



EBOX-3100

User's Guide



Copyright

The information in this manual is subject to change without notice for continuous improvement in the product. All rights are reserved. The manufacturer assumes no responsibility for any inaccuracies that may contain in this document, and makes no commitment to update or to keep current information contain in this manual.

No part of this manual may be reproduced, copied, translated or transmitted, in whole or in part, in any form or by any means without the prior written permission of the DMP Electronics Inc.

©Copyright 2019 DMP Electronics Inc.

Special Notice to Users

DMP Electronics Inc. provides no warranty with regard to this manual, the software, or other information contained herein and hereby expressly disclaims any implied warranties of merchantability or fitness for any particular purpose with regard to this manual, the software, or such other information. In no event shall DMP Electronics be liable for any incidental, consequential, or special damages, whether based on tort, contract, or otherwise, arising out of or in connection with this manual, the software, or other information contained herein or the use thereof.

DMP Electronics reserves the right to make any modification to this manual or the information contained herein at any time without notice. The software described herein is governed by the terms of a separated user license agreement or label sticker.

This product contains software owned by DM&P and licensed by third parties. Use of such software is subject to the terms and conditions of license agreements enclosed with this product. Software specifications are subject to change without notice and may not necessarily be identical to current retail versions.

Updates and additions to the software may require an additional charge. Subscription to online service providers may require a fee and credit card information. Financial services may require prior arrangements with participating financial institution.

Trademarks Acknowledgment

DMP[®] is the registered trademarks of DMP Electronics Inc.

Other brand names, product names or trade names appearing in this document are the properties and registered trademarks of their respective owners. All names mentioned herewith are served for identification purpose only.

Safety Information

WARNING

- Do not expose EBOX to rain or moisture, in order to prevent shock and fire hazard.
- Never install EBOX in wet locations.
- Do not open the cabinet to avoid electrical shock. Refer to your nearest dealer for qualified personnel servicing.
- Never touch un-insulated terminals or wire unless your power adapter and display monitor are disconnected.
- Locate EBOX as close as possible to the socket outline for easy access and to avoid force caused by entangling of your arms with surrounding cables from the EBOX.
- When using EBOX, avoid using or installing the modem to the serial port during a storm or a lightning.
- Do not use the modem or a telephone to report a gas leak in the vicinity of the leak.
- USB connectors are supplied with Limited Power Sources.

**DO NOT ATTEMPT TO OPEN OR TO DISASSEMBLE THE CHASSIS
(ENCASING) OF THIS PRODUCT. PLEASE CONTACT YOUR
NEAREST DEALER FOR SERVICING FROM QUALIFIED TECHNICIAN.**

Regulatory

FCC Class A Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense. Testing was done with shielded cables. Therefore, in order to comply with the FCC regulations, you must use shielded cables with your installation.

WARNING

This product complies with EN55022 class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference - causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Manufacturer's Declaration of Conformity

This equipment has been tested and found to comply with the requirements of European Community Council Directives 89/336/EEC and 73/23/EEC relating to electromagnetic compatibility and product safety respectively.

Attention

This product has been designed and certified to comply with certain regulatory requirements pertaining to Information Technology Equipment. This product has not been designed for use as a medical device. Without limitation of the foregoing, this product is not intended and has not been certified for use in a hospital or clinical environment to diagnose, treat, or monitor patients under medical supervision, and is not intended and has not been certified to make physical or electrical contact with patients, nor to transfer energy to or from patients and/or to detect such energy transfer to or from patients.

Purchase Agreement

Purpose:

In accordance to the general commercial conduct of Trust and Fair Trade, herewith below is the agreement for the protection for both parties, DMP and Users in pursuant of trading.

Product Description:

With this product, herewith also known as EBOX-3100, which is a simplified & an economical design of an embedded device for Special Purpose Computing. The basic specification of this product is comprised of the x86 technology design, and with onboard 512MB DDR3 System memory, USB, and LAN Interfaces.

