LTE RRH B40/B41 Quick Guide

Cambium Networks 2GHz Palisade 220

V1.0

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Content

1 Structure &Interface Description

1.1 Structure &Front Interface

The LTE RRH B40/B41 structure &interface is shown as Figure 1-1:

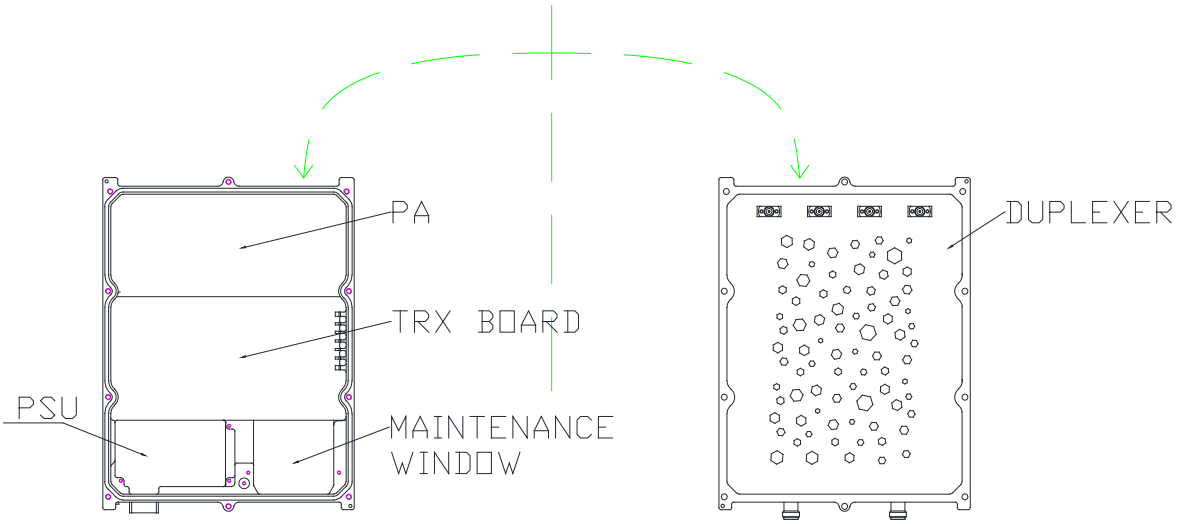


Figure 1-1 structure of LTE RRH B40/B41

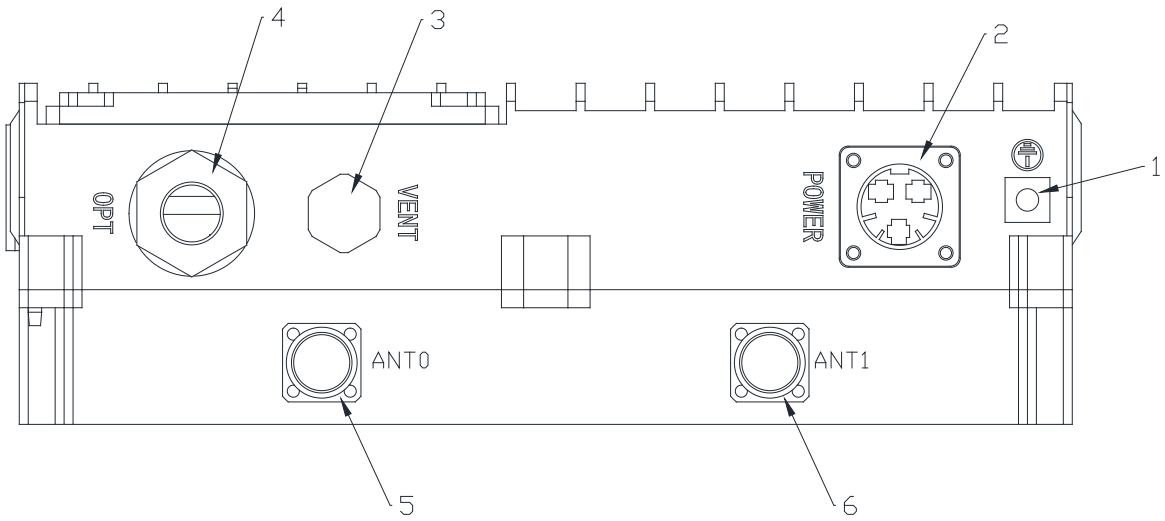


Figure 1-2 LTE RRH B40/B41 front interface

1.1.1 Front Interface Description

Table 1-1 LTE RRH B40/B41 Front Interface Description

#	External interface description	Remarks
1	Chassis ground	
2	POWER	-48V DC Power supply Interface. Please refer to 1.1.2 for Pin definition
