VISION BOX

VB-115/VB-216 Series

User's Manual

Manual Version: 1.0
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1 Introduction

The VISION BOX series is a fan-less platform designed to work with MAVIS IEEE 1394 industrial cameras for AOI (Automation Optical Inspection) applications. The VB-115 offers Celeron M 1.5GHz CPU with 2 GB DDR 266 memory.　 It is ideal for being a general vision inspection equipment.　 The VB-216 offers 1.66GHz high-speed mobile Core Duo 1.66GHz CPU with 2 GB DDR2 533 memory for advanced high-speed inspection applications.　 The system operates with Windows XP embedded OS and is an excellent choice for reliable, long term operation.　 Each VISION BOX has 2 built-in ports with 1394a bandwidth (400 MB per port) and six USB 2.0 interface connectors.　 Dual LAN ports are available in 10/100 base for VB-115.　 VB-216 offers dual Gigabit Ethernet ports.　 VISION BOX offers one standard PCI bus for extension capabilities and is ideal for plug-in motion control cards such as: PISO-PS200, PISO-PS400, I/O and encoder cards for machine automation inspection applications.

Features:
- Fan-less cooling design
- Celeron M 1.5GHz or Core Duo 1.66GHz Mobile, Low power consumption CPU
- 2 GB DDR 266 or DDR2 533 memory
- 266x high speed CF card for Embedded XP/SP2 operation
- 2 built in ports 1394a (400Mb per port)
- 10/100 Base or GB Ethernet dual ports LAN
- 2.5" HDD supported
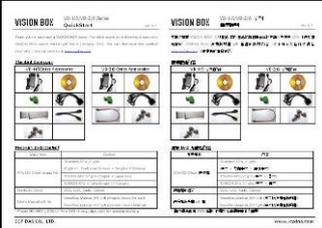- One 32-bit, 33MHz PCI Bus supported

Target Applications
- Semiconductor
- Component inspection
- Quality control in Manufacturing
- Food and beverage inspection

1.1 Specification

Model No.	**VB-115C**	**VB-115H**	**VB-216C**	**VB-216H**
CPU	Intel Mobile Celeron M 1.5GHz		Intel Core Duo T2300E 1.66GHz	
Chipset	Intel 852GM		Intel 945GME	
L2 Cache	1 MB		2 MB	
Memory	2 GB DDR 266		2 GB DDR2 533	
OS Storage	2GB 266x Compact Flash Card	2.5" 40GB IDE Hard Disk	2GB 266x Compact Flash Card	2.5" 80GB SATA Hard Disk
1394 ports	1394a ports (400Mbps bandwidth x 2 ports)			
PCI Bus	One 32-bit/33MHz PCI Slot, Not support PCI long card.			
Front I/O Interface	2 x USB 2.0 Ports, ATX power on/off switch, Status LEDs (HDD Access, Power, LAN)			
Rear I/O Interface	PS/2 connector, VGA connector, 4 x USB 2.0 ports, 2 x 10/100 LAN ports, 4 x Serial Ports via one DB44 connector (3 x RS-232, 1 x RS-232/422/485), DVI Interface, 1 x MIC-in, 1 x Speaker-out, 2-pin connector output for remote power on/off switch, DC-in power connector for +12V ~ +30V DC power input		PS/2 connector, VGA connector, 4 x USB 2.0 ports, 2 x GbE LAN ports, 4 x Serial Ports via one DB44 connector (3 x RS-232, 1 x RS/232/422/485) , DVI Interface, 1 x MIC-in, 1 x Speaker-out, 2-pin connector output for remote power on/off switch, DC-in power connector for +12V ~ +30V DC power input	
Power	DC to DC power designed for on-board, supporting from 12 to 30VDC One External 120W AC adapter (Input: 100~240VAC, 2A, 50/60Hz; Output:19VDC)			
Dimensions	195 mm (W) x 268 mm (D) x 107 mm (H)			
Construction	Fan-less design with aluminum cooling chassis			
Environment	Operating temperature Ambient air temperature : 0°C to 40°C VISION BOX case (Surface Temperature of Chassis) ➢ 5°C to 45°C (W/HDD) ➢ -10°C to 50°C (W/CF card only) Storage temperature: -20°C to 80°C Relative humidity: 10% to 90% (Non-condensing)			
Certification	CE, FCC A			

