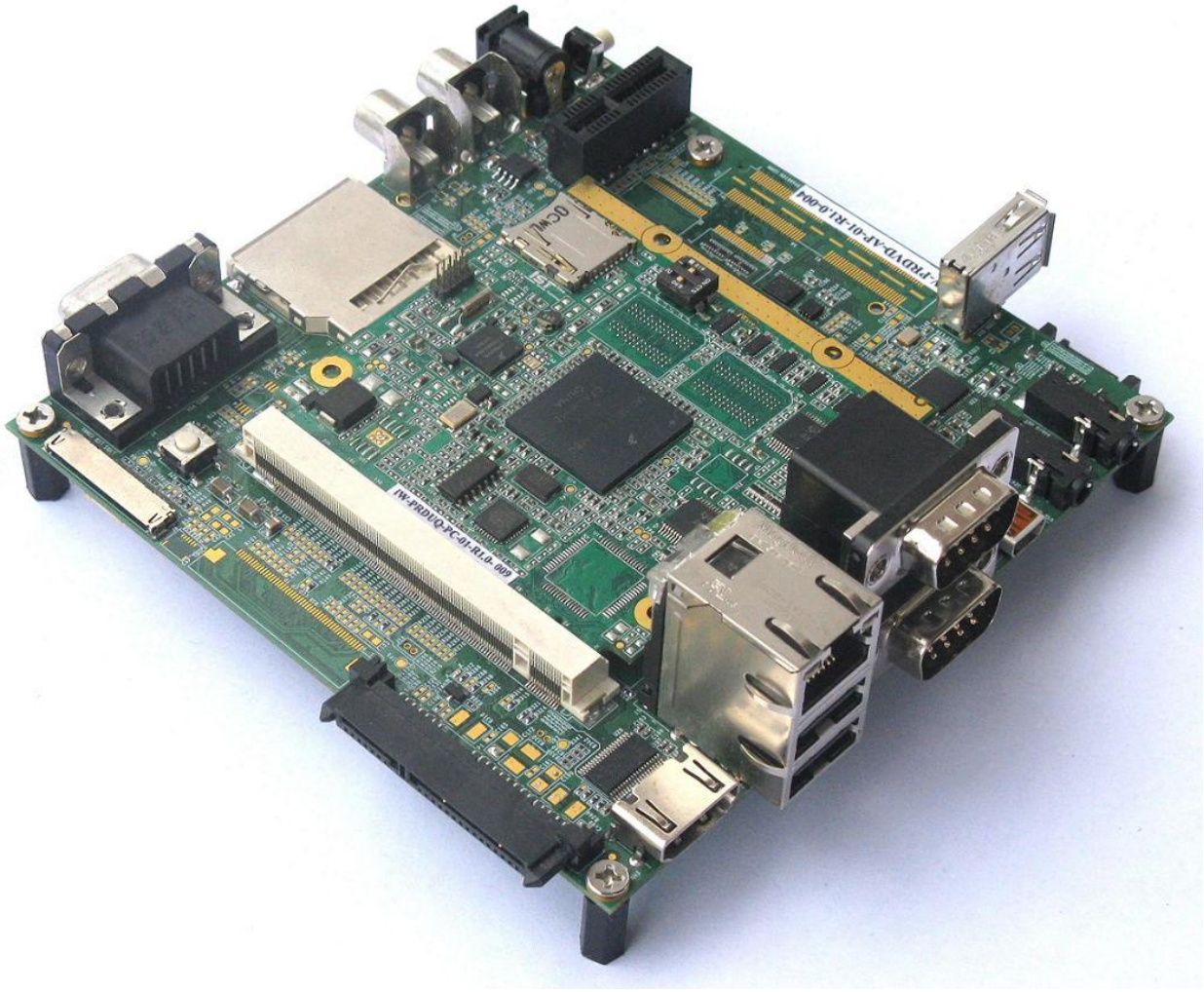
Hardware User Manual for G7D generic Q7 Carrier Card
iW-PRDVD-UM-01-R1.0-REL1.0
2nd ,Nov, 2011



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DOCUMENT IDENTIFICATION

Project Name	iW-RAINBOW-G7
Document Name	iW-PRDVD-UM-01-R1.0-REL1.0- Rainbow G7D HW Usermanual
Document Home	file://server/prdvd/svn/trunk/iW-PRDVD-PF-01-R1.0/iW-PRDVD-HF-01-R1.0/iW-PRDVD-UM-01-R1.0
Release No	REL 1.0
Status	Release
Audience	

DOCUMENT REVISION HISTORY

Revision	Date	Change Description	Updated By	Reviewed By
1.0	2nd Nov 2011	Initial Draft Release	Raghavendra	

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TABLE OF CONTENTS

LIST OF FIGURES

List of Tables

1 Introduction

1.1 Purpose

The purpose of this document is to explain the procedure about the user interface, Power ON procedure for Generic Q7 Carrier Card.

1.2 Scope

This document describes the Hardware details, Power-on procedure and setting up Serial communication with PC/Laptop.

1.3 Glossary

Table 1: Glossary

Acronyms	Description.
ATK	Advanced Tool Kit
CAN	Controller Area Network
LCD	Liquid Crystal Display
DDR	Double Data Rate
FAQ	Frequently Asked Question
HT	Hyper Terminal
MMC	Multi Media Card
PC	Personal computer
RS232	Recommended Standard 232
SATA	Serial Advanced Technology Attachment
SD	Secure Digital
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus
VGA	Video graphic Array