3	VENT	Air vent
4	OPT	Optical interface
5	ANT0	N connector. Actually Antenna port 2(ANT2) This will be modified in next version
6	ANT1	N connector.

1.1.2 Power Interface

The power supply interface requires a three-pin straight plug, and it provides a waterproof cover, DC special connector, as shown in Figure 1-3; see Table 1-2 for detailed definition.

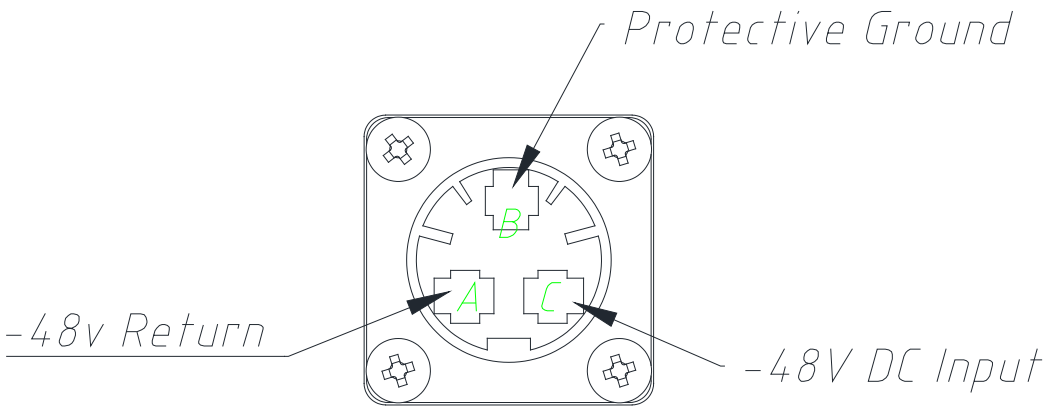


Figure 1-3 Power Interface Diagram

Table 1-2 PWR Interface Description

Pin #	Name	Signal description (DC)
A	Positive	-48V RTN
B	GND	Ground

C	Negative	-48V

1.2 Side Interface

LTE RRH B40/B41 side interface is shown in Figure 1-3;

