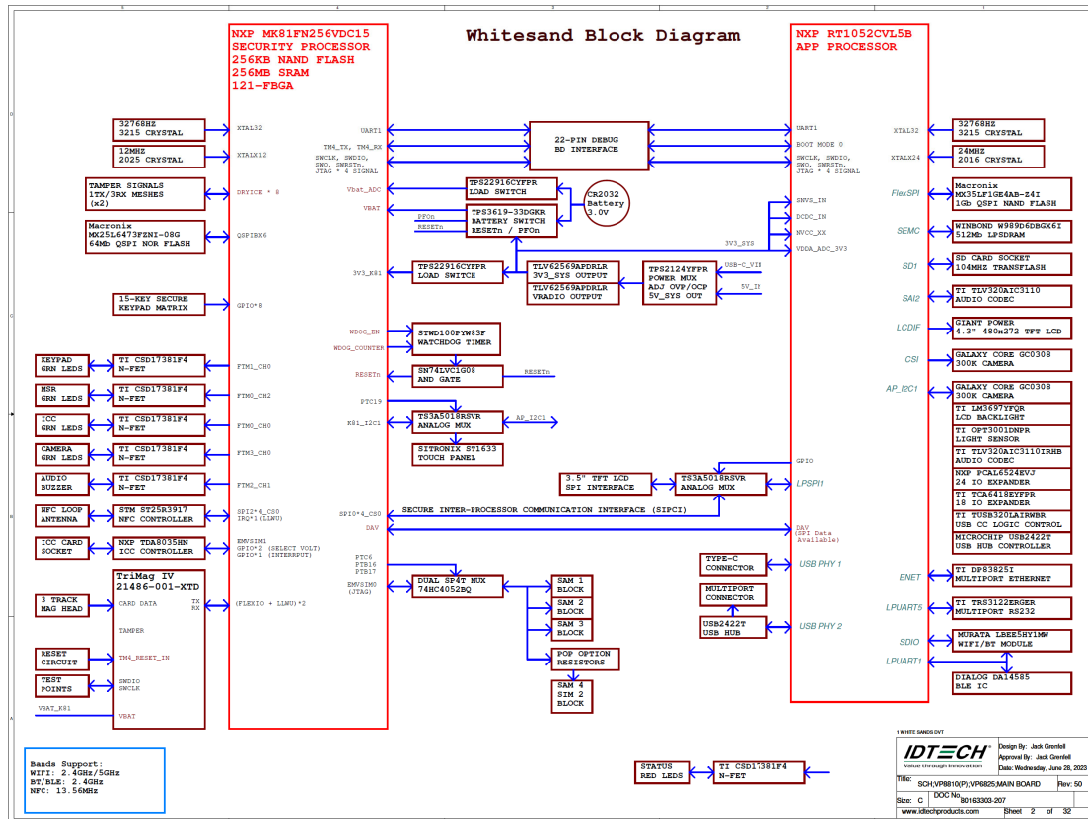


Product Name :WhiteSands  
Brand Name : IDTECH  
Model No. : VP8810-0800  
FCC ID:  
IC:  
Product Block Diagram:



**Type of radios:**

Radios operates at 13.56 MHz on ISO/IEC 14443A/B and 18092 air interface and at rates ranging from 106 kbit/s to read card data. support an optional WiFi/BT combo module. The current target module is Murata 1MW module that support AC standard and BT5.0. Note the interface to the WiFi section is via SD interface while the BT requires a 4 wire UART interface.

## FUNCTIONAL DESCRIPTION

The platform will use 2 processors, one as application processor and the second as secure and payment processor.

White Sands products are the pinpad version with keypad for PIN entry. It will also be based on the same platform and use NEO3 as the operating system. The goal is to use same PCB design for White Sands, Olympic and Bryce Canyon. There will be difference population options based on the features.

- **K81:** Is used as the security SOC which will handle all tamper lines. In addition, this

process is also responsible to run all the payment related peripherals. The goal is to run a common Kernel in this platform.

- **RT1050** NXP RT1050 is used as the application processor. This SOC has MPU for memory separation and is only capable of running SDRAM memory interface. Most nonpayment related peripherals are controlled by this SOC. A port expander is also used to provide additional GPIO capabilities.

K81 will have an external serial Flash (8/16MB) for code and data. For SRAM only internal SRAM will be available to K81.

RT1050, will have a 1Gbit serial NAND flash as in VP6800. The goal is to increase the SDRAM memory of the RT1050 from 32MB to 64MB. There is also a wish list to be able to support both LPSPDRM (1.8v) and the standard SDRAM (3.3v).

White Sands support a microSD interface socket. It also provides power selection option to support both 3.3v and 1.8v cards. The goal is for White sands to support high Speed cards.