2 Hardware Details

2.1 Generic Q7 Carrier Card Connector details

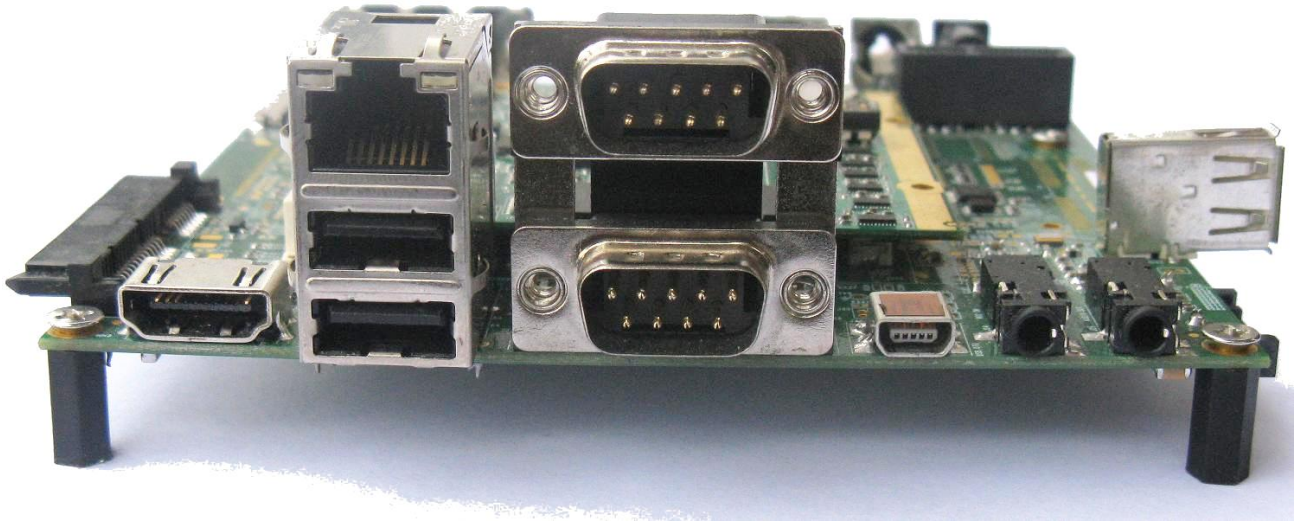

Figure 1: Generic Q7Carrier Card Connector Details-1

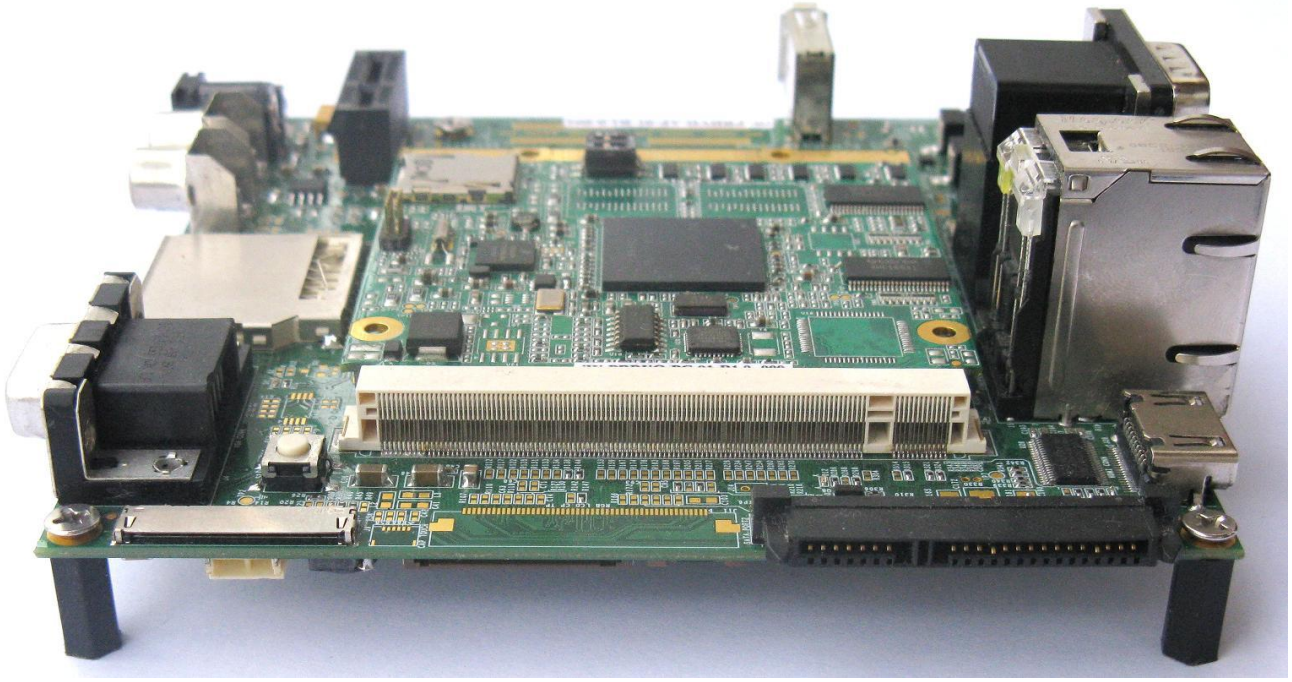

Figure 2: Generic Q7Carrier Card Connector Details-2

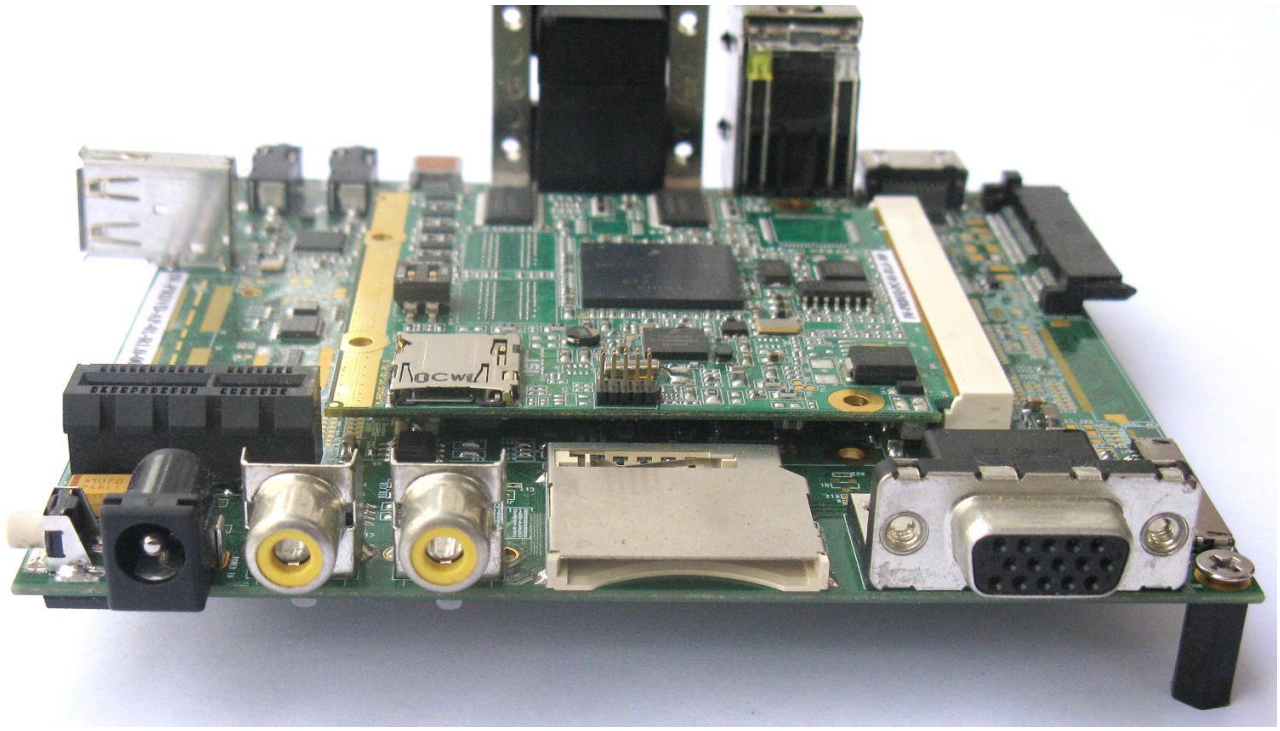

Figure 3: Generic Q7 Carrier Card Connector Details-3

2.2 Board Configurations and Default Features

Table 2: Board Configurations

Board Configuration / Feature	Default Configuration	Optional Configurations
Debug UART (DB9 Connector)	YES	YES
Ethernet Connector	YES	YES
8 bit MMC Slot[(2)]	YES	YES
HDMI Connector	YES	YES
Mini AB USB OTG Connector	YES	YES
3.5mm Mic Connector	YES	YES
3.5mm Audio out Connector	YES	YES
80Pin Expansion Conn1	YES	YES
80Pin Expansion Conn 2	YES	YES
USB Host Conn x 2 (Dual)	YES	YES
USB Host Conn x 1	NO	YES

LVDS1 Connector with Back light Interface[3]	YES	YES
40pin LCD Conn RGB[3] 18BPP	YES	YES
50pin LCD Conn RGB[3] 24BPP With Capacitive Touch	NO	YES
LVDS2 Connector with Back light Interface	NO	YES
22pin SATA2 Conn	NO	YES
7pin SATA1 Conn	NO	YES
PCIe x1 Slot	NO	YES
Mini PCIe/3G module Conn	YES	YES
RTC Connector	YES	YES
CAN1 Interface with Transceiver (DB9)	NO	YES
CAN2 Interface with Transceiver(header) [1]	NO	YES
VGA Connector[1]	YES	YES
TV IN Connector[1]	NO	YES
TV OUT Connector[1]	NO	YES
Resistive Touch Conn[1]	YES	YES
Camera Connector[1]	YES	YES
TAIYO Wifi Module Connector[2]	NO	YES
SIM Holder	NO	YES
Reset Switch	YES	YES
Power ON button	YES	YES

Note (1): All these features are coming from 80pin expansion connectors & may not be accessible during fallowing situations.

1. 80 pin expansion connectors are not populated
2. Module does not support these features
3. Module does not have the option of 80pin expansion connector (other than iWave Q7 Modules)

Note (2): Both SD/MMC & WiFi interfaces are not accessible simultaneously. Both interfaces are sharing same SDIO lines.

Note (3): LVDS1 & RBG LCD interfaces are connected to same Display LVDS1 signals with LVDS receiver.

2.3 Hardware Setup Details

1.1.1 Power Supply Connection Procedure

Insert the power plug of the power supply provided into the power jack of the Generic Q7 Carrier Card as shown below.

Power Rating: 12V input with 2A.

Figure 4: Generic Q7 Carrier Card Power Connection

1.1.2 Serial Cable Connection Procedure

1. Serial cable provided has DB9 connector (Female type) at both end.
2. Insert DB9 of the serial cable to PC/Laptop COM port.
3. Connect other end of the serial cable to Generic Q7 carrier board serial port connector (Bottom) as shown below.

Figure 5: Serial Port Connection

The RS232 port pin outs are as in below table.

Table 3: RS232 port pin assignment

Pin No	Signal Name	Description
2	RXD	Receive Data(Input)
3	TXD	Transmit Data (Output)
5	GND	Ground
1,4,6,7,8,9	NC	No connection

1.1.3 USB OTG Connection Procedure

Insert the USB Device Mini B cable to the USB OTG connector as shown below & other end to HOST PC/Laptop.

