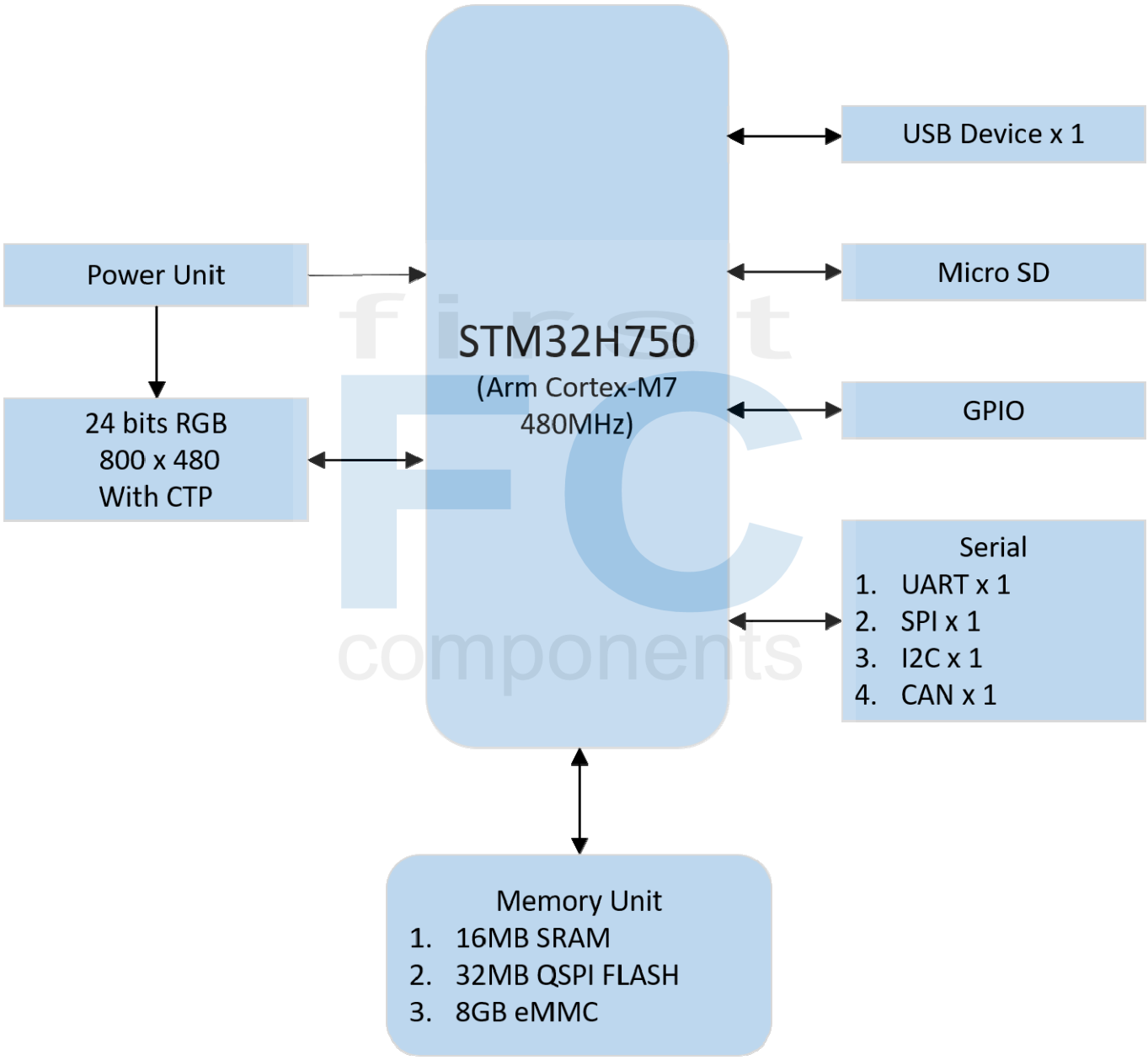
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 Mechanical Diagram

* See Appendix

2.1.2 Block Diagram



2.2 Interface Pin Description

JT1 --- JTAG (Wafer Pitch1.25mm 6pin)

Pin No.	Symbol	Type	DESCRIPTION
1	PA15	IO	General Purpose I/O, Port A [15].
2	PA8	IO	General Purpose I/O, Port A [8].
3	RESETINn	I	JTAG test reset.
4	JTMS/SWDIO	I/O	JTAG test mode select / Serial wire data in/out.
5	JTCK/SWCLK	I	JTAG test clock / Serial wire clock.
6	GND	P	Ground.