Distribution Convention:

1. This Product includes a gift box, an inner case, a PC. Upon receiving this product, kindly please refer to the User Manual to check for the contents and appearance of this product; contact immediately your nearest dealer or DMP office for any defective or missing parts. The supplier will not be responsible for any reported discrepancy there after the expiration period of 3-days from the received date.
2. In consideration of transportation and the cost of storage, the supplier provides to the distributors a warranty of 12-months. This warranty covers the failure caused by hardware breakdown (excluding hard drives), but does not cover the act of misuse and mishandling.
3. The supplier will not accept unknown post, therefore if you wish to repair or to return your goods – kindly please contact your nearest dealer to make your declaration, and at the same time, apply for an RMA number (RMA stands for Return Merchandise Authorization – please ask for RMA form and fill-up for authorization).
4. The freight for return goods for repair will follow the International customary practice and convention: Both parties is to pay for freight of one shipment each. The shipper is required to prepay the freight from the place of origin (This means that the returnee (user) covers the freight for return goods, while the Supplier covers the freight for goods after the repair).
5. Obsolete warranty is referred to as: (1) Expiration of warranty or (2) Damage due to misuse within warranty. The Supplier will be taken into consideration of the circumstances, to provide repair service with charges expense for obsolete warranty. This expense includes the cost of material and the cost of labor.

Note: If there is another particular issue not listed in the above conditions, both parties agreed to follow the General Law of Commerce with fair and reasonable discussion in handling and resolving the argument.

Contents

Chapter 1

- 02 Unpacking your EBOX Mini PC

Chapter 2

- 04 EBOX-3100 Overview
- 05 System Specifications
- 06 Peripherals Connecting

Chapter 3

- 08 BIOS Reconfiguring

Chapter 4

- 11 Technical Specifications

Chapter 5

- 13 Onboard Connectors Summary
- 14 Pin Assignments

Chapter 6

- 16 Taking Care Your EBOX
- 17 Cleaning Your EBOX
- 18 Troubleshooting

Chapter 7

- 20 Terms and Condition
- 20 Warranty
- 20 Service and Support
- 20 Return Merchandise Authorization (RMA) Policy
- 20 Shipping Policy

Chapter 1

Unpacking Your EBOX Mini PC

Congratulation! You have just acquired EBOX-3100, please check the following:

Item No.	Description	Q'ty
1	EBOX-3100 Mini PC	x1

Preface

EBOX-3100



The EBOX-3100 is a revolutionary device which is especially designed for limited physical space and temperature concerns. Furthermore, with FANLESS design, the EBOX-3100 is ideal to be used in the environment where temperature demand is critical.

So, if you are looking for a device that is able to provide you with more mobility & space but at the same time uses less power consumption, then the EBOX-3100 will be surely meet your need.

Chapter 2

EBOX-3100 Overview



Front Panel

A: Power LED

The power LED lights up when the system is turned on.

B: Audio Line Out & Mic In

High Definition Audio port.

C: USB 2.0 port

Connection for external USB devices.

D: SD Card Slot

This system is bootable from SD card.



Back Panel

E: Micro 5pin USB Power Jack

F: Power switch

To turn the power on or off.

G: RJ-45 LAN Jack

H: COM port

RS-232 COM port in Full 9pin

System Specification

CPU

Vortex86EX (400 MHz)

Main Memory

512MB DDR3

(32-bit DRAM bus)

BIOS

SeaBIOS

Peripheral

1. USB 2.0 x 2
2. SD Card slot x 1
3. Serial port x 1 (RS-232 COM port in full 9pin)
4. Audio port (Mic in x1 & Line out x 1)

Dimension & Weight

78 x 78 x 28mm/ 208g

Operating System

Text-based user interface: DOS, Linux... and so on.

We have the BSP for VxWorks 6.8, QNX 6.3.2 and FreeBSD.

Peripherals

Connecting the Power Adaptor

A: Micro 5pin USB Power Jack

To use EBOX-3100 please attach the USB cable or spec in +5V @2A AC adapter for the power source.



B: Turning ON EBOX-3100

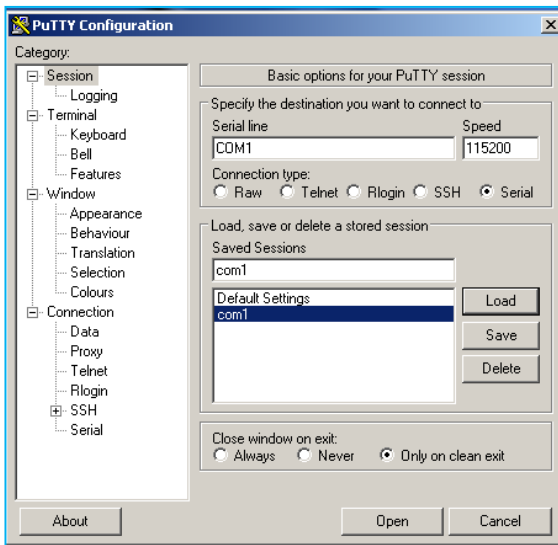
Switch on power as indicated on your left-side figure, the system will start .