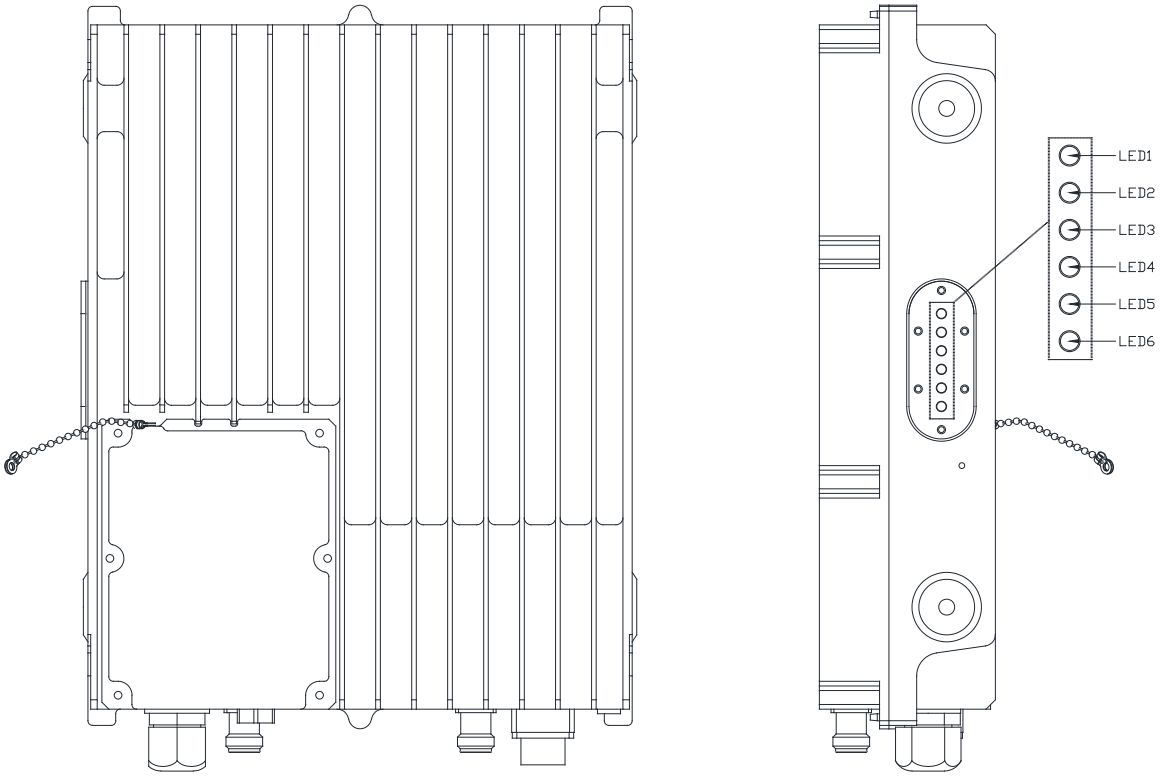


Figure 1-4 LTE RRH B40/B41 Side Interface

1.2.1 Side Interface Description

Table 1-3 LTE RRH B40/B41 Side Interface Description

#	Description
1	Reserve
2	Reserve
3	Reserve
4	Reserve
5	Reserve
6	Reserve

1.2.2 Service Access and Operation Maintenance Window

The service access and operation maintenance window is mainly used for service access, debug and maintenance for LTE RRH B40/B41. The window is closed by default when the product is fresh out of factory, a screwdriver is needed to open the window when needed, the window view is as shown in Figure 1-5.

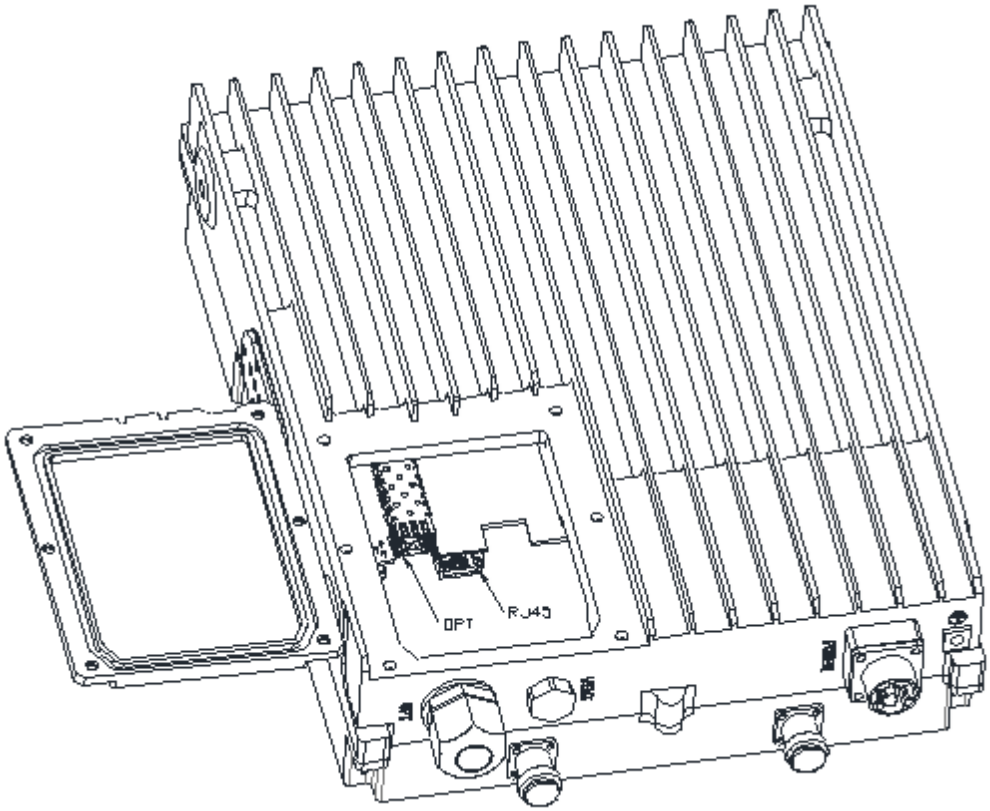


Figure 1-5: Window View for Service Access and Operation Maintenance Window

Service access and operation maintenance window is divided into two parts:

