

VDU2501 UWB Anchor Datasheet

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V1.01	Initial Release	Benson	20180820
V1.02	Added internal interface instruction	Benson	20181220

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1. General Description

VDU2501 is UWB Anchor solution based on DecaWave DW1000, adopting TDOA indoor location algorithm, can achieve high-precision positioning of tags which can be 10 cm. VDU2501 also support POE power supply, to shorten the installation time and reduce the difficulty of wiring.



Figure 1-1 VDU2501 Product Picture

2. Electrical Specification

Power Supply		
POE Power Supply	POE 48V	
DC Power Supply	2000mA@5V	
Power Consumption	150mA @5V	
Wireless Parameters		
Channel 2	3774~4243.2MHz	
Typical Transmit Power	41.3dbm/MHz	
Max Location Transmit Power	-17dbm/MHz	
Transmit Antenna	Matching different antenna according to customers' requirements	
Cover Area	30m~50m	

Report Method	100M Ethernet	
Anchor Clock Synchronization Method	UWB Wireless Synchronization	
Structure Parameters		
Weight	320g±10g (PCBA 60g±5g)	
Dimension	132mmX98mmX32mm (not include antenna length)	
Operating Environment		
Operation Temperature	-20°C~75°C	
Storage Temperature	-40°C~95°C	