Note: With the Auto Power On supported function, when power & switch on, the system will be turned on automatically.

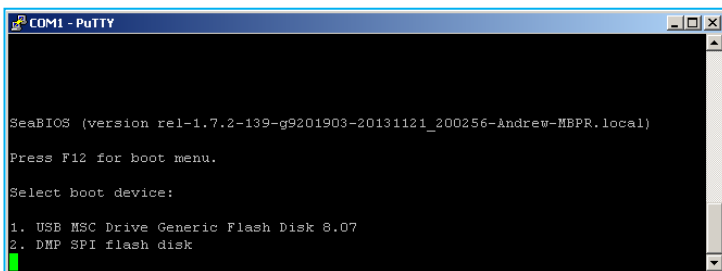
Chapter 3

BIOS Reconfiguring

1. Under Windows OS (such as Win 7, Win XP XPe...) , you may use PuTTY via COM to COM cable as console redirection. (Note: PuTTY is a free and open-source terminal emulator, serial console and network file transfer application. Please download [here](#)).
2. Connect Windows platform hardware RS-232 port with EBOX-3100 and select connection type as serial and set the speed of the COM port that you connected with. (EBOX serial port transfer speed at 115200).

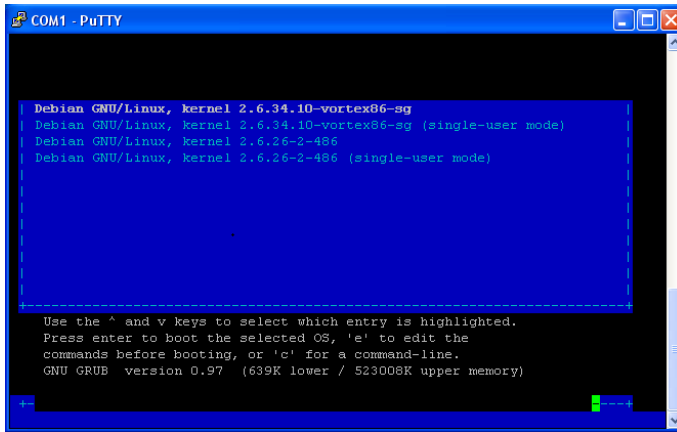


3. SeaBIOS is used in the EBOX-3100. To reconfigure the EBOX-3100, press or hit the <F12> key to enter your BIOS setup main menu as below:

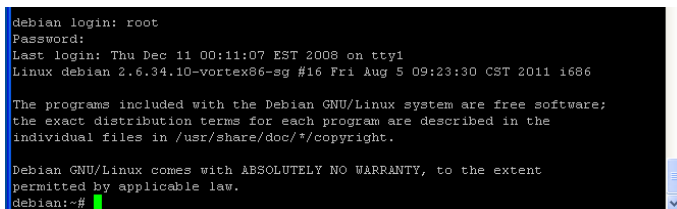


Debian GNU/ Linux 5.0 Demo guide

1. Download the Demo Image (debian_gnu_linux_5.0_for_ebox-3100.arc) from clicking [here](#).
2. Download the restore tool R-DriveImage [here](#) and restore the file to the SD card for EBOX-3100.
3. Under Windows OS, use PuTTY via COM to COM cable as console redirection and select the first kernel 2.6.34.10-vortex86-sg to boot.



4. Enter the login name as “root” and password as “password”, then after the tile debian: ~# pop out which means you had successfully log in.



Remark :

EBOX serial console setting is "115200,n8" as standard.

For baud rate 9600 or others, please press "E" to edit the setting of the parameters

Under the kernel version select enter menu, as below:

```
Root    (hd0,0)
kernel  /boot/vmlinuz-3.8.13 root=/dev/sda1 rw console=ttyS0,9600n8
initrd  /boot/initrd.img-3.8.13
```

Thus, you may set the needful mating baud rate for the console setting.

