# Hi3516A/Hi3516D High-Speed Signal Test Guide

**Issue** 01

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# Contents

# 1 Testing the USB 2.0 Host

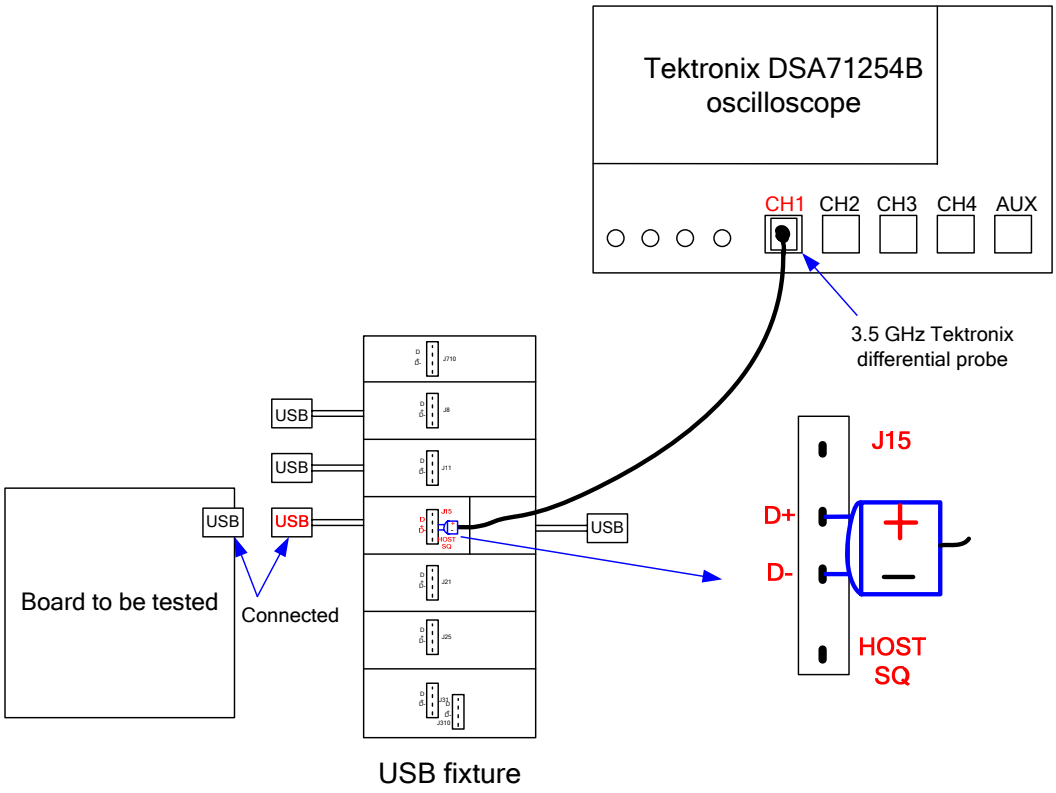
## 1.1 Test Tool

- Oscilloscope: Tektronix DSA72004C
- Differential probe: 3.5 GHz Tektronix (P7330)
- USB test fixture

## 1.2 Test Networking

Figure 1-1 shows the test networking.

**Figure 1-1** Test networking




To configure the related USB registers, run the following commands:

```
himm 0x20120080 0x0;
himm 0x20120080 0x1c20;
himm 0x20120080 0x9;
himm 0x20120080 0x0c29;
himm 0x20120080 0xa;
himm 0x20120080 0x1a2a;
```

To send the USB test packet, run the following command:

```
himm 0x100b0054 0x4900d;
```

# 2 Testing the USB Device

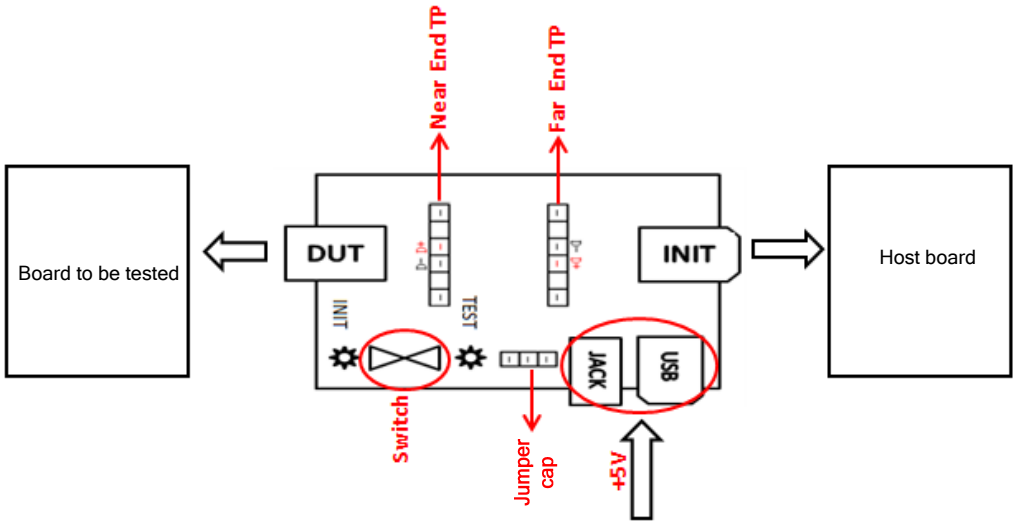
## 2.1 Test Tool

- Oscilloscope: Tektronix DSA71254B
- Differential probe: 3.5 GHz Tektronix (P7330-Tektronix-DSA71254B)
- USB test fixture
- Any host board that can identify the USB device
- Board to be tested

## 2.2 Test Networking

Figure 2-1 shows the test networking.