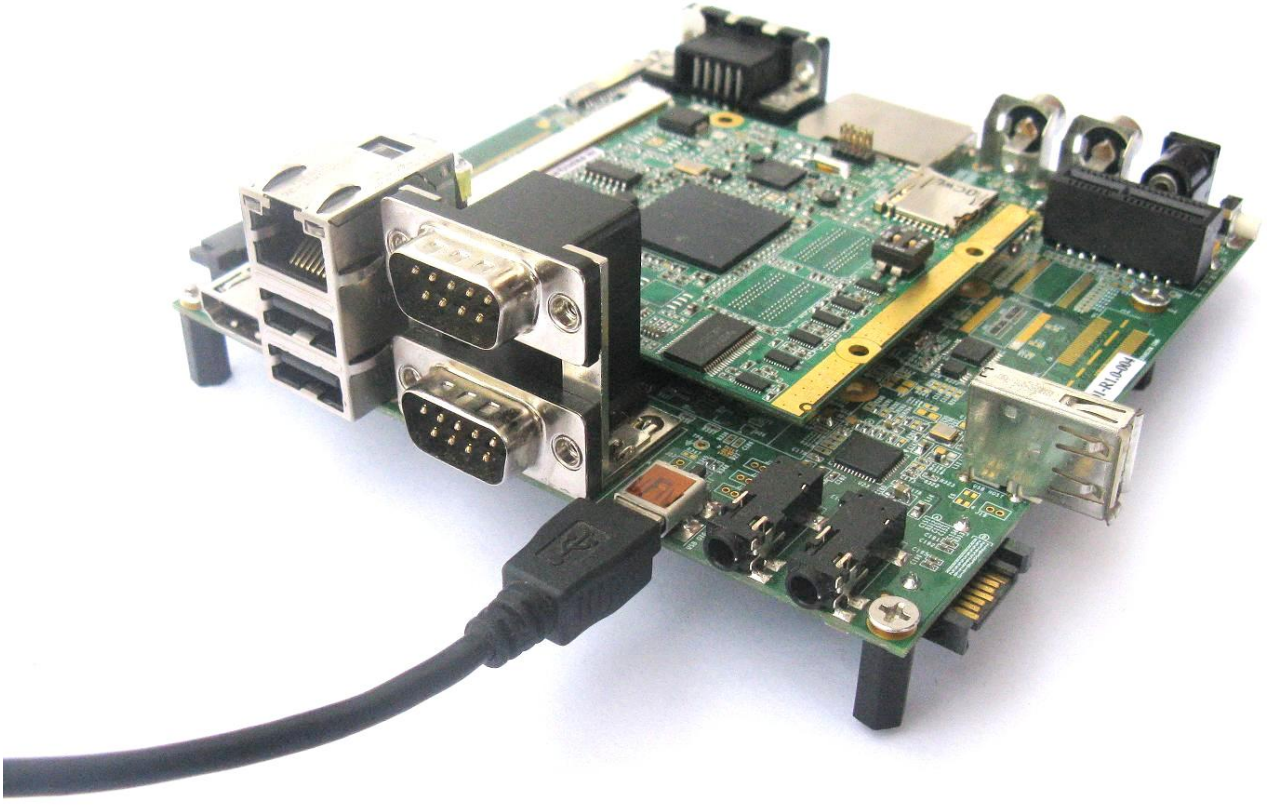

Figure 6: USB Device Connection

The USB OTG connector pin outs are as in below table.

Table 4: USB OTG connector pin assignment

Pin No	Signal Name	Description

1	VBUS_OTG	VBUS Supply
2	USB_OTG_DATA-	Data pair (IO)
3	USB_OTG_DATA+	
4	USB_ID	USB ID pin Float to act as a Device GND to act as a Host
5	GND	Ground

1.1.4 SD/MMC Connection Procedure

Insert the SD Memory card in the 4/8 bit SD slot as shown below.

Figure 7: SD Connection

1.1.5 Audio In Cable Connection Procedure

Insert the Audio IN jack into the Audio in connector as shown below.

Note: Here the **RED color** cable is used to denote the audio input.

Figure 8: Audio In Connection

1.1.6 Audio Out Cable Connection Procedure

Insert the Audio OUT jack into the Audio out connector as shown below.

Note: Here the **Black color** cable is used to denote the audio output.

Figure 9: Audio Out Connection

1.1.7 VGA Cable Connection Procedure

Insert the VGA cable into the into the VGA (DB15) connector.

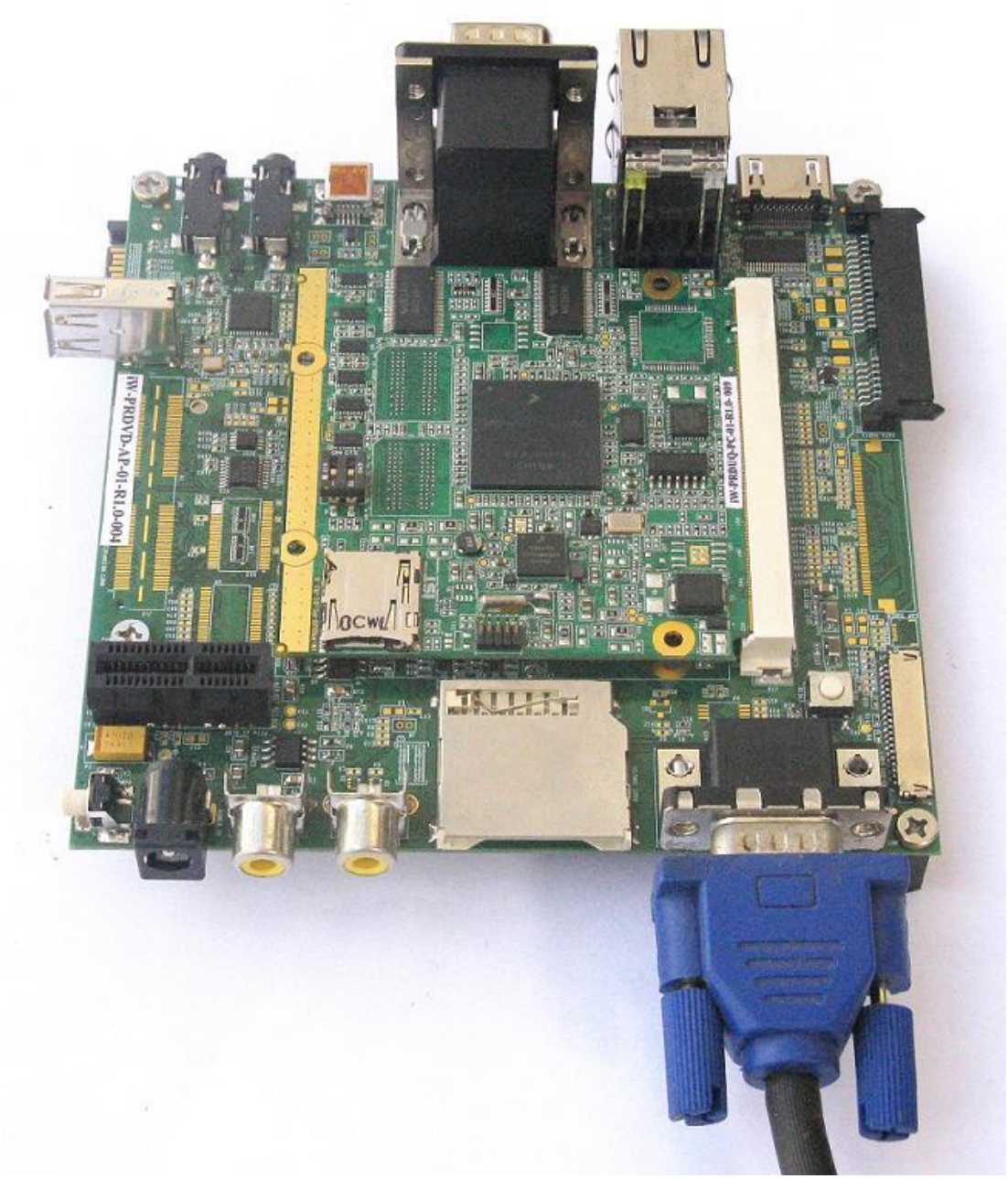

Figure 10: VGA Cable Connection

1.1.8 Ethernet Cable Connection Procedure

Insert the Ethernet cable into the RJ-45 Magjack connector as shown below.