Chapter4

Technical Specification

Model Type		EBOX-3100
Processor		Vortex86EX (400MHz)
BIOS		SeaBIOS
Memory		Onboard 512MB DDR3
Ethernet		10/100 Mbps LAN x 1 (RJ-45 connector, Built-in PXE diskless boot)
USB (2.0)		External: 2 ports (Front x 2)
Audio		Mic in and Line out
I/O	SD Slot	1x
	RS-232	1x
Auto Power On		Yes
Power		DC +5V@0.45A
Dimensions		78 x 78 x 28mm
Unit Net Weight		208g
Operation Temp.		5 ~ 50 °C
Certifications		CE, FCC, VCCI
Note		RS-232 COM port in Full 9pin

Ordering Information:

EBOX-3100: Standard Version

Chapter 5

Onboard Connectors Summary

Summary Table for CPU Board			
Nbr	Description	Type of Connections	Pin nbrs.
J1	SODIMM-200P-EX	SODIMM socket 200 Pin	200-pin
J2	Power Switch	Power Switch	4-pin
J3	DC +5V Input	Micro USB B Type	1-pin
J4	USB (Front)	USB connector	8-pin
J5	SD Card slot	Standard: 32.0 × 24.0 × 2.1mm	9-pin
J6	USB (Front)	USB connector	8-pin
J7	Ethernet LAN	RJ-45	8-pin
J8	COM port (Back)	Box Header 5 × 2 2.0mm	10-pin
J9	Line-Out	Audio Jack	2-pin
J10	Mic-In	Audio Jack	2-pin

► Front Connectors Outline



A [Power & HDD LED](#) B [Min In/ Line Out](#) C [USB 2.0](#) D [SD Card Slot](#)
*EBOX 3100 Model is with Auto Power On feature, do NOT have front Reset Button


► Rear Connectors Outline



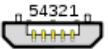
E [DC power](#) F [Power Switch](#) G [RJ-45 LAN](#) H [Serial port](#)

Pin Assignments

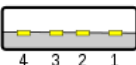
J2: Power SW – Push Button Switch

	Switch	Status
	Right	ON
	Left	OFF


J3: Micro-B USB DC Power Input

 Micro-B	Pin #	Signal Name
	1	+5 V Input
	2	Data –
	3	Data +
	4	ID
	5	GND

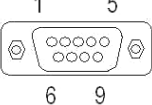
J4, J6: USB 2.0 (180°) – 4pin USB Type 1 Connector (Horizontal Type)

 Type A	Pin #	Signal Name
	1	VCC
	2	Data –
	3	Data +
	4	GND


LEDS: POWER ON / OFF & HDD R/W

	LED Color	State
	Green	Power On
	Green Flashes	HDD R/W

J8 : COM - 9pin D-Sub connector

	Pin #	Signal Name	Pin #	Signal Name
	1	DCD1	2	RXD1
	3	TXD1	4	DTR1
	5	GND	6	DSR1
	7	RTS1	8	CTS1
	9	RI1	--	--

J7: LAN: RJ-45 connector

	Pin #	Signal Name	Pin #	Signal Name
	1	FTXD+	2	FTXD-
	3	FRXIN+	4	NC
	5	NC	6	FRXIN-
	7	NC	8	NC

*Chapter***6**

Taking Care of your EBOX

This section gives you some guidelines on using EBOX-3100 – Safe using, Storing and Handling.

Storing

- ▶ Do not place EBOX-3100 in a location that is subjected to:
 - Heating sources, such as stove, oven, heater, radiator or air duct
 - Direct contact from sunlight
 - Rain or moisture area
 - Excessive dust accumulation area
 - High humidity place
 - Constant or occasional mechanical movement, vibration or shock
 - Strong magnets or magnetic fields or magnetically unshielded speakers
 - Out of the operating temperature range from 5°C to 50°C
- ▶ Do not place other electronic device or electrical equipment near EBOX-3100. The electromagnetic field of the EBOX-3100 may cause interference subjecting to malfunction.
- ▶ Provide adequate air ventilation (circulation) to prevent internal buildup of heat. Do not place EBOX-3100 near the wall, behind the curtains or draperies, in between two books that block its ventilation slots. Leave a space of at least 8 inches (20cm) behind the sides and back panel of the EBOX-3100.
- ▶ Change of environmental temperature: Problems may occur when there is a sudden change of environmental temperature, or if the EBOX-3100 is brought directly from a cold location to a warm one, moisture may condense inside EBOX-3100. Turn off the device, and contact your nearest dealer.
- ▶ Check the surrounding appliance(s) before using EBOX-3100. Since the EBOX-3100 uses high-frequency radio signal and may interface with radio or TV reception causing interference or poor signal display. When this happens, relocate the EBOX-3100 by a suitable distance away from the set..
- ▶ Do not drop the EBOX-3100 from the working table nor place heavy objects on top of it..