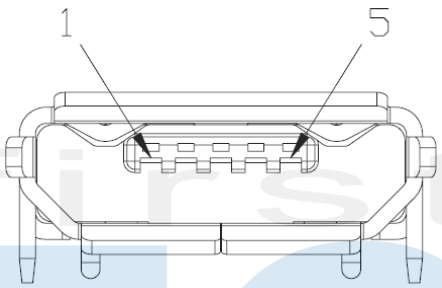
J3 --- CAN Bus (Wafer Pitch1.25mm 2pin)

Pin No.	Symbol	Type	DESCRIPTION
1	CAN H	DS	High Level CAN Bus Line.
2	CAN L	DS	Low Level CAN Bus Line.

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J4 --- USB 2.0 Device MICRO USB

Pin No.	Symbol	Type	DESCRIPTION
1	VBUS5V	P	+5.0V
2	D-	DS	Data – (Data M)
3	D+	DS	Data + (Data P)
4	ID	-	General Purpose I/O, Port A [10].
5	GND	P	Ground



J6 --- Ethernet (Wafer Pitch1.25mm 10pin)

Pin No.	Symbol	Type	DESCRIPTION
1	GND	P	Ground.
2	GND	P	Ground.
3	LED_ACK	O	Link Speed LED Indication. (See Note 1)
4	RXD-	DS	Receive Negative.
5	RXD+	DS	Receive Positive.
6	TXD-	DS	Transmit Negative.
7	TXD+	DS	Transmit Positive.
8	LED_LINK	O	Link Activity LED Indication. (See Note 2)
9	GND	P	Ground.
10	VDD3V3	P	Power Supply (+3.3V).

Note 1: This pin is driven active when the operating speed is 100Mbps. It is inactive when the operating speed is 10Mbps or during line isolation.

Note 2: This pin is driven active when a valid link is detected and blinks when activity is detected.

J8 --- RTC (Wafer Pitch1.25mm 2pin)

Pin No.	Symbol	Type	DESCRIPTION
1	VBAT	P	Power Supply for RTC.
2	GND	P	Ground.

Note: Reserve for external RTC IC power connection.

J10 --- Interface Reserved (Pitch 0.5mm 30pin Double contact)