1.2 Accessories

1.2.1 VB-115 Series Accessories

Accessory Photo	Description	Q'ty
	120W AC Power Adapter with power cord	1
	Power Connector 2-pin	1
	COM cable (1 DB44 connector to 4 x DB9 ports)	1
	IDE cable	1
	PS/2 1 to 2 cable	1
	Chipset Drivers and Image OS recovery DVD	1
	Quick Start Guide	1
	Wall mount screws	4

1.2.2 VB-216 Series Accessories

Accessory Photo	Description	Q'ty
	AC Power Adapter 120W with power cord	1
	Power Cord	1
	Power Connector 2-pin	1
	COM cable (1 DB44 connector to 4 x DB9 ports)	1
	SATA cable	1
	Chipset Drivers and Image OS recovery DVD	1
	QuickStart	1
	Wall mount screw	4

2 Hardware

2.1 Interface and Connection

● **VISION BOX Front View**

VB-115 and VB-216 are with same front interface design.

● **VB-115 Series Rear View**

● **VB-216 Series Rear View**

For rear interface connection, there are several differences between VB-115 and VB-216.

a. VB-115 provides one PS2 connector; it requires a one-to-two cable for connecting Keyboard and Mouse; but VB-216 has individual Keyboard and Mouse connector.

b. VB-115 offers an extra S-Video interface connector.

a. VB-115 offers two 10/100 Base LAN ports connector.

b. VB-216 offers two Gigabit Ethernet LAN ports connector.

c. The 'Optional I/F' is standard DVI connector.

2.2 Hardware Installation

⚠ | To assure system safety and reliability, please do not use CPU and memory not recommended by ICP DAS in your VISION BOX as they may cause hazards. ICP DAS assume no liability for damages to the misuse of this product and the warranty will be voided immediately.
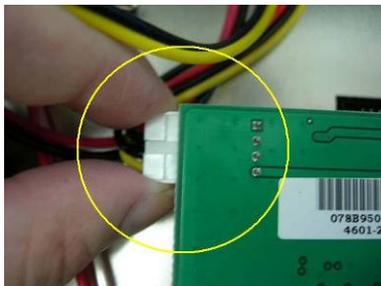---|---

2.2.1 PCI Card Installation

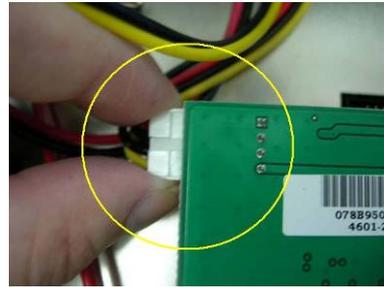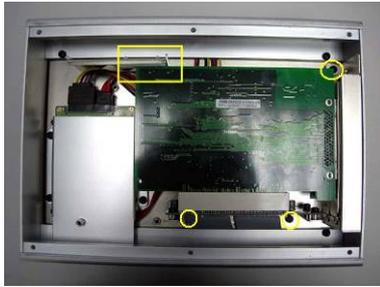| Step 1: Unscrew the 6 screws on bottom cover.	Step 2: Open the bottom cover.
Step 3: Pull out DC12V connector of 1394 card.	Step 4: Unscrew the PCI bus triangle stand.
Step 5: Let the PCI bus triangle stand straight up and unscrew the bracket.	Step 6: Insert your PCI card into the PCI Bus until it is completely seated.