Figure 2-1 Product Parameters

3 Applications Block Diagram

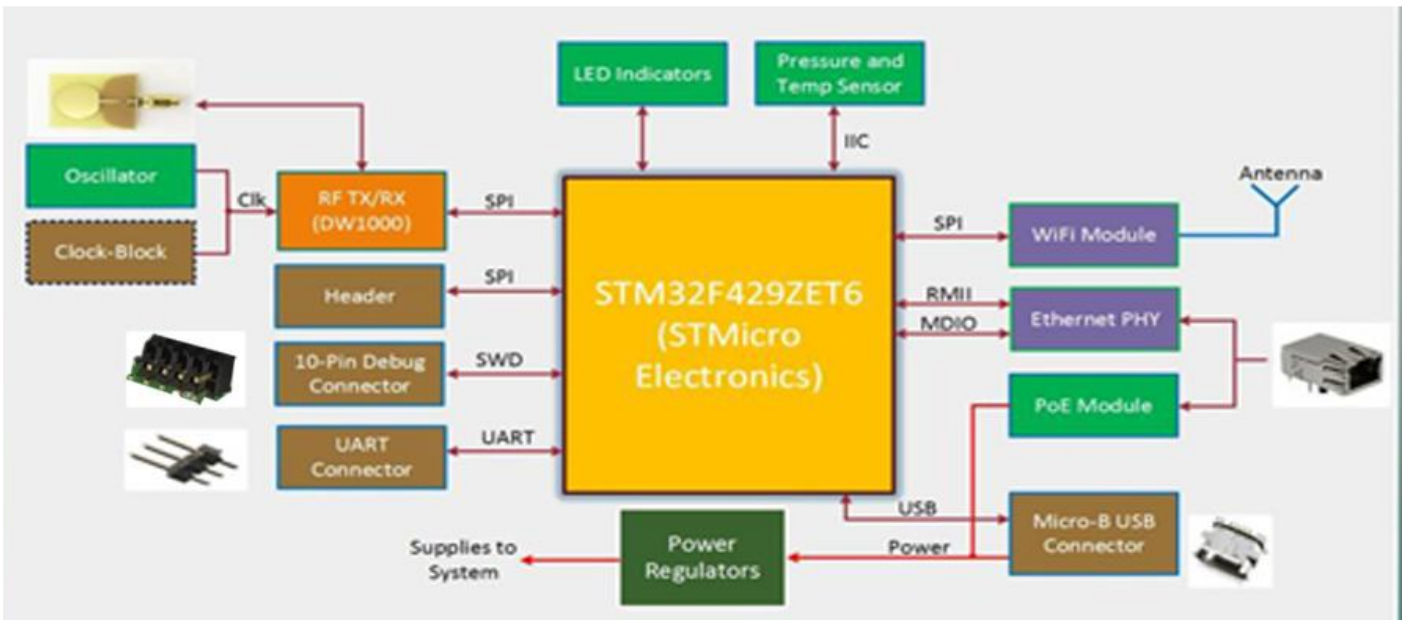


Figure 3-1 VDU2501 Applications Block Diagram

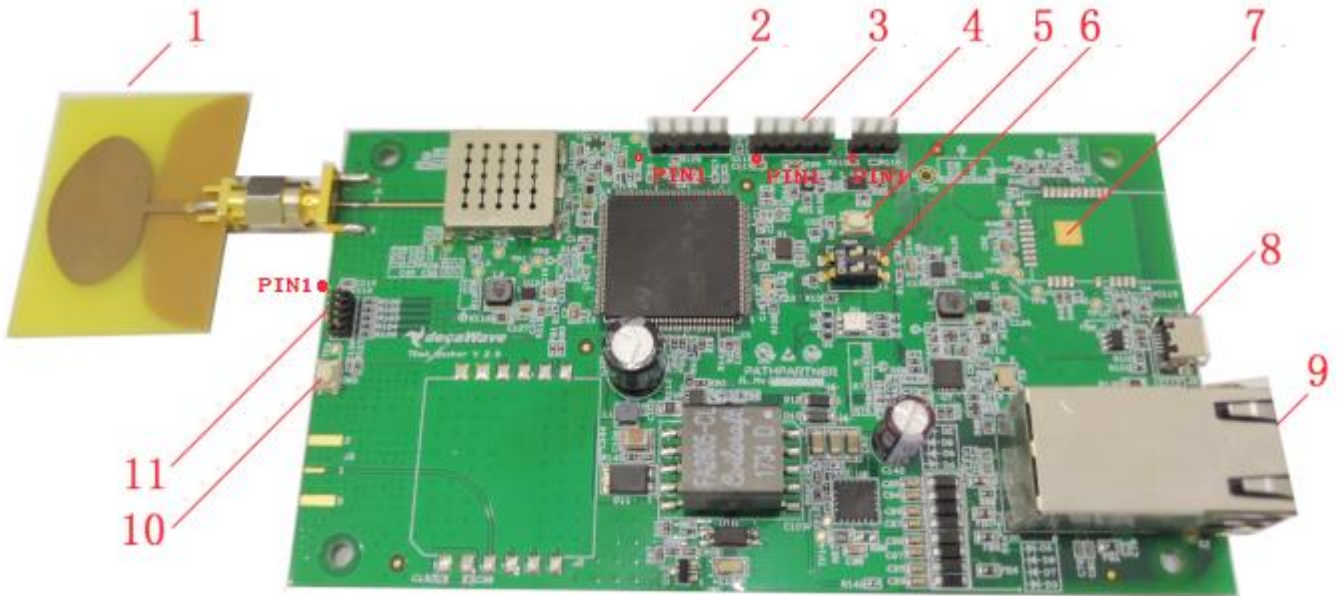
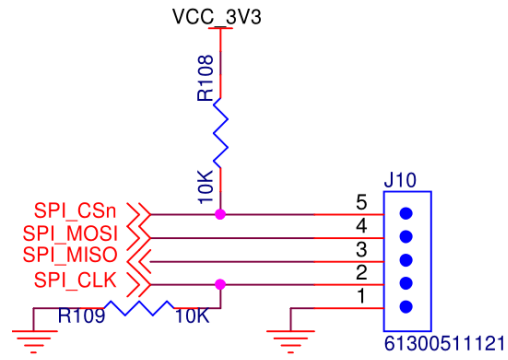