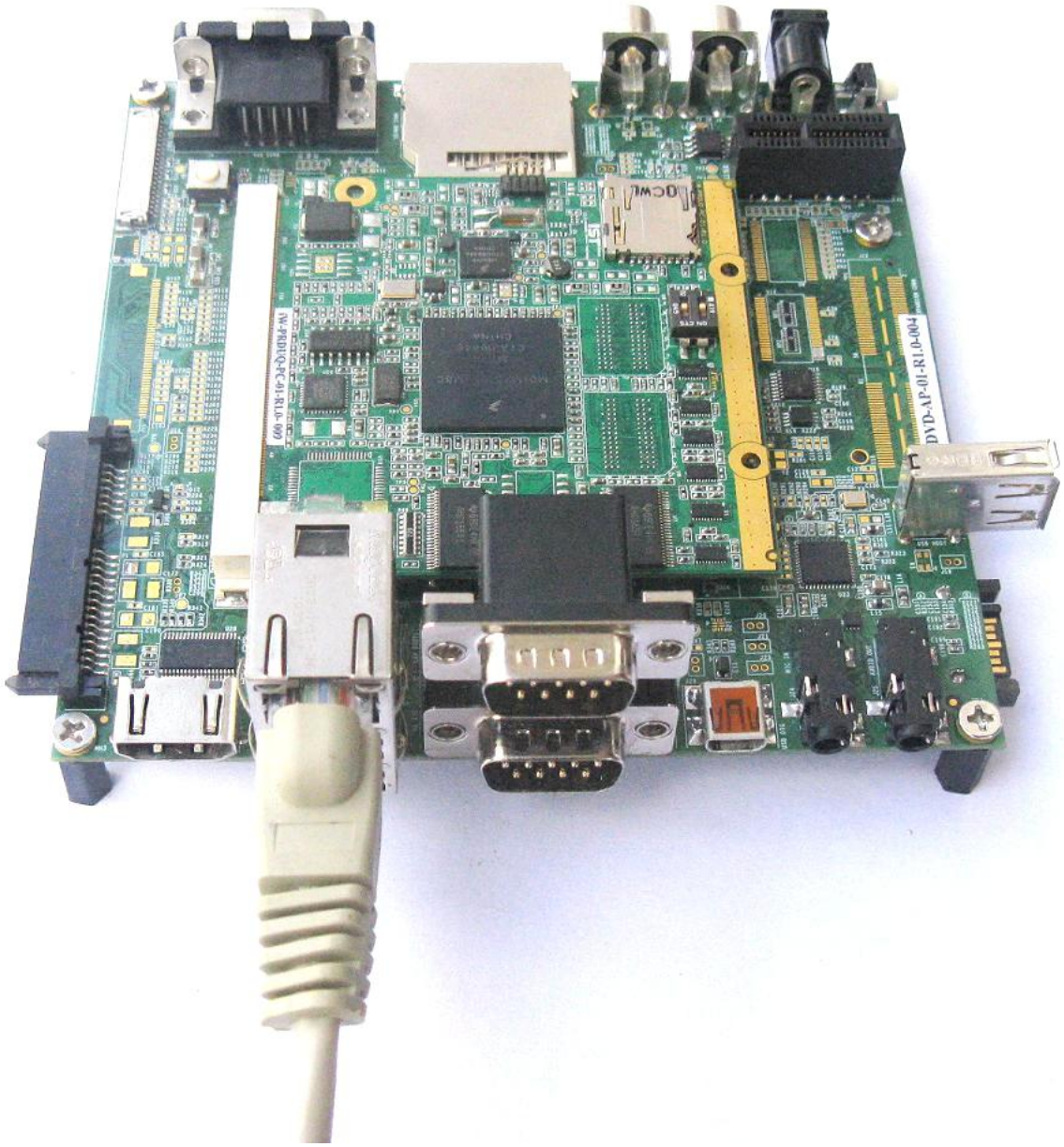

Figure 11: Ethernet Connection

1.1.9 USB Host 0 Connection Procedure

Insert the USB device (ex: USB Pen drive) to the USB Host0 connector (Standard Type A) as shown below.

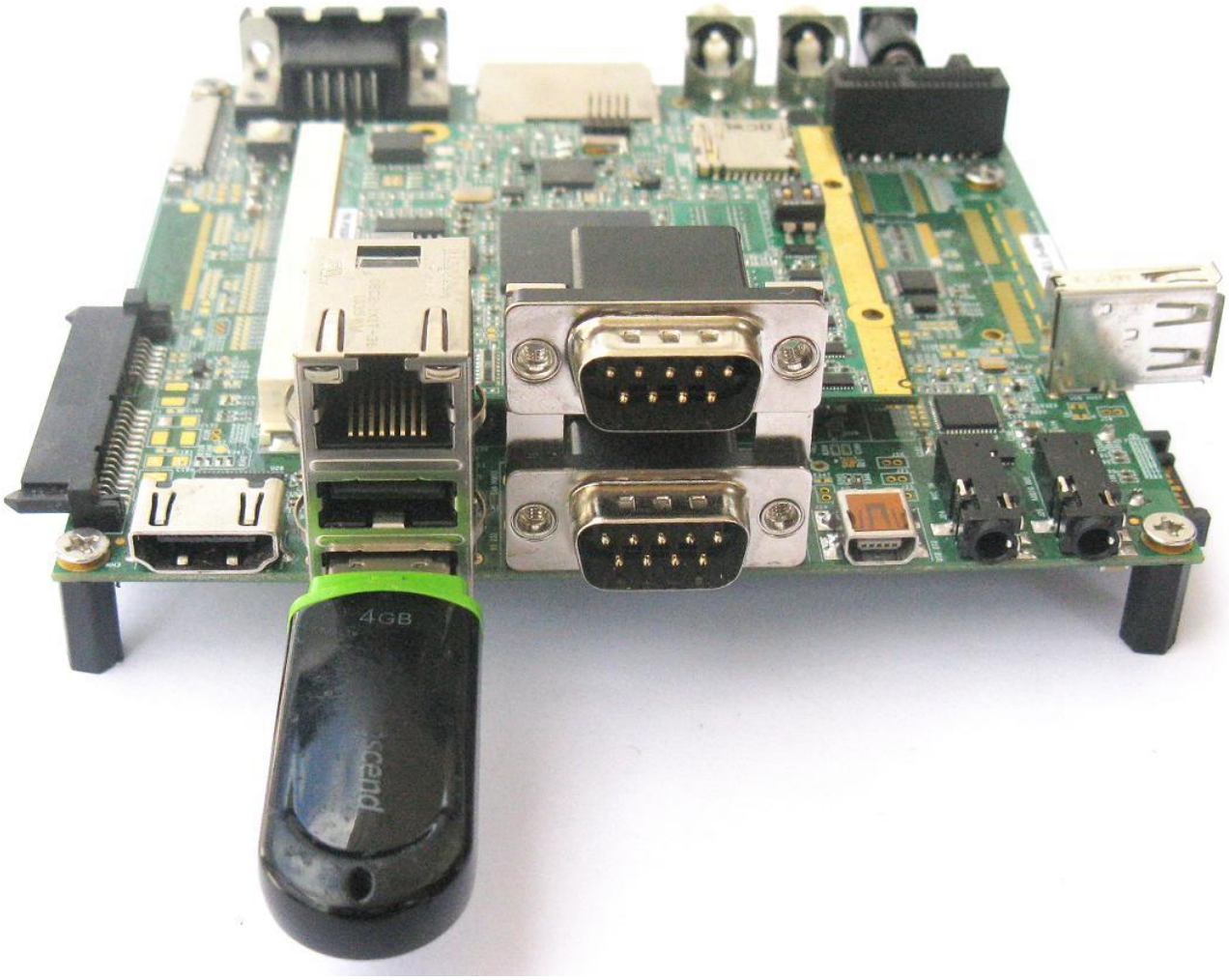

Figure 12: USB Host 0 Connection

1.1.10 USB Host 2 Connection Procedure

Insert the USB device (ex: USB Pen drive) to the USB Host 2 connector (Standard Type A) as shown below.