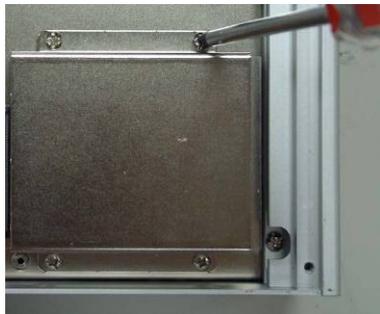| Step 7: Make sure the PCI card install correctly and then fasten the screws of the bracket securely.	Step 8: Plug the DC12V connector into 1394 card
Step 9: Make sure the rear part of PCI card is completely being plugged into the card holder and then fasten the screws of the PCI bus triangle stand securely.	Step 10: Put bottom cover back in place and fasten the screws.

2.2.2 HDD Installation

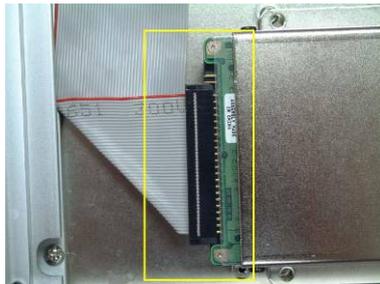|	
Step 1: Unscrew the 6 screws on bottom cover.	Step 2: Open the bottom cover.
Step 3:Unscrew the HDD stand	Step 4: Fasten the 2.5" HDD securely.
Step 5-1 (for VB-115): Plug the HDD cable adaptor to the back of the 2.5" HDD. The IDE cable will be marked down one side with a red strip, this denotes Pin 1, match this with the Pin 1 indicator on the back of the hard drive.	Step 5-2 (for VB-216): Plug HDD cable. Pay close attention to SATA power cable and SATA cable at the right position.
Step 6:Fasten the screws of HDD stand	Step 7: Put bottom cover back in place and fasten the screws.
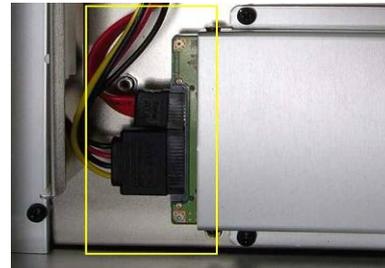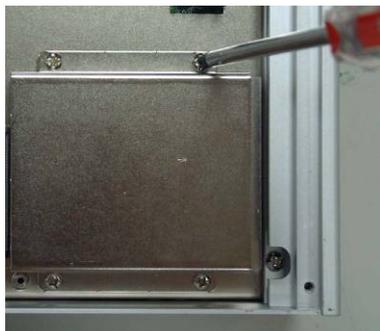
2.2.3 CF Card Installation

The Compact Flash Socket is located on the top side of VISION BOX system board. Please unscrew the 6 screws of the top cover to remove the lid. Please follow the procedures below to install or remove a Compact Flash memory card.
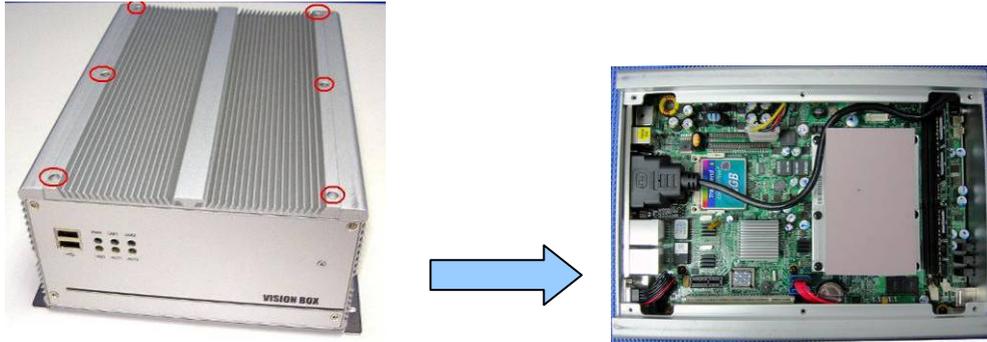
To install a Compact Flash memory card into system board, align the notches on the card with the Compact Flash socket in the system board. Then firmly insert the card into the socket until it is completely seated.

To remove the Compact Flash memory card from system board, pull out the memory card from the Compact Flash socket.