Figure 3-2 VDU2501 PCBA Structure Diagram

NO.	Name	Description												
1	UWB Antenna	Antenna type is matched according to customer's application												
2	STM32 MCU SPI Interface	 <table border="1" data-bbox="758 1612 1300 2004"> <thead> <tr> <th>J10 Pin</th> <th>STM32 MCU</th> </tr> </thead> <tbody> <tr> <td>1 GND</td> <td>GND</td> </tr> <tr> <td>2 SPICLK</td> <td>1 PE2</td> </tr> <tr> <td>3 SPIMISO</td> <td>4 PE5</td> </tr> <tr> <td>4 SPIMOSI</td> <td>5 PE6</td> </tr> <tr> <td>5 SPICSn</td> <td>3 PE4</td> </tr> </tbody> </table> <p data-bbox="853 2011 1204 2049">Pin NO.1 please see Figure 3-2</p>	J10 Pin	STM32 MCU	1 GND	GND	2 SPICLK	1 PE2	3 SPIMISO	4 PE5	4 SPIMOSI	5 PE6	5 SPICSn	3 PE4
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<p>3</p>	<p>STM32 MCU IIC Interface</p>	<table border="1" data-bbox="746 875 1326 1200"> <thead> <tr> <th>J9 Pin</th> <th>STM32 MCU</th> </tr> </thead> <tbody> <tr> <td>1 VCC</td> <td>VCC</td> </tr> <tr> <td>2 EXT_REST</td> <td>25 NRST</td> </tr> <tr> <td>3 IIC_SCL</td> <td>11 PF1</td> </tr> <tr> <td>4 IIC_SDA</td> <td>10 PF0</td> </tr> </tbody> </table> <p>Pin NO.1 please see Figure 3-2</p>	J9 Pin	STM32 MCU	1 VCC	VCC	2 EXT_REST	25 NRST	3 IIC_SCL	11 PF1	4 IIC_SDA	10 PF0
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<p>4</p>	<p>STM32 MCU UART Interface</p>	<table border="1" data-bbox="746 1682 1326 1942"> <thead> <tr> <th>J9 Pin</th> <th>STM32 MCU</th> </tr> </thead> <tbody> <tr> <td>1 UART_TXD</td> <td>69 PB10</td> </tr> <tr> <td>2 UART_RXD</td> <td>70 PB11</td> </tr> <tr> <td>3 GND</td> <td>11 GND</td> </tr> </tbody> </table>	J9 Pin	STM32 MCU	1 UART_TXD	69 PB10	2 UART_RXD	70 PB11	3 GND	11 GND		
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1 UART_TXD	69 PB10											
2 UART_RXD	70 PB11											
3 GND	11 GND											
<p>5</p>	<p>MCU Reset Button</p>	<p>Connect to P25 NREST Reset Pin of MCU</p>										

<p>6</p>	<p>BOOT Configuration switch</p>									
<p>7</p>	<p>WIFI Module</p>	<p>Welding WiFi Module or not, depend on customer's requirement, if need, the WiFi Module item No. is ATWILC1000-MR110PB</p>								
<p>8</p>	<p>USB Interface</p>	<p>Can use for USB communication or 5V power supply of PCBA</p> <table border="1" data-bbox="732 1514 1324 1814"> <thead> <tr> <th>USB Pin</th> <th>MCU Pin</th> </tr> </thead> <tbody> <tr> <td>VCC 5V</td> <td>System 5V Power Supply</td> </tr> <tr> <td>USB_DM</td> <td>PIN103 PA11</td> </tr> <tr> <td>USB_DP</td> <td>PIN104 PA12</td> </tr> </tbody> </table>	USB Pin	MCU Pin	VCC 5V	System 5V Power Supply	USB_DM	PIN103 PA11	USB_DP	PIN104 PA12
USB Pin	MCU Pin									
VCC 5V	System 5V Power Supply									
USB_DM	PIN103 PA11									
USB_DP	PIN104 PA12									
<p>9</p>	<p>Network Interface POE Power Supply Interface</p>	<p>System Network Communication, POE Power Supply Interface</p>								

<p>10</p>	<p>User Button</p>	<p style="text-align: center;">Link to STM32 MCU PIN7 PC13</p>
<p>11</p>	<p>STM32 MCU Program Download Interface</p>	<p style="text-align: right;">MCU STM32</p>

4. Contact Information

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