



RA8871M / 73M

Professional Graphics Engine

for WQVGA / WVGA LCD

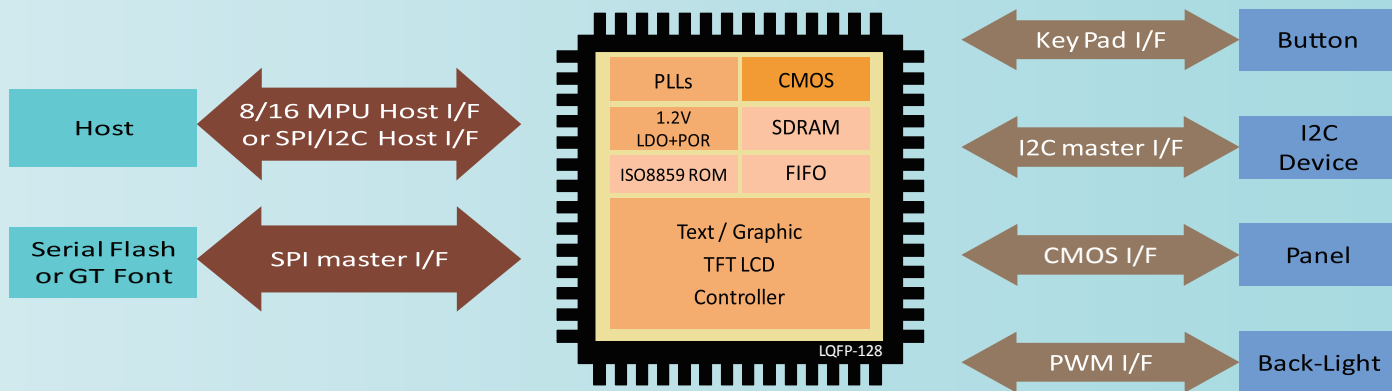


Features Summary

- Support Resolution 480x320 / 800x480
- Supports Mono / 256 / 4K / 65K colors
- Supports CMOS TTL IF
- Supports High Speed 3|4, IIC Serial MCU I/F
- Supports DMA Function
- Embedded ASCII Font. Supports Ext. Font Code IC
- Supports Alpha-Blend, PIP, BTE
- Geometric Drawing Engine

產品特色

- 支援高解析 TFT LCD 最高 480x320 / 800x480
- 支援黑白 / 256 / 4K / 65K 色
- 支援 CMOS TTL 輸出介面
- 支援高速傳輸三線或四線式及 IIC 串列 MCU 介面
- 支援 DMA 功能，硬體可自動快速更新顯示畫面
- 內建 ASCII 字庫且可外接字庫 IC
- 子母畫面顯示，雙圖層淡入淡出及 BTE 功能
- 硬體處理幾何圖形，支援畫線、畫圓、圖層捲動、旋轉功能



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RA8876 / 77

Professional Graphics Engine for High Resolution LCD

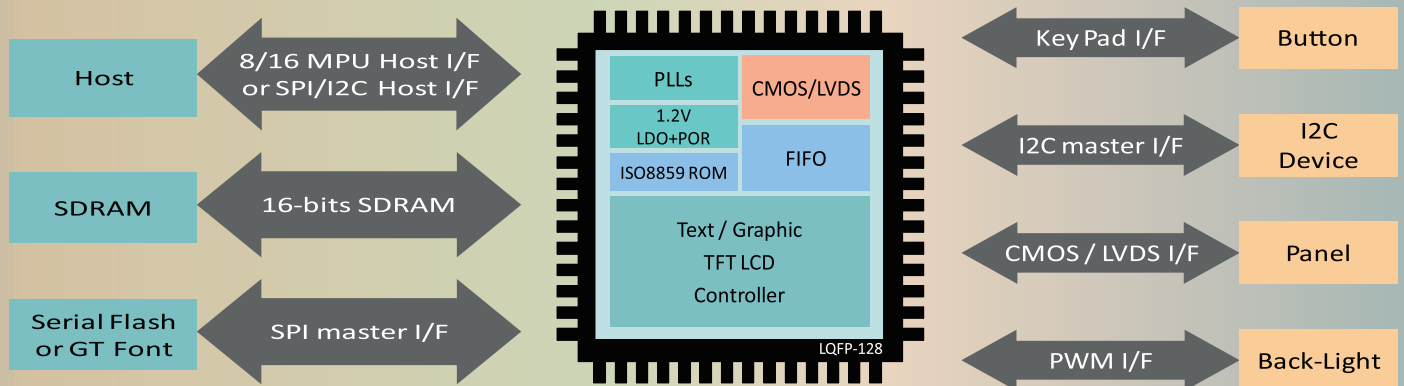


Features Summary

- Resolution up to 2048 x 2048
- Supports Mono / 256 / 4K / 65K / 16.7M colors
- Supports CMOS TTL / LVDS IF
- Supports High Speed 3|4, IIC Serial MCU I/F
- Supports DMA Function
- Embedded ASCII Font. Supports Ext. Font Code IC
- Supports Alpha-Blend, PIP, BTE
- Geometric Drawing Engine

