



USER MANUAL

VTS-8588



Copyright

Copyright © 2016 VIA Technologies Incorporated. All rights reserved.

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise without the prior written permission of VIA Technologies, Incorporated.

Trademarks

All trademarks are the property of their respective holders.

Disclaimer

No license is granted, implied or otherwise, under any patent or patent rights of VIA Technologies. VIA Technologies makes no warranties, implied or otherwise, in regard to this document and to the products described in this document. The information provided in this document is believed to be accurate and reliable as of the publication date of this document. However, VIA Technologies assumes no responsibility for the use or misuse of the information (including use or connection of extra device/equipment/add-on card) in this document and for any patent infringements that may arise from the use of this document. The information and product specifications within this document are subject to change at any time, without notice and without obligation to notify any person of such change.

VIA Technologies, Inc. reserves the right to make changes to the products described in this manual at any time without prior notice.

Regulatory Compliance

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Notice 3

The product described in this document is designed for general use, VIA Technologies assumes no responsibility for the conflicts or damages arising from incompatibility of the product. Check compatibility issue with your local sales representatives before placing an order.



Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE



Battery Recycling and Disposal

- Only use the appropriate battery specified for this product.
- Do not re-use, recharge, or reheat an old battery.
- Do not attempt to force open the battery.
- Do not discard used batteries with regular trash.
- Discard used batteries according to local regulations.



Safety Precautions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- All cautions and warnings on the equipment should be noted.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord in such a way that people cannot step on it.
- Always unplug the power cord before inserting any add-on card or module.
- If any of the following situations arises, get the equipment checked by authorized service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment has not worked well or you cannot get it work according to User's Manual.
 - The equipment has dropped and damaged.
 - The equipment has obvious sign of breakage.
- Do not leave this equipment in an environment unconditioned or in a storage temperature above 60°C (140°F). The equipment may be damaged.
- Do not leave this equipment in direct sunlight.
- Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- Do not place anything over the power cord.
- Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating

Packing List

- VTS-8588 board
- Power adapter
- US plug
- DC power cable
- LVDS cable
- Backlight cable

Table of Contents

1. Product Overview	1
1.1. Key Features.....	1
1.2. Product Specifications.....	2
1.3. Layout Diagram	3
2. Ports and Connectors Pinout	4
2.1. RJ45 connector	4
2.2. DC-in connector	4
2.3. USB 2.0 port	4
2.4. Micro SD slot	5
2.5. Debug connector	5
2.6. PWM LVDS Backlight Controller	5
2.7. LVDS connector (J22)	6

List of Tables

Table 1: Layout description of the VTS-8588 (top view)	3
Table 2: RJ45 connector pinout.....	4
Table 3: DC-in connector pinout.....	4
Table 4: USB 2.0 port pinout.....	4
Table 5: Micro SD slot pinout.....	5
Table 6: Debug connector pinout.....	5
Table 7: PWM LVDS backlight controller pinout.....	5
Table 8: LVDS connector pinout	6

List of Figures

Figure 1: Layout diagram of the VTS-8588 (top view).....	3
--	---

1. Product Overview

The VTS-8588 is an all-in-one touch panel starter kit for In-vehicle infotainment and digital signage applications. It is powered by a 1.0GHz VIA Cortex A9 dual-core SoC with a power efficient graphics processor to create remarkable performance for digital signage applications.

The VIA VTS-8588 provides support for extensive connectivity options, including an Ethernet port, two USB 2.0 ports, one dual-channel LVDS connector, one PWM backlight controller, one COM (TX/RX) console connector, four GPIO, and one Micro SD card slot.

1.1. Key Features

- 1.0GHz VIA Cortex-A9 dual-core SoC
- HTML5 Support
- 10/100 Ethernet with PoE support
- Onboard Wi-Fi support
- Optional 17" panel support

1.2. Product Specifications

- **Processor:**
 - 1.0GHz VIA Cortex-A9 dual-core SoC
- **System Memory:**
 - 1GB DDR3 SDRAM
- **Storage:**
 - 8GB eMMC Flash memory
- **Boot Loader:**
 - 512KB SPI Flash ROM
- **Graphics:**
 - Mali-400 dual processor GPU
 - 2 integrated, independent 3D/2D graphics processing units
 - Graphics engine supporting OpenGL[®] ES 2.0 hardware acceleration
 - Supports MPEG-2, VC-1 and H.264 video decoding up to 1080p
- **LAN:**
 - Realtek RTL8152B 10/100M Ethernet controller
- **Wi-Fi:**
 - Realtek RTL8189ES SDIO Wi-Fi Module
- **Onboard I/O:**
 - 1 X Dual-channel LVDS connector
 - 1 X PWM LVDS backlight control connector
- **Rear I/O:**
 - 2 X USB 2.0 port
 - 1 X Ethernet port
 - 1 X Micro SD card slot
- **Operating System:**
 - Linux kernel 3.4.5
- **Power Supply:**
 - 12V DC-in
- **Operating Temperature:**
 - 0°C ~ 45°C
- **Operating Humidity:**
 - 0% ~ 90% (relative humidity; non-condensing)
- **Form Factor:**
 - 14cm x 11.5cm (5.51"x4.52")

**Note:**

As the operating temperature provided in the specifications is a result of the test performed in VIA's chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is highly suggested to execute a solid testing and take all the variables into consideration when building the system. Please ensure that the system runs well under the operating temperature in terms of application.