**Figure 2-1** Test networking




To enable the USB device to send the test packet, write 3'b100 to DCTL bit[6:4] (read this register field after writing to check whether the value is written).

Test command: **himm 0x10080804 0x40**

# 3 Testing TX Signals from the 100 Mbit/s Ethernet Port

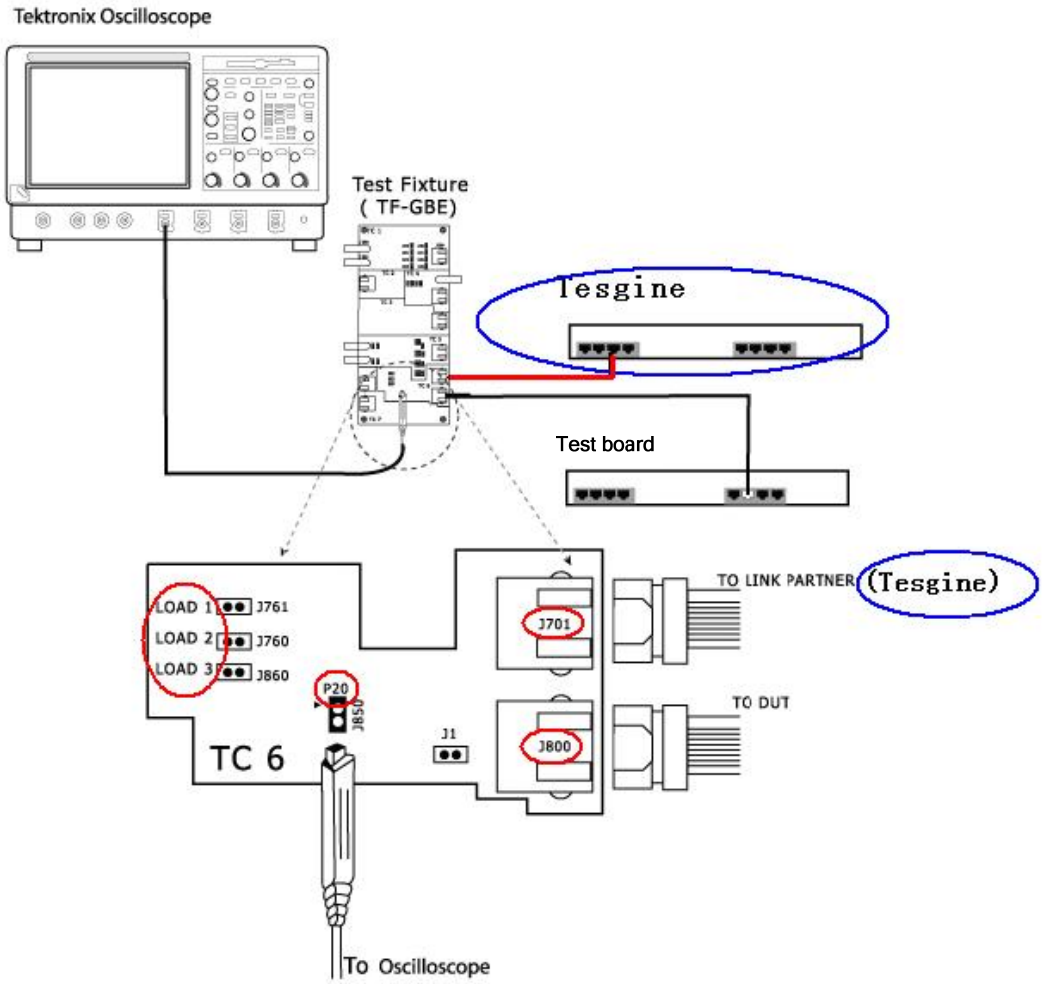
## 3.1 Test Tool

- Oscilloscope: Tektronix DSA72004C
- Differential probe: 3.5 GHz Tektronix (P7330)
- Packet transmitter over the Ethernet port: Huawei Tesgine
- Fixture for testing the Ethernet port (TC6 module)

## 3.2 Test Networking

Figure 3-1 shows the test networking.

**Figure 3-1** Test networking




To test the 100 Mbit/s Ethernet port, send the test code type 0x55 by using the Tesgine.