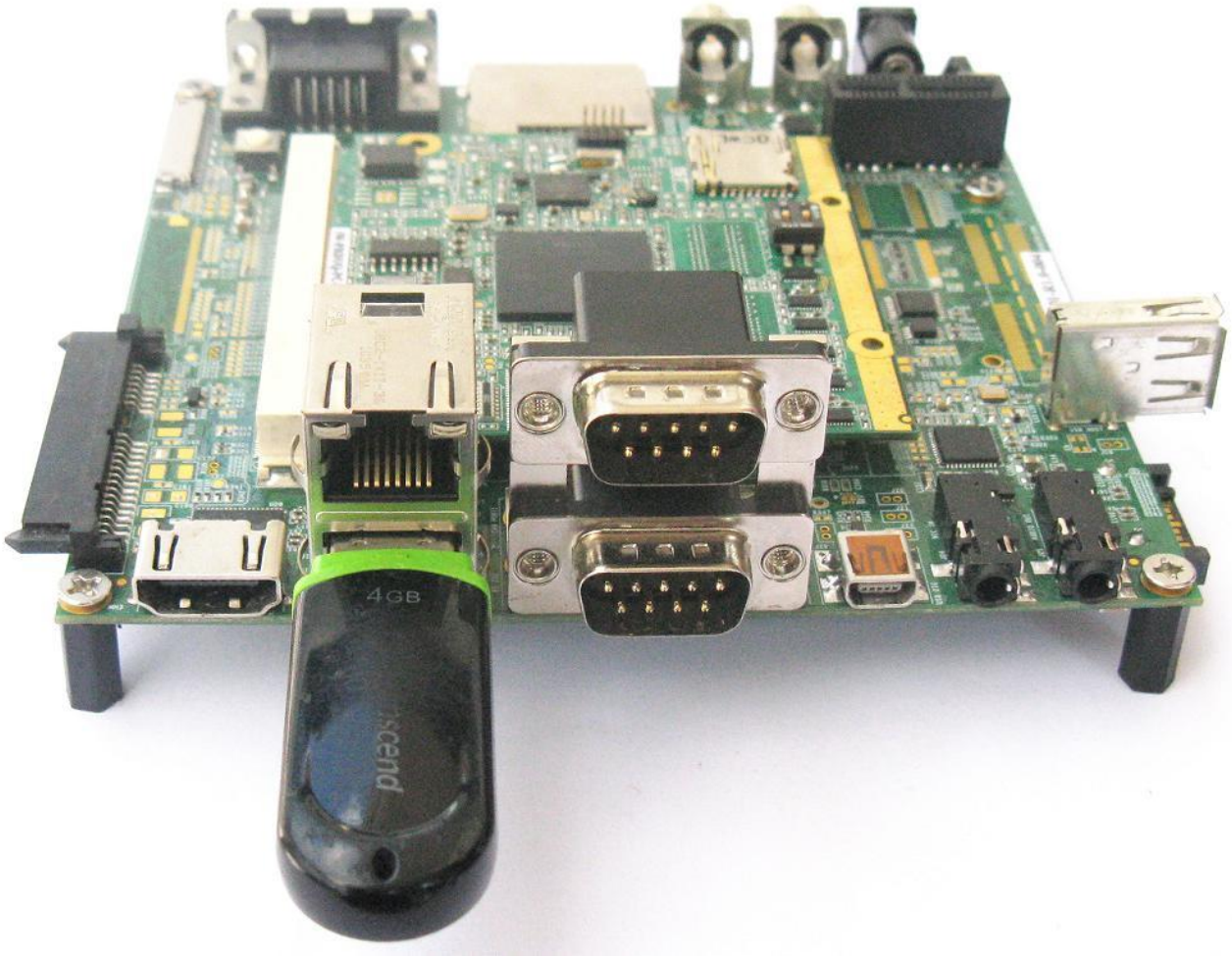

Figure 13: USB Host 2 Connection

1.1.11 USB Host 4 Connection Procedure

Insert the USB device (ex: USB Pen drive) the USB Host 4 connector (Standard Type A) as shown below.

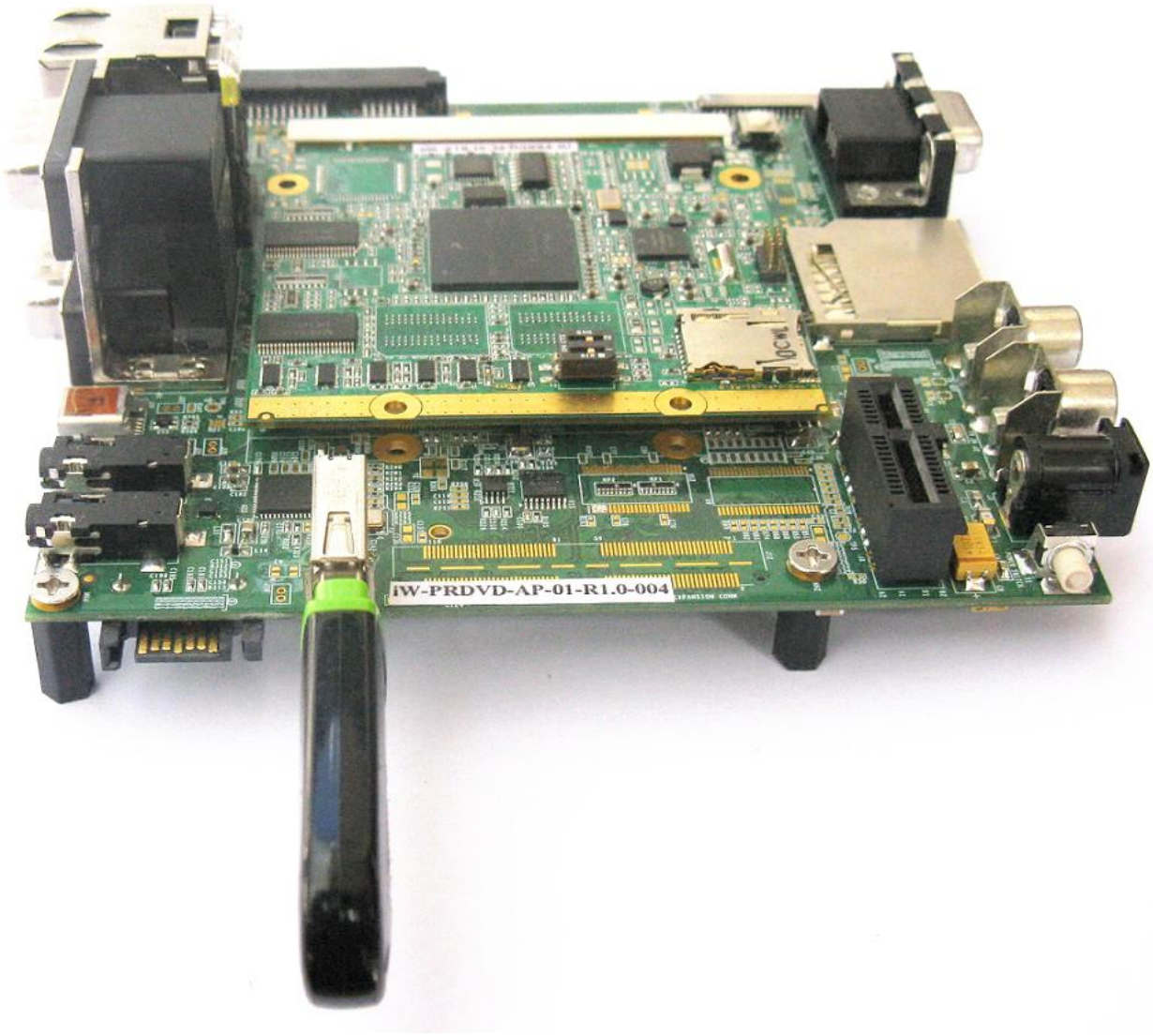

Figure 14: USB Host 4 Connection

1.1.12 CAN Connection Procedure

CAN Devices can be connected to the CAN port (TOP) provided as shown below.

Figure 15: CAN Connection

The connector pin outs are shown in below table.

Table 5: CAN port pin assignment

Pin No	Signal Name	Description
2	CAN1L	Dominant High
7	CAN1H	Dominant Low
3,6	GND	Ground
9	VCC_12V	Power with Option
5	EARTH	Shield Ground with Option
1,4, ,8,	NC	No connection

1.1.13 SATA Connection Procedure

Insert the 2.5” SATA HDD to the 22 pin SATA connector as shown below.