1) **OPT**: used to connect to the BBU or for daisy chain to the next level LTE RRH B40/B41, the interface uses a 1 x 2 SFP interface.

2) **Console**: use to operate and maintain LTE RRH B40/B41 equipment, the interface use the RJ45 interface, the interface function is complex, UART debugging and eth debugging of equipment are integrated in this interface, when using the interface, special cable of operation and maintenance is needed.

2 Hardware testing connection

2.1 Hardware Required Equipment

#	Item Name	Qty	Remark
1	Optical Transceiver	1	link rate should up to 4.9125Gb/s
2	Fiber	1	
3	Debug Cable	1	See Appendix A
4	DC Power source	1	
5	Power Supply Cable	1	
6	PC	1	
7	High Power Attenuator	Several	More than 10W
8	BBU	1	
9	UE	1	
10	LTE RRH B40/B41	1	
11	RF Cable	Several	

2.2 Software preparation

PuTTY

PuTTY software is free and open source, supports serial port and telnet debugging.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Professional installation is required

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 146 cm between the radiator & your body.

2.3 Serial and Ethernet Configuration

Serial:

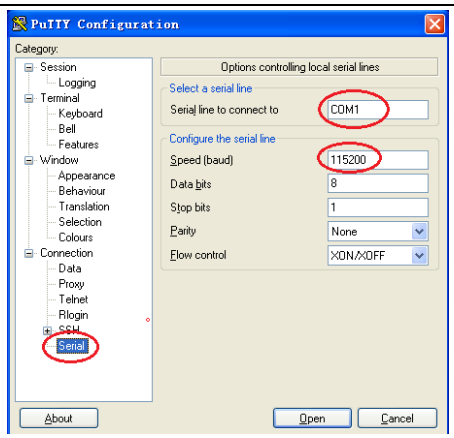
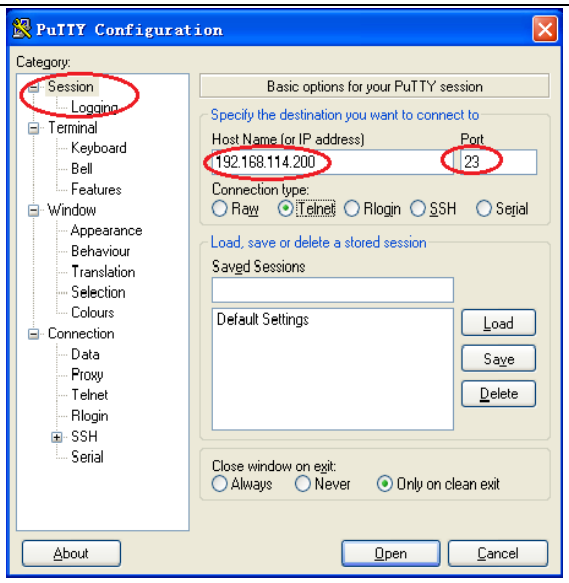
115200, 8N1, No Flow control

Ethernet:

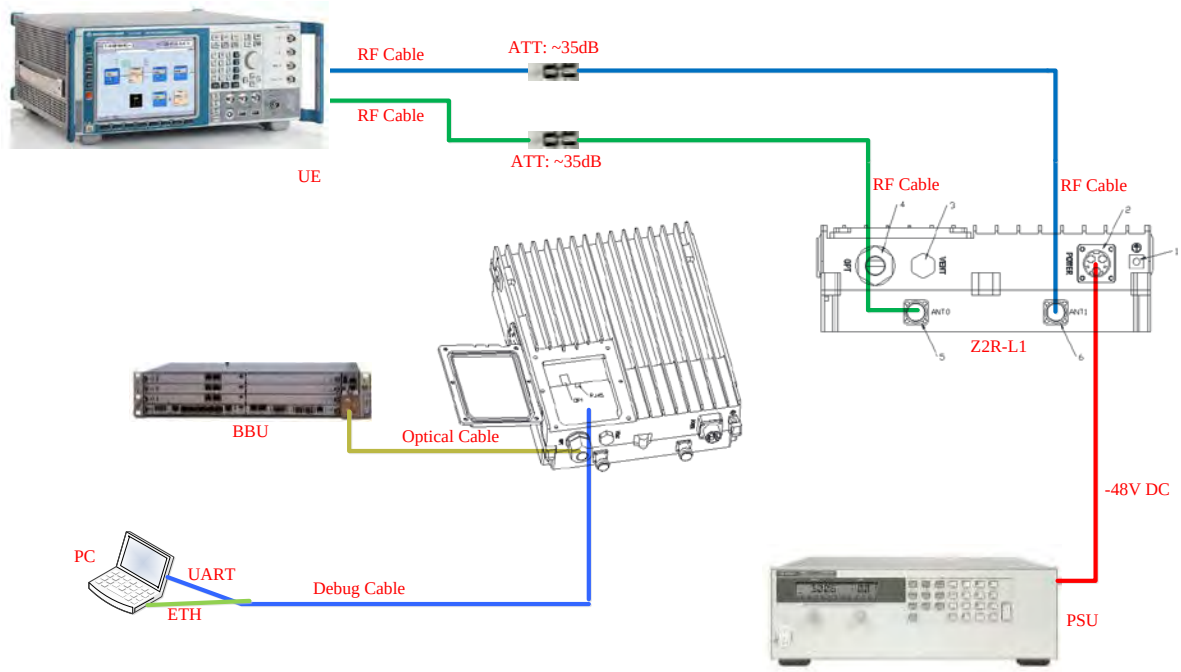
The **default** IP is blow

IP : 192.168.114.200

setting putty as below:

Item	Mode	Software	Description	Remark
1	UART	PuTTY	 ◆The “Serial line to connect to” should indicate the actual serial port used on your PC for debugging. ◆ Please set the Speed (baud) parameter to **115200** since the LTE RRH B40/B41 baud rate is **115200**. ◆ Please keep the default values for other parameters.	The COM may be different when choosing different port in PC.
2	Telnet	PuTTY	 ◆Please set The IP address to IP address of the LTE RRH B40/B41. You can get IP address through the CMD in UART mode.	◆The CMD of IP address query is *ifconfig* ◆The default IP adreess of LTE RRH B40/B41 is: *192. 168. 114. 200.* ◆Change IP adreess *ifconfig eth0 <IP address>*

2.4 Connection figure



1.the output power of LTE RRH B40/B41 will be 2W per antenna when -15dBFS digital signal input from CPRI, so please choose proper Attenuator to protect UE.

2. the Debug Cable is compose of UART and eth, the detail information this cable is Appendix A.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