產品特色

- 支援高解析TFT LCD 最高 2048 X 2048
- 支援黑白 / 256 / 4K / 65K / 16.7M 色
- 支援 CMOS TTL/LVDS 輸出介面
- 支援高速傳輸三線或四線式及 IIC 串列 MCU 介面
- 支援DMA功能，硬體可自動快速更新顯示畫面
- 內建 ASCII 字庫且可外接字庫 IC
- 子母畫面顯示，雙圖層淡入淡出及 BTE 功能
- 硬體處理幾何圖形，支援畫線. 畫圓. 圖層捲動. 旋轉功能



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TFT LCD Controller

Functions	RA8871M	RA8873M	RA8875	RA8876/77
Resolution(Max)	320 x 240 / 480 x 272	800 x 480	800 x 480	2048 x 2048
Colors(Max)	256 / 4K / 65K / 16.7M	256 / 65K	256 / 65K	Mono / 256 / 65K / 16.7M
Panel Type	CMOS / TTL	CMOS / TTL	CMOS / TTL	RA8876 : CMOS / TTL RA8877 : LVDS
Parallel MPU Interface	8/16-Bits	8/16-Bits	8/16-Bits	8/16-Bits
Serial MCU I/F	SPI 3 4 / IIC	SPI 3 4 / IIC	SPI 3 4 / IIC	SPI 3 4 / IIC
Master I/F	SPI / IIC	SPI / IIC	--	SPI / IIC
Embedded Display RAM	SDRAM	SDRAM	768KB	--
External SDRAM	--	--	--	Up to 512Mbits
Embedded ASCII Font	ISO-8859 Latin 1, 2, 4, 5	ISO-8859 Latin 1, 2, 4, 5	ISO-8859 Latin 1~4	ISO-8859 Latin 1, 2, 4, 5
External Font ROM I/F	Serial	Serial	Serial	Serial
Touch Panel Controller	--	--	4-Wires	--
Block Transfer Engine	▲	▲	▲	▲
Geometric Speed-up Engine	▲	▲	▲	▲
Virtual Display	Multi Buffer Display	Multi Buffer Display	--	Multi Buffer Display
Picture-in-Picture	▲	▲	--	▲
Dual Pages Mode	▲	▲	▲	▲
Horizontal Scroll	▲	▲	▲	▲
Vertical Scroll	▲	▲	▲	▲
Graphic/Font Rotation	▲	▲	▲	▲
Programmable Text Cursor	▲	▲	▲	▲
Support Graphic Cursor	▲	▲	▲	▲
User-defined Characters	▲	▲	▲	▲
Alpha-Blending	▲	▲	--	▲
DMA	▲	▲	▲	▲
PWM O/P	2	2	2	2
Smart Key-Scan	5x5	5x5	4x5	5x5
GPIO	Max 40	Max 40	9	Max 40
Clock Source	X'tal + PLL	X'tal + PLL	X'tal + PLL	X'tal + PLL
Operation Voltage	3.0 ~ 3.6V	3.0 ~ 3.6V	3.0 ~ 3.6V	3.0 ~ 3.6V
Package	LQFP-128	LQFP-128	LQFP-100	LQFP-128
Operation Temperature	-40 ~ +85°C	-40 ~ +85°C	-30 ~ +85°C	-40 ~ +85°C

COLOR TN Driver

NO.	Common	Segment	Logic Voltage	Colors	Embedded LED Driver	Package
RA8860	2	80	2.7~5.5V	8 / 16	Yes	Die / LQPF-128

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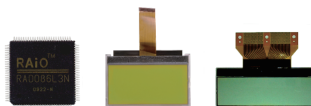
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STN LCD Controller with Driver