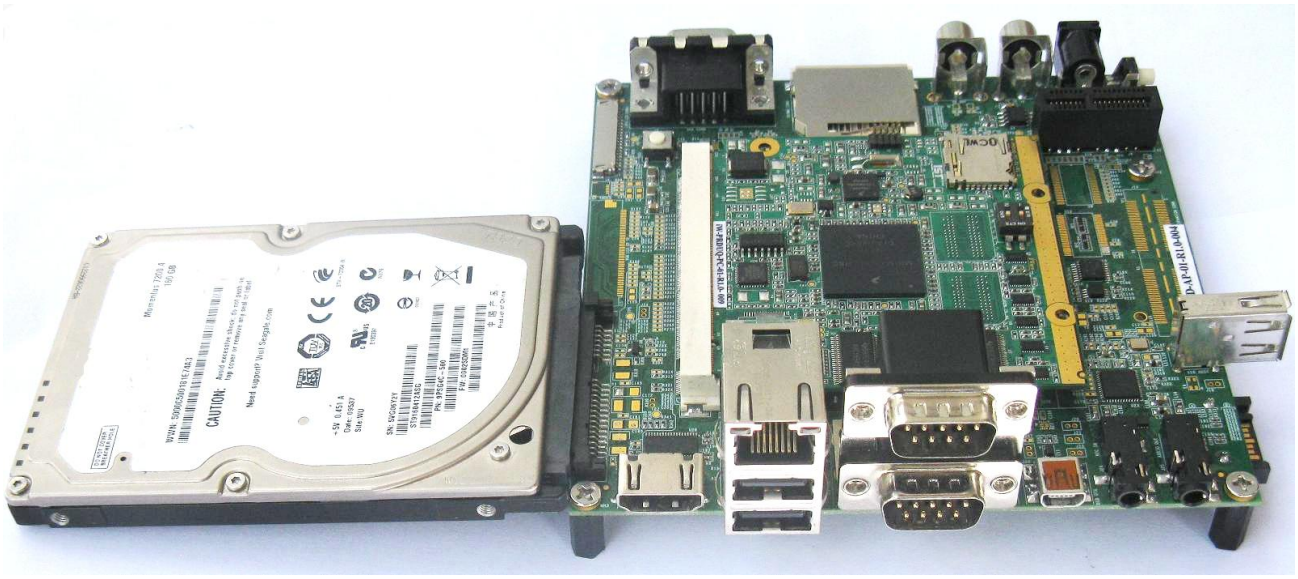

Figure 16: SATA Connection

1.1.14 HDMI Connection Procedure

Insert the HDMI cable into the HDMI connector as shown below.

3 Generic Q7 Carrier Card Connector Pin Assignments

3.1 Generic Q7 Carrier Card Top

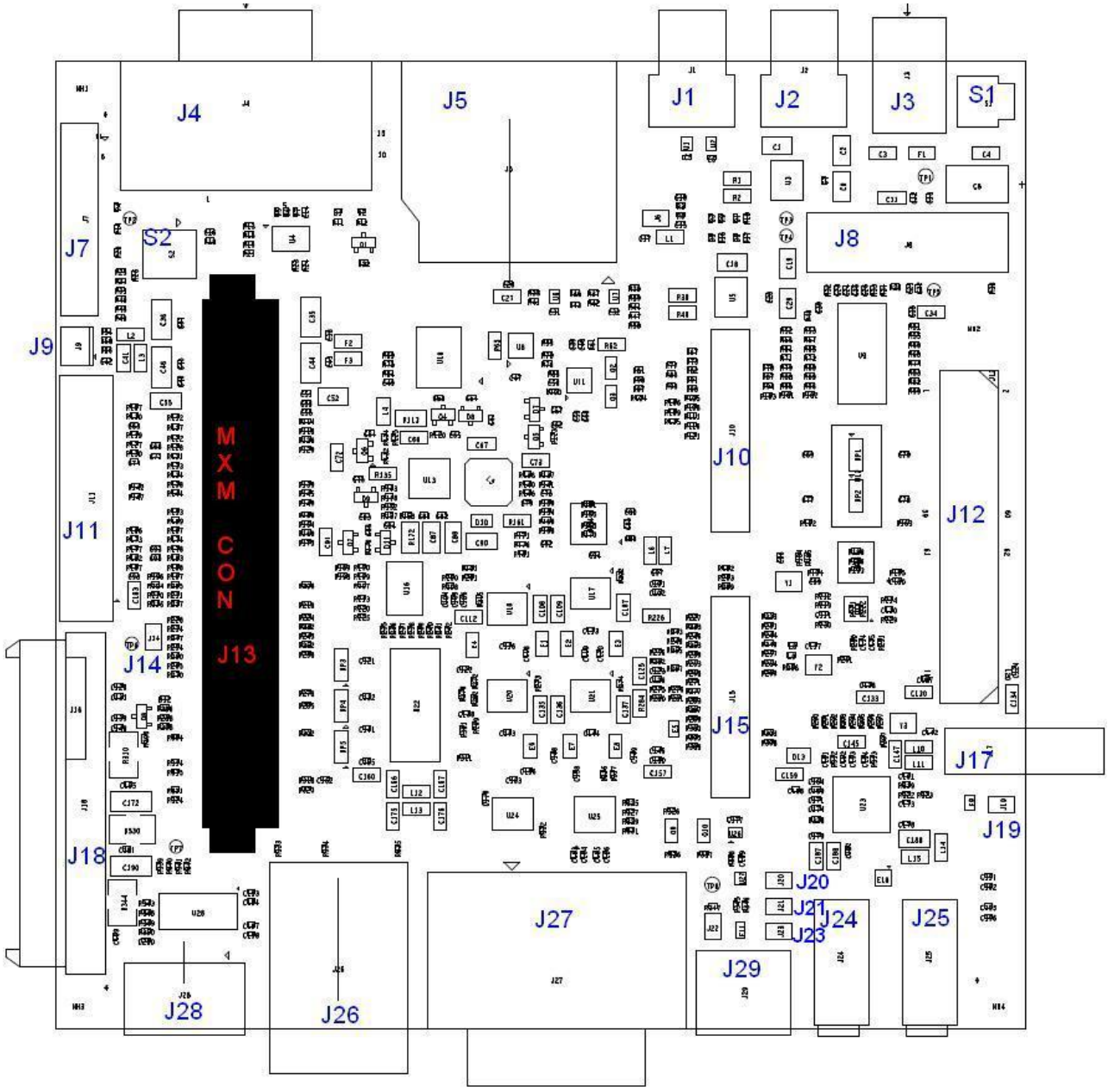

Figure 17: Generic Q7 Carrier Card Top

Above Figure Shows the Carrier card connector reference numbers on top side.
Following are the list of Connectors on Top side

- VGA Connector(J4)
- RCA Jack for Video In(J2)
- RCA Jack for Video Out(J1)
- Power Jack(J3)
- SD Connector(J5)
- PCIe x1 slot (J8)
- LVDS1 Connector-1(J7)
- 230 Pin MXM Connector(J13)
- 80 pin Expansion Connector 1(J15)
- 80 pin Expansion Connector 2(J10)
- CAN1 - Dual DB9 Connector (J27-Top)
- 22 Pin SATA1 Connector(J18)
- Audio In Jack(J24)
- Audio Out Jack(J25)
- RJ45/MagJack(J26)
- UART- Dual DB9 Connector(J27-Bottom)
- HDMI Connector(J28)
- USB0 & USB2- Dual USB Type A Connector(J26)
- USB1 OTG Mini AB Connector(J29)
- USB4 Type A Connector (J17)
- LCD Connector RGB 50pin (J11)
- 2pin_50mil Through hole Header for Speaker Out Left(J20)
- 2pin_50mil Through hole Header for Speaker Out Right(J21)
- MIC Connector(J23)
- 120pin Expansion Connector (J12)