# 4 Testing TX Signals from the 1000 Mbit/s Ethernet Port

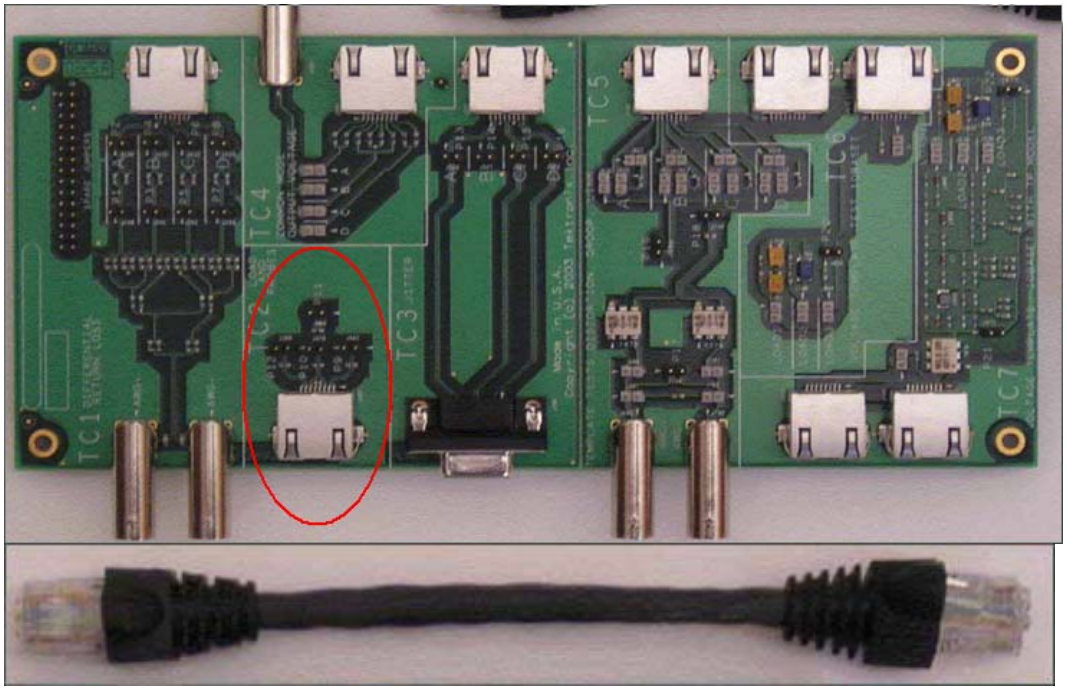
## 4.1 Test Tool

- Oscilloscope: Tektronix DSA72004C
- Differential probe: 3.5 GHz Tektronix (P7330)
- Fixture for testing the Ethernet port (TC2 module)

## 4.2 Picture of the Fixture for Testing the Ethernet Port

Figure 4-1 shows the picture of the fixture for testing the Ethernet port.

**Figure 4-1** Picture of the fixture for testing the Ethernet port



To test the gigabit Ethernet port, the PHY needs to send packets and enter the test mode. The configuration of related registers is provided by the PHY chip vendor. Figure 4-2 shows the register configuration (taking the Hi3516A as an example).

**Figure 4-2** Register configuration (taking the Hi3516A as an example)

***Initial setting :***

Before all waveform (10/100/1000M) measurement please set parameters as below:
Write Reg. 31 Data=0x0005
Write Reg. 5 Data=0x8b86
Write Reg. 6 Data=0xe200
Write Reg. 31 Data=0x0007
Write Reg. 30 Data=0x0020
Write Reg. 21 Data=0x0108
Write Reg. 31 Data=0x0000

***Giga Test Mode Register :***

Enable Test Mode 1 :
Write Reg. 31 Data=0x0000 //page 0
Write Reg. 9 Data=0x2000

Disable Test Mode 1:
Write Reg. 31 Data=0x0000 //page 0
Write Reg. 9 Data=0x0000

Enable Test Mode 4 :
Write Reg. 31 Data=0x0000 //page 0
Write Reg. 9 Data=0x8000

Disable Test Mode 4:
Write Reg. 31 Data=0x0000 //page 0
Write Reg. 9 Data=0x0000

Initialization

```
himm 0x100903C4 0x5;
himm 0x100903C0 0x11011f;

himm 0x100903C4 0x8b86;
himm 0x100903C0 0x110105;

himm 0x100903C4 0xe200;
himm 0x100903C0 0x110106;

himm 0x100903C4 0x7;
himm 0x100903C0 0x11011f;
```

```
himm 0x100903C4 0x20;
himm 0x100903C0 0x11011e;

himm 0x100903C4 0x0108;
himm 0x100903C0 0x110115;

himm 0x100903C4 0x0;
himm 0x100903C0 0x11011f;

==================================
```

Test mode 1

```
himm 0x100903C4 0x2000;
himm 0x100903C0 0x110109;
```

Test mode 2

```
himm 0x100903C4 0x4000;
himm 0x100903C0 0x110109;
```

Test mode 3

```
himm 0x100903C4 0x6000;
himm 0x100903C0 0x110109;
```

Test mode 4

```
himm 0x100903C4 0x8000;
himm 0x100903C0 0x110109;
```