Function	RA8816N	RA8808
Panel Resolution	144 x 65	128 x 64~256 x 64
Operation Voltage	2.7~3.6V	2.7~5.5
MPU Interface	4/8-bit 6800, 8080 series 3-wire/4-wire SPI	8-bit 6800, 8080 series IIC/3-wire SPI
Graphic / Text	Graphic/ Text	Graphic
Embedded Font ROM	256KB (BIG-5 or GB2312, Japanese or S-JIS, English, ASCII, European)	--
Font Size	8x8, 8x16, 16x16	--
Booster	2X/3X/4X	2X/3X/4X
Duty	1/65, 1/55, 1/49, 1/33	1/48, 1/64
Bias	1/5~1/9	--
RAM Capacity	1170B+450B	4096bits x 2
CGRAM	256B	--
I/O	8	--
Key Scan	4x5	--
Contrast Control	32-Steps	--
Vertical Scrolling / Shift	▲	--
Horizontal Scrolling / Shift	▲	--
Read/Write Display Data	▲	▲
All Display / Partial Blink	▲	--
Bold Character	▲	--
Normal / Reverse Display	▲	--
Common Output Direction Select	▲	▲
Select Segment Direction	▲	▲
Key / IO Wakeup	▲	--
Power Save	Sleep	--
Clock Source	RC Oscillator	Oscillator with ext. R,C
Package	Gold Bump Die	Gold Bump Die

STN LCD Driver
STN LCD Controller with Driver

STN LCD Driver

NO.	Common	Segment	Logic Voltage	LCD Driver Voltage	Duty	Package
RA0086B	80 / 0	0 / 80	2.7~5.5V	6~30	1/64~1/256	LQPF-100 Bare die

Module

NO.	Size (inch)	Scale	Dimension (mm)	Resolution (H*V)	Brightness (Nits)	Technology	Operating Temperature (°C)
RA5070W00	7	16 : 9	166*105.44	800*480	300	ASV-TFT	-20 / +70

Module



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STN LCD Controller

Function	RA8803	RA8822	RA8806	RA6963	RA8835/8835A
Panel Resolution	320x240	240x160	128x64~320x240 (Dual Pages) 320x480 / 640x240 (Single Page)	External display RAM 64KB max	External display RAM Up to 640x256 pixel LCD panel display
Operation Voltage	2.4~5.5V	2.4~5.5V	2.4~5.5V	3.0~5.5V	2.7~5.5V
MPU Interface	4/8-bit 6800, 8080	4/8-bit 6800, 8080	4/8-bit 6800, 8080	8-bit ,8080	8-bit 6800,8080
Graphic/ Text	Graphic/ Text	Graphic/ Text	Graphic/ Text	Graphic/ Text	Graphic/ Text
Embedded Font ROM	512KB (Chinese, Japanese, English, European)	512KB (Chinese, Japanese, English, European)	512KB (Chinese, Japanese, English, European)	CGROM (128 word)	CGROM (160 word)
Embedded Display RAM	9.6 KB x 2	4.8 KB x 2	9.6 KB x 2	--	--
CGRAM	512B	512B	512B + 9.6KB (Option)	--	--
Character Font	8x16, 16x16 32x32, 48x48	8x16, 16x16 32x32, 48x48	8x16, 16x16 x1~x4 font enlargement	Horizontal: 5, 6, 7, 8 Vertical: 8 (fixed)	5 x 7
ADC (Touch Panel Controller)	10-bit (Manual Mode)	10-bit (Manual Mode)	10-bit (Auto/Manual)	--	--
DAC (Contrast Control)	5-bit	5-bit	8-bit PWM	--	--
Graphic/Font Rotation	--	--	▲	--	--
Gray Scale	4 Level	4 Level	4 Level (FRC Mode)	--	--
Font ROM Readable	▲	▲	--	--	--
8 x 8 Key Scan	▲	▲	▲ (Smart Mode)	--	--
Horizontal Scroll	▲	▲	▲	▲	▲
Vertical Scroll	▲	▲	▲	▲	▲
Read/Write Display Data	▲	▲	▲	▲	▲
S/W & H/W Reset	▲	▲	▲	▲	▲
Operation Temperature	-20~80°C	-20~80°C	-30~85°C	-30~85°C	-30~80°C
Clock Source	PLL	PLL	X'tal OSC	X'tal OSC	X'tal OSC
CLK (MHz)	4~12	4~12	4~12	0.4~8	1~18
Package	Die, PQFP100, LQFP100	Die, PQFP100, LQFP100	Die, LQFP100, TQFP80	LQFP67	QFP60/TQFP60
Compatible	--	--	--	T6963C	S1D13305

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