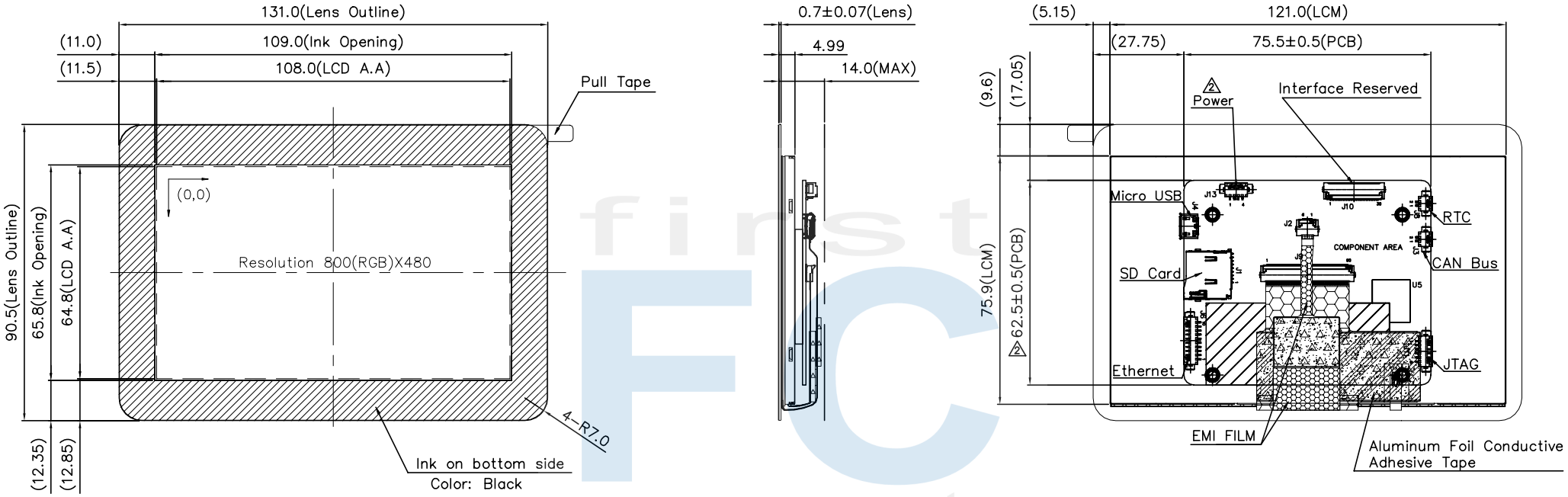
Pin No.	Symbol	Type	DESCRIPTION
1	GND	P	Ground.
2	PG3	IO	General Purpose I/O, Port G [3].
3	PB2	IO	General Purpose I/O, Port B [2].
4	PB0	IO	General Purpose I/O, Port B [0].
5	GND	P	Ground.
6	I2C_CLK	IO	I2C2 CLK.
7	GND	P	Ground.
8	I2C_DAT	IO	I2C2 DAT.
9	GND	P	Ground.
10	SPI_CLK	IO	SPI5 CLK.
11	GND	P	Ground.
12	SPI_MISO	IO	SPI5 MISO.
13	SPI_MOSI	IO	SPI5 MOSI.
14	GND	P	Ground.
15	SPI_CS0	IO	SPI5 CS0.
16	GND	P	Ground.
17	PH6	IO	General Purpose I/O, Port H [6].
18	PH7	IO	General Purpose I/O, Port H [7].
19	PH4	IO	General Purpose I/O, Port H [4].
20	PB1	IO	General Purpose I/O, Port B [1].
21	GND	P	Ground.
22	RESETINn	I	System Reset, Active Low.
23	UART_RXD	IO	USART2 RX.
24	UART_TXD	IO	USART2 TX.

Pin No.	Symbol	Type	DESCRIPTION
25	GND	P	Ground.
26	VIN	P	Power Supply (+5.0V).
27	VIN	P	Power Supply (+5.0V).
28	UART_CTS	IO	USART2 CTS.
29	UART_RTS	IO	USART2 RTS.
30	GND	P	Ground.

J13 --- Power Input (Wafer Pitch1.25mm 4pin)

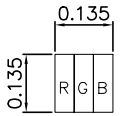
Pin No.	Symbol	Type	DESCRIPTION
1	VBUS5V	P	+5.0V
2	VBUS5V	P	+5.0V
3	GND	P	Ground
4	GND	P	Ground

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NOTES:

1. LCD TYPE: TFT LCD
2. LCD DISPLAY: Normally Black/TRANSMISSIVE
3. VIEW DIRECTION: Full Viewing Angle
4. JT1: Molex 532610671 or Compatible
5. J3 , J8: Molex 532610271 or Compatible
6. J6: Molex 532611071 or Compatible
7. J10: OMRON XF2M-3015-1A or Compatible
8. J13: Molex 532610471 or Compatible
9. The tolerance unless classified ±0.3mm



REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002	MODIFY BOARD SIZE & ADD J13	Nini	2021/12/02
001	NEW DRAWING	Nini	2021/03/30

PART NO: HMA800480T030-ZHC

DRAWING NAME : LMD-HMA800480T030-ZHC

TITLE: LCD MODULE DRAWING

久正光電股份有限公司
POWERTIP TECHNOLOGY CORPORATION

Design	Nini Chen	(3)	Surface		
Check	Marcs Lu	Unit	MM	Material	
Approve	Daniel Lin	Scale	FIT	Thickness	
		Page	1/1	Quantity	

Length(Min) (mm) \ Tolerance / Precision	Level
1 ~ 4	-
4 ~ 16	-
16 ~ 63	-
63 ~ 250	-
250 ~ 1000	-

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