3.2 Generic Q7 Carrier Card Bottom

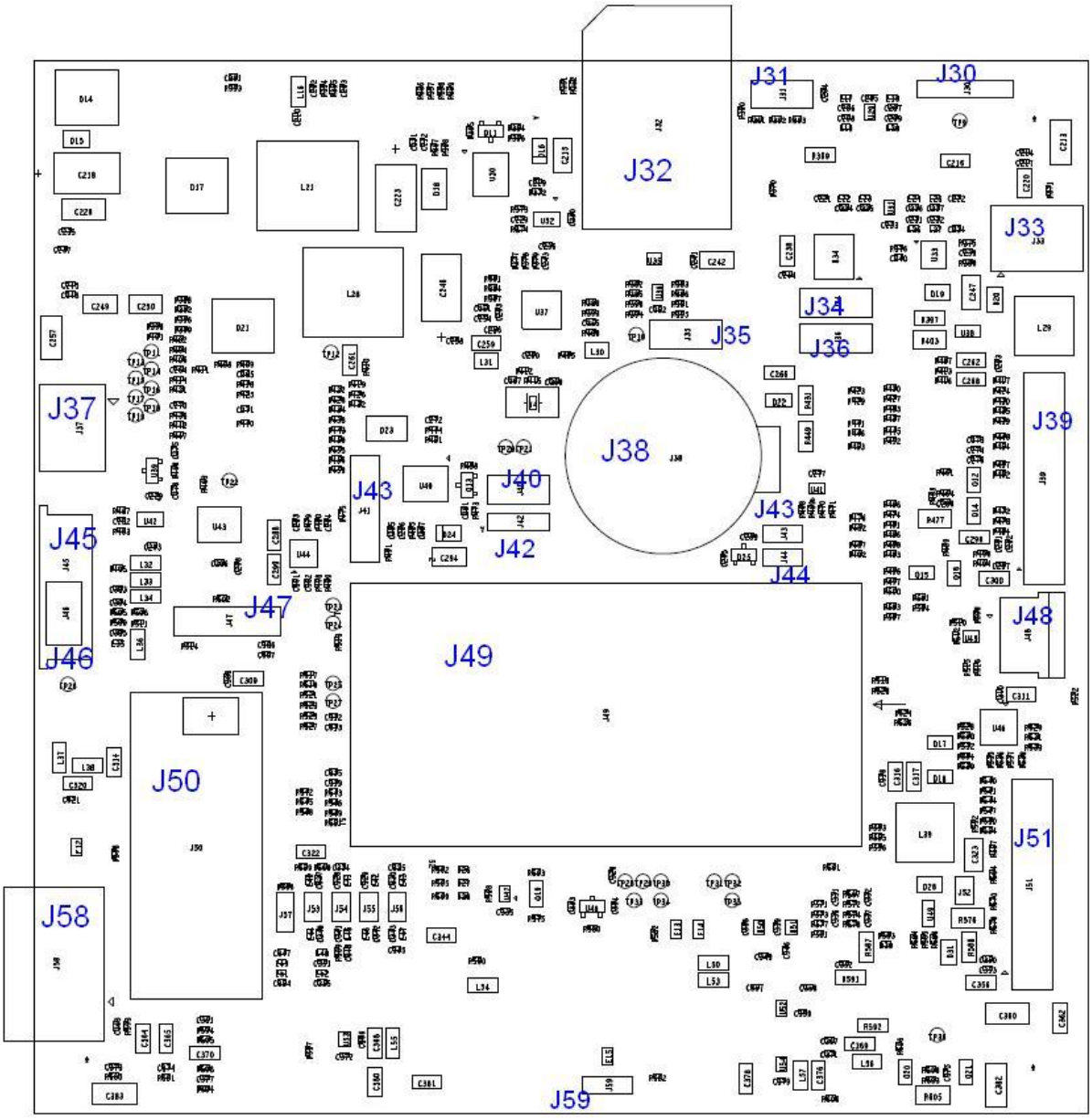

Figure 18: Generic Q7 Carrier Card Bottom

Above Figure Shows the Carrier card connector reference numbers on bottom side.
Following are the list of Connectors on Bottom side.

.

- SIM Connector(J32)
- JTAG Header(J31)
- 5pin_50mil Through hole Header for UART interface(J42)
- 2 Pin Header for RTC Battery(J38)

- 8pin_50mil Through hole Header for SPI interface(J30)
- Camera Connector(J46 & 45)
- WIFI Module Connector(J50)
- LCD Connector RGB 40pin (J39)
- Mini PCIe Connector(J49)
- CAN2 Header (J37)
- 4pin_50mil Through hole Header for USB5 interface (J59)
- LVDS2 Connector-1(J51)
- Touch Connector(J48)
- LVDS1 Backlight connector (J33)
- 7-Pin SATA2 Connector(J58)
- 10pin_50mil Through hole Header for Keypad (4x4) interface(J40)
- 12pin_50mil Through hole Header for LPC interface(J35)

4 Power On

Connect the 12V supply provided & power on the board.

4.1 HyperTerminal Setup

1. Insert one end of the serial cable to PC/Laptop COM port (DB9 Male Connector.)
2. Connect the other end of the serial cable to serial connector of the Board.
3. Open the HyperTerminal on the PC/Laptop as mentioned below
4. Go to Start -> Programs -> Accessories -> Communication -> HyperTerminal on the host PC/Laptop.
5. In hyperterminal,Go to Files ->Properties
6. Select COM1 or COM2 port depending on which port you have connected the serial cable as shown below.

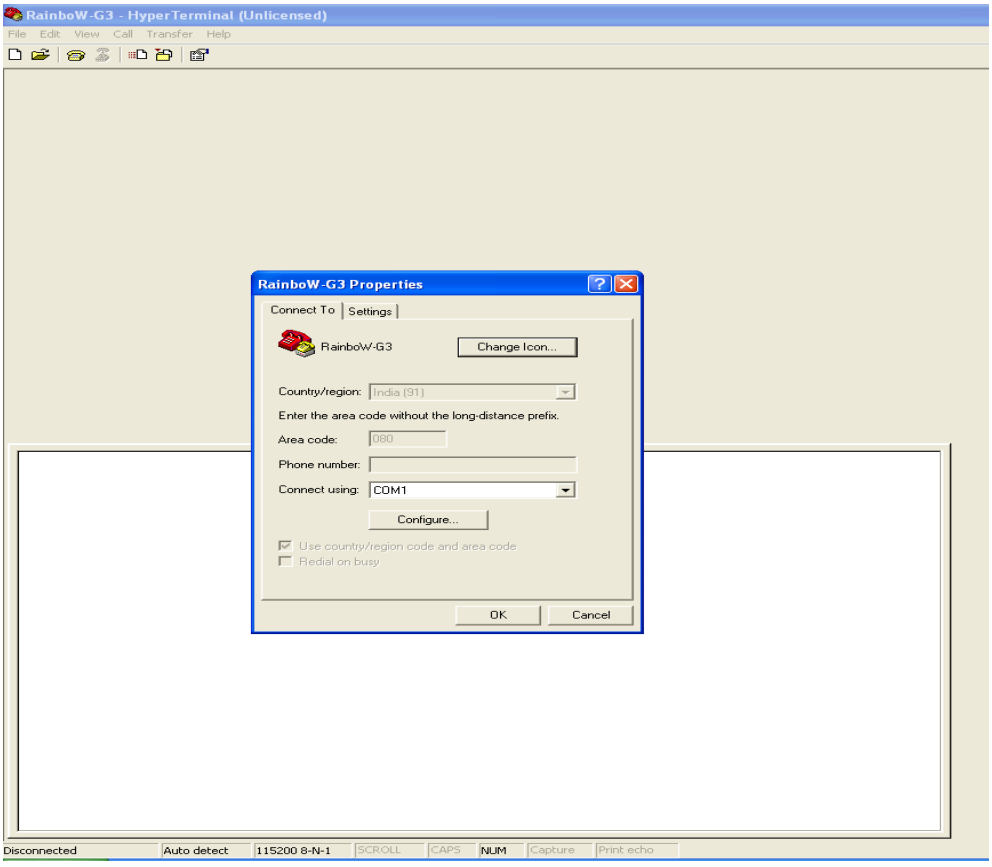

Figure 19: Hyperterminal settings-1

7. Now Click Configure button and do Port Settings as below..
   Bits per Second (Baud Rate) :**115200**
   Data bits :**8**