3 Hardware Test list

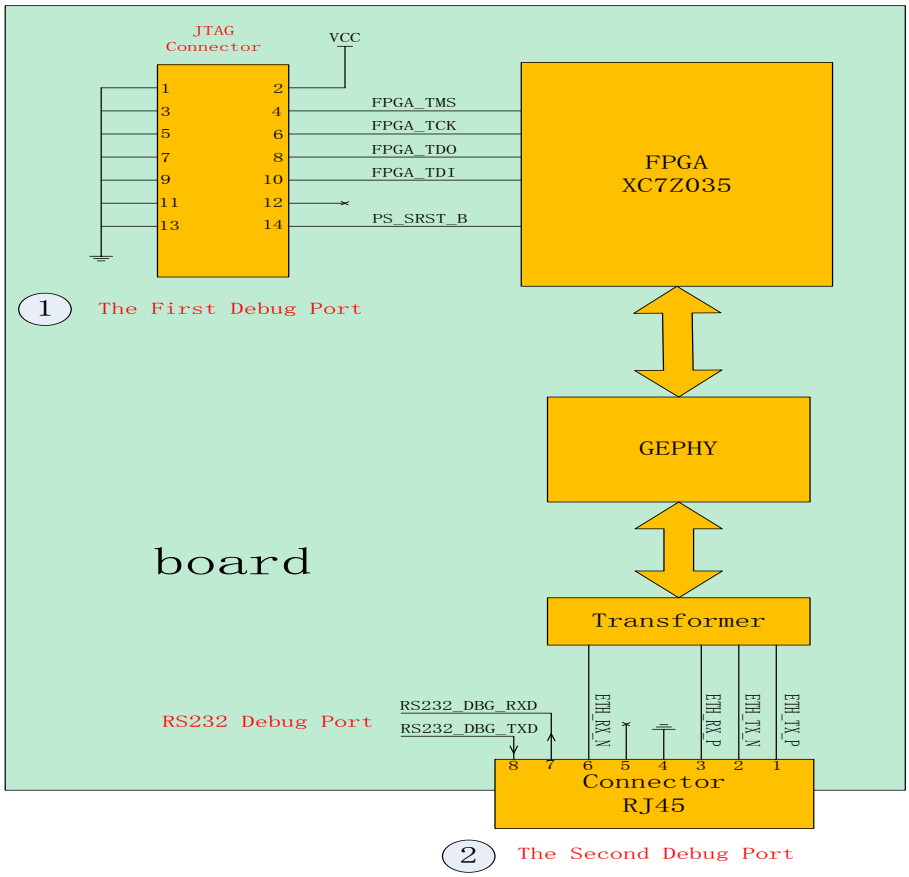
Test Item #	Test Point	Description	Typ
1.	TP1	Output of regulator U2（NCP3231）	1.020～0.920V
2.	TP2	Output of regulator U3（TPS54620）	2.040～1.960V
3.	TP4	Output of regulator U5（TPS54620）	3.570～3.430V
4.	TP3	Output of regulator U6（NCP3231）	1.530～1.470V
5.	TP5	Output of regulator U7(TPS74801)	1.267～1.332V
6.	TP7	Output of regulator U9(TPS74801)	1.267～1.332V
7.	TP8	Output of regulator U10(ISL80101)	4.850～5.150V
8.	TP9	Output of regulator U11(NCP59744)	1.267～1.332V
9.	TP10	Output of regulator U12(TPS74801)	1.746～1.854V
10.	TP11	Output of regulator U13(TPS74801)	1.267～1.332V
11.	TP12	Output of regulator U14(TPS74801)	3.201～3.399V
12.	TP13	Output of regulator U15(TPS74801)	0.970～1.030V
13.	TP14	Output of regulator U16(TPS74801)	1.746～1.854V
14.	TP15	Output of regulator U17(TPS74801)	1.750～1.850V
15.	TP16	Output of regulator U18(TPS74801)	1.746～1.854V
16.	TP17	Output of regulator U19(TPS74801)	1.170～1.230V
17.	TP18	Output of regulator U20(TPS74801)	3.201～3.399V
18.	TP19	Output of regulator U21(LP2985)	4.750～5.250V
19.	TP20	Output of regulator U22(TPS74801)	3.201～3.399V
20.	TP25	Output of regulator U84(ISL80101)	4.850～5.150V
21.	R169	PS of Zynq input reference clock Y1	Freq:33.33M IO standard：LVCMOS 3.3V Freq tolerance:±100ppm
22.	R372	VCXO Output of AD9528 first PLL Y4	Control voltage:0~3.3V Freq:61.44MHz Pull range:85~185ppm
23.	J23	PA1 B40 Output Return Loss	≤-14dB
24.	J21	PA2 B40 Output Return Loss	≤-14dB

Appendix A

The information of debug port

1.The debug port location

The block diagram describe the general location of the debug port in our board



2.There are two debug ports in our board

1) The first debug port is use for loading the program of software and FPGA. Because the first debug port is inside, so it is only a test debug port.

2) The second debug port is use for outputting the log information、loading the program of the board. when we load the program, we must connect the pin1,pin2,pin3,pin6 of the RJ45 connector to our computer. in addition, the second debug port share with the RS232 debug port. When we use the RS232 debug port, we must connect the pin4,pin7,pin8 of the RJ45 connector