Cleaning Your VESA PC

- ▶ Clean the VESA PC with a soft, dry cloth or a soft cloth lightly moistened with a mild detergent solution.
- ▶ Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzene, as these may damage the finish of EBOX.
- ▶ When a solid object falls or a liquid spills onto the EBOX, turn off the EBOX immediately and unplug the LAN and power cables. Contact a qualified person or your dealer to check the EBOX before you use it again.
- ▶ Always disconnect the power cord from the power source before cleaning the EBOX.

Troubleshooting

This section describes the techniques of resolving some basic problems that you encounter when using EBOX-3100. For more troubleshooting guidelines, please contact your nearest dealer for technical support.

Troubleshooting Your VESA PC

A. VESA PC does not start

- ▶ Make sure the EBOX-3100 is properly secured and plugged into power connection before it is turned on. Make sure the power indicator shows the power is on. See section 2 for more information about "EBOX-3100 Overview".
- ▶ When the EBOX-3100 is plugged into a power strip or the UPS (Uninterruptible Power Supply), make sure the power strip or UPS is turned on and working normally.
- ▶ Check if your power control button does not function, by removing the power connection. Wait for one minute, and then reattach the power connection before turning on the power.
- ▶ Condensation may cause the EBOX-3100 to malfunction for a while. If this happens, do not use the EBOX-3100 for at least one hour.
- ▶ When you have checked all the above guidelines and the EBOX-3100 does not work. Remove the power connection from the EBOX-3100, unplug and plug it in again. Then turn on the power.

B. "Operating System Not Found" –

A message indicating that "Operating system not found" appear when the VESA PC starts

- ▶ Enter the BIOS setup main menu by pressing <F12> key, be sure that the correct boot drive is enabled.
- ▶ If Windows still does not start, follow these steps to initialize the BIOS:
 1. Turn off the EBOX-3100.
 2. Remove any peripheral devices connected to the EBOX-3100.
 3. Restart the EBOX-3100.
 4. Press <F12> to enter **BIOS Setup main menu** window.
 5. Select the boot up storage (SD card or the USB drive)
- ▶ If you have just connected EBOX-3100 to a CD/DVD or USB Drivers, remove these peripherals. And restart to confirm that the operating system starts properly. If EBOX-3100 continues to display the message "Operating system not found," and OS does not start, please contact your nearest dealer for servicing.

Chapter 7

Terms and Conditions

Warranty

The warranty terms for EBOX-3100 are twelve (12) months from the shipped month. During the warranty period, DMP Electronics Will repair replace the product covered under this limited warranty.

Service and Support

DMP Electronics Inc. provides the technical support for hardware problems with your system throughout the warranty period. The technical support service is limited to configuration and operation of EBOX-3100 sold by DMP Electronics Inc. The technical support service does not offer software tutoring or training.

Return Merchandise Authorization (RMA) policy

If the DMP staff or dealer determines that a part is defective. Purchaser must call our technical support service to obtain an RMA number before attempting to return any part.

To obtain an RMA number, Purchaser must follow procedures as below :

1. Complete the DMP Electronics Inc. standard RMA Form and fax back to the RMA Department.
2. The RMA Number must be used within 7 DAYS
3. The RMA Number must be shown clearly on your shipping label.
4. DMP Electronics Inc. must receive all Returns before a replacement will be sent.
5. The repair cost depends on the parts, the damage reasons, and whether under warranty period... etc. The Seller will charge the Purchaser in a reasonable price.
6. A copy of the invoice for the RMA product(s) will also be shipped to Purchaser.
7. The freight of return to DMP Electronics Inc. is charged to the Purchaser's account and accompanied by an RMA number. Any Returns with freight collect will be refused and returned to you. After Repairing, the cost of freight will be paid by Seller.
8. DMP Electronics Inc. must receive all returned goods within the warranty period.

Shipping Policy

The Purchaser must pre-pay shipping for any defective system or parts returned under the warranty. DMP Electronics Inc. shall not be liable for risk of loss or damage during shipment of your returned system or parts if you fail to insure the shipment.

All products must be shipped back to DMP Electronics Inc. in original or equivalent packaging. DMP Electronics Inc. will ship the repaired or replacement product(s) to the Purchaser by freight prepaid. The purchaser assumes the risk of loss. DMP Electronics Inc. shall not be responsible for failure of the delivery service to make on-time delivery.