Parity	:**None**
Stop Bits	:**1**
Flow Control	:**None**

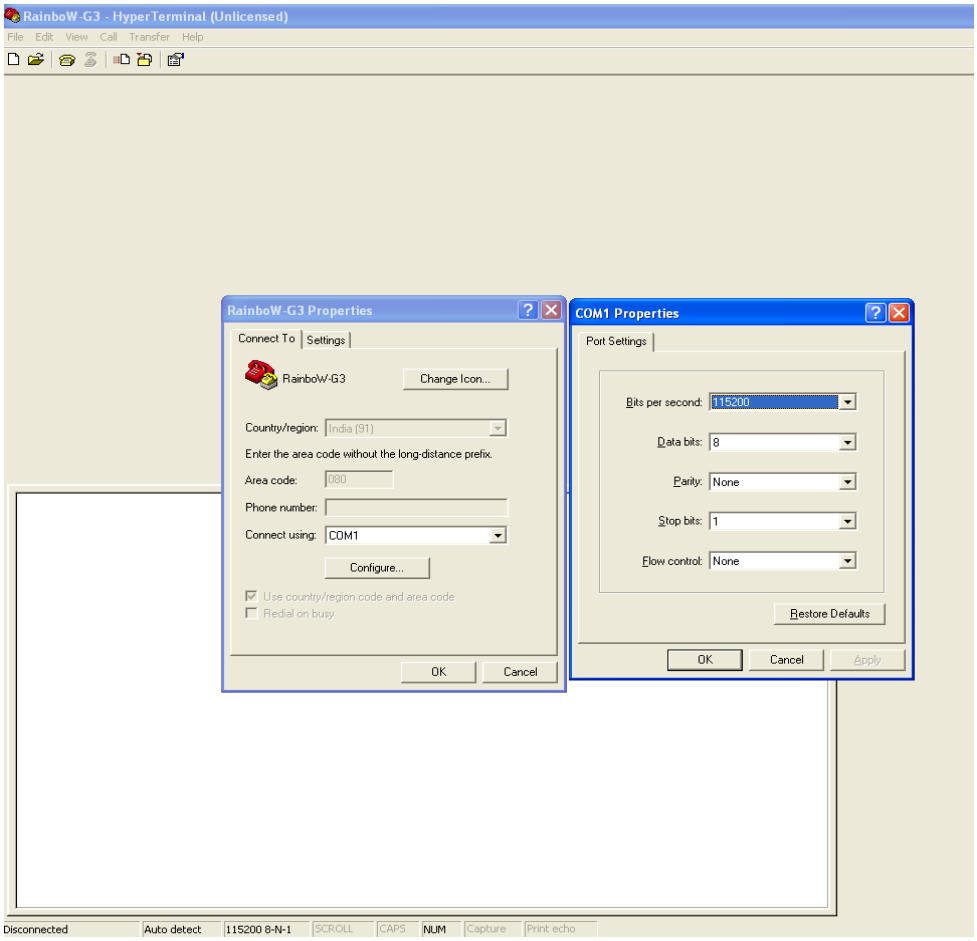

Figure 20: Hyperterminal settings-2

8. Go to File -> Properties -> Settings ->ASCII Setup.
9. Now Select ‘Echo typed characters locally’ has to be enabled as shown below
10. Go to Call -> Call to connect.
11. If you want to disconnect, Go to Call -> Disconnect.

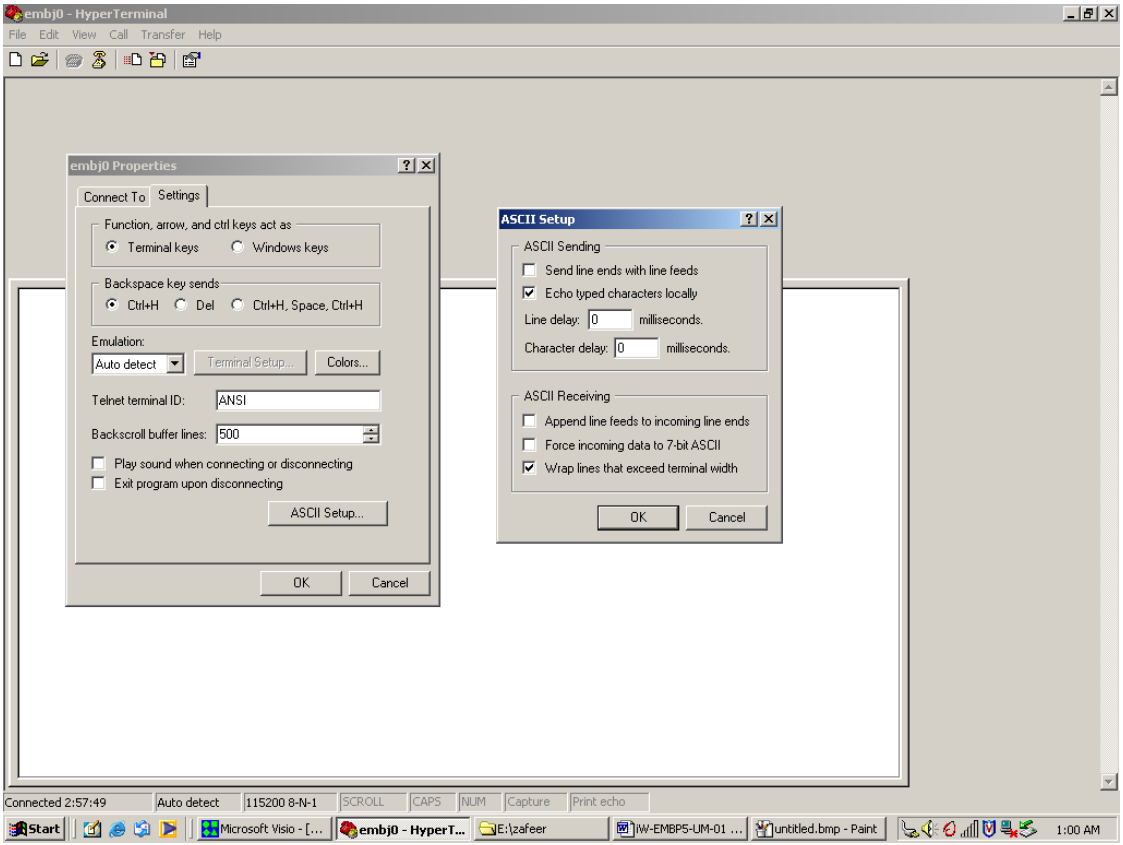

Figure 21: Enable Echo typed characters

The UART console messages will appear on the HT as shown below.

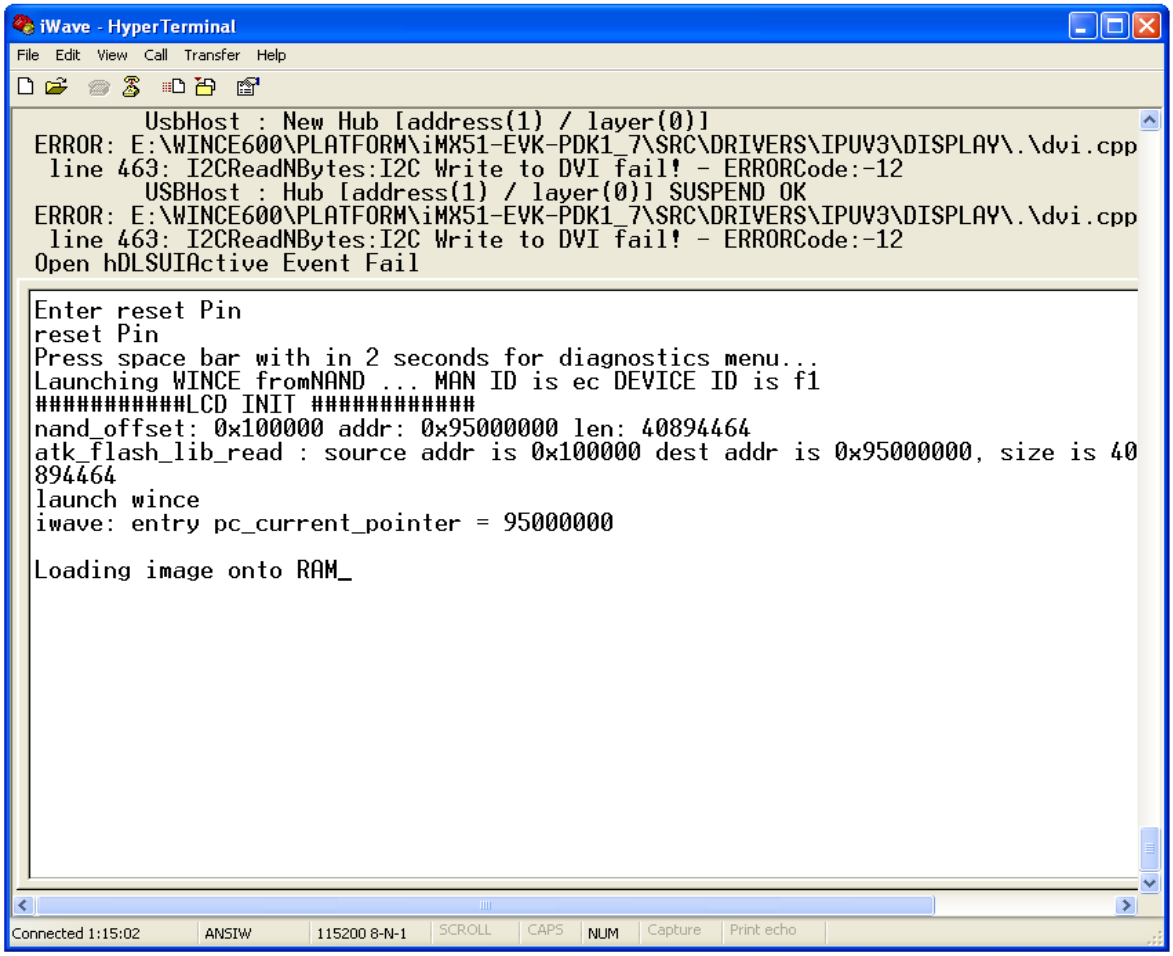

Figure 22: UART Console Window

5 TECHNICAL SUPPORT

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