White Sands will use a 3.5" display module with Cap touch support.

The color TFT display will be based on 16-bit RGB interface.

There will be an SPI interface to setup the LCD parameter at the powerup.

The smart card circuit is also controller by K81 as in VP6800 and other K81 based products. The smart card PHY is also kept being the same NXP TDA8035. There are 3 LEDs that will shine light at the entrance of the card reader.

K81 is responsible to read the MSR data. Latest revision of TM4 will be used to decode the MSR head signals. Like ICC connector there is 2 MSR LED that is used to light up the MSR light guide indicating the activation of the MSR interface and the direction of the swipe.

K81 is responsible to communicate with the contactless payment chip. Whitesand platform will be based on the new STM3617 NFC controller IC.

The antenna is mostly placed under the LDS. Antenna must be designed and tuned to pass the latest EMV standard.

A VGA camera is used to capture images. The goal of this camera is to decode barcode.

White Sands will support multiple interfaces on the external IO connector. All interfaces will be driven by RT1050 processor. There will be a dedicated DC powerjack, a USB C connector and a multi port mini HDMI connector that will carry: ETH, USB, RS232 and Audio signals.

White Sandswill support USB OTG. USB signals are connected to two external power. If using USB C connector the USB will act as DEVICE only, when using HDMI connector, the USB will act as HOST.

White Sandswill support a 10/100 Ethernet interface. Signals will be drive out of the mini HDMI connector. A multi port cable will be need to direct the signals to an RJ45 type connector.

White Sandswill support an optional WiFi/BT combo module. The current target module is Murata 1MW module that support AC standard and BT5.0.

## **SPECIFICATIONS**

RT1052	The i.MX RT1050 is a new processor, advanced implementation of the Arm Cortex®-M7 core, which operates at speeds up to 528 MHz to provide high CPU performance and best real-time response
K81	The high-performance Kinetis K81 ARM® Cortex®-M4 MCU family builds upon the Kinetis microcontroller portfolio with advanced security. The Kinetis K81 MCU family also integrates 8 KB code and 8 KB system cache, 256 KB of embedded SRAM and flash, USB full-speed, low-power peripherals and a quad SPI serial flash interface.
LCD	a-Si TFT active matrix LCD, Normally black, IPS mode, 4.3 inch, Graphic 480* R.G.B*272 stripe type,  Rugged glass to meet minimum of IK08 requirement
Touch	capacitive touch panel
Card Standard	MasterCard® PayPass™, Visa® payWave, ExpressPay from American ExpressSM, and Discover® Zip™.
Contactless	EMVCo Contactless Level 1/2  ISO 14443 Type A&B, Mifare, ISO 18092 (including P2P)

	<p>Visa: VCPS 2.2 or later (MSD and qVSDC)</p> <p>IRWIN listed</p> <p>Visa Transit extensions</p> <p>MasterCard: M/Chip 3.1 or later</p> <p>Payment and Data exchange</p> <p>American Express: ExpressPay 3.1</p> <p>Discover: DPAS latest version</p> <p>JCB Contactless</p> <p>Interac: Flash version 1.5d</p> <p>MiFare: Pass-through mode (Classic, Ultralight C, DESFire, DESFire EV1)</p> <p>China Union Pay (CUP)</p> <p>Sony Felica Support</p> <p>Apple Pay</p> <p>Apple VAS</p>
Magneticstripe	<p>MeetsISO 7810/ISO 7811 specification</p> <p>Supports AAMVA format</p> <p>Supports JIS I/IIcard format</p> <p>Supports single, dual and tripletracks.</p> <p>Bi-directionalreading</p>
Contact(ICC)	<p>EMVCo Contact Level 1 &amp; 2</p> <p>TDES, &amp;AES Enhanced Encryption Format (one key for all interfaces)</p> <p>TDES/AES TransArmor Encryption Format</p>
Speaker	<p>95dB +/-3dB, 1W output, 850KHz response frequency</p>
WIFI	<p>This specification is applied to the IEEE802.11a/b/g/n/ac WLAN + Bluetooth 5.0combo module</p>
Bluetooth	<p>This specification is applied to the IEEE802.11a/b/g/n/ac WLAN + Bluetooth 5.0combo module</p>
MicroSD	<p>SD/eMMC4.3 (SingleData Rate) timing, eMMC4.4/4.41/4.5 (Dual Date Rate) timing</p>
SAM	<p>Secure Access Module or Secure Application Module</p>

Backlight	White LED 1000cd/m2
Audio Codec	The TLV320AIC3110 device features a high-performance audio codec with 24-bit stereo playback and monaural record functionality.
Camera	VGA,640x480
USB	Universal Serial Bus 2.0
Power supply	5V/10W Max 2000mA.