1.3. Layout Diagram

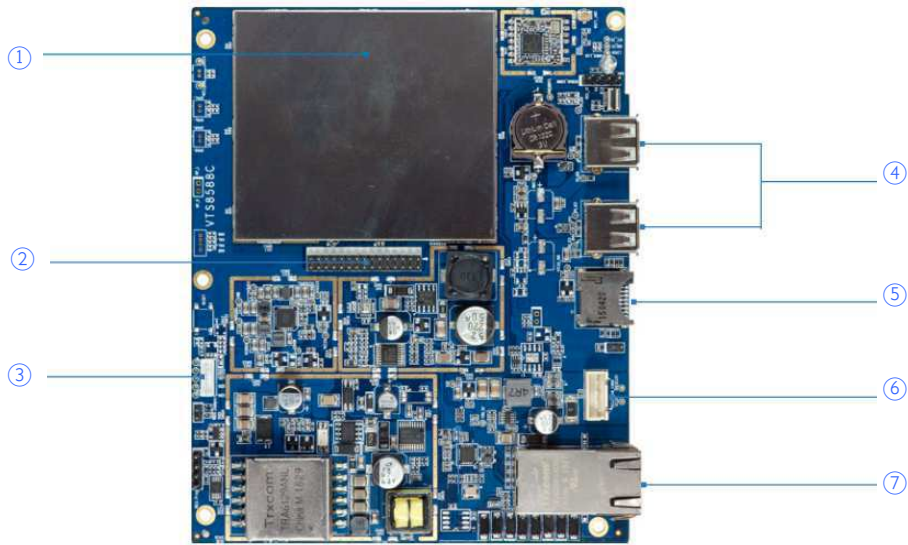


Figure 1: Layout diagram of the VTS-8588 (top view)

Items	Description
①	VIA Cortex-A9 Dual-Core SoC DDR3 SODIMM eMMC
②	LVDS
③	PWM LVDS Backlight Controller
④	USB 2.0
⑤	Micro SD Card Slot
⑥	DC-in
⑦	Ethernet

Table 1: Layout description of the VTS-8588 (top view)

2. Ports and Connectors Pinout

2.1. RJ45 connector

Pin	Signal
1	TX+
2	TX-
3	RX+
4	P/G
5	P/G
6	RX-
7	P/G
8	P/G

Table 2: RJ45 connector pinout

2.2. DC-in connector

Pin	Signal
1	12V
2	12V
3	GND
4	GND

Table 3: DC-in connector pinout

2.3. USB 2.0 port

Pin	Signal
1	VBUS
2	D-
3	D+
4	GND

Table 4: USB 2.0 port pinout

2.4. Micro SD slot

Pin	Signal
1	DATA2
2	DATA3
3	CMD
4	VCC
5	CLK
6	GND
7	DATA0
8	DATA1

Table 5: Micro SD slot pinout

2.5. Debug connector

Pin	Signal
1	VCC33_SF
2	UART0RXD
3	UART0TXD
4	GND

Table 6: Debug connector pinout

2.6. PWM LVDS Backlight Controller

Pin	Signal
1	LED1-
2	LED2-
3	LED+
4	LED+
5	LED3-
6	LED4-

Table 7: PWM LVDS backlight controller pinout

2.7. LVDS connector (J22)

Pin	Signal
1	VDD_LCD
2	VDD_LCD
3	VDD_LCD
4	GND
5	GND
6	GND
7	RXO0-
8	RXO0+
9	RXO1-
10	RXO1+
11	RXO2-
12	RXO2+
13	GND
14	GND
15	RXOC-
16	RXOC+
17	RXO3-
18	RXO3+
19	RXE0-
20	RXE0+
21	RXE1-
22	RXE1+
23	RXE2-
24	RXE2+
25	GND
26	GND
27	RXEC-
28	RXEC+
29	RXE3-
30	RXE3+

Table 8: LVDS connector pinout



Taiwan Headquarters

1F, 531 Zhong-Zheng Road
Xindian, Taipei, 23148
Taiwan

TEL: 886.2.2218.5452
FAX: 886.2.2218.5453
Email: embedded@via.com.tw



USA

940 Mission Court
Fremont, CA 94539
USA

TEL: 1.510.683.3300
FAX: 1.510.687.4654
Email: embedded@viatech.com



Japan

3-15-7 Ebisu MT Bldg. 6F
Higashi, Shibuya-ku
Tokyo 150-0011
Japan

TEL: 81.3.5466.1637
FAX: 81.3.5466.1638
Email: embedded@viatech.co.jp



China

Tsinghua Science Park Bldg. 7
No. 1 Zongguancun East Road
Haiden District, Beijing, 100084
China

TEL: 86.10.59852288
FAX: 86.10.59852299
Email: embedded@viatech.com.cn



Europe

Email: embedded@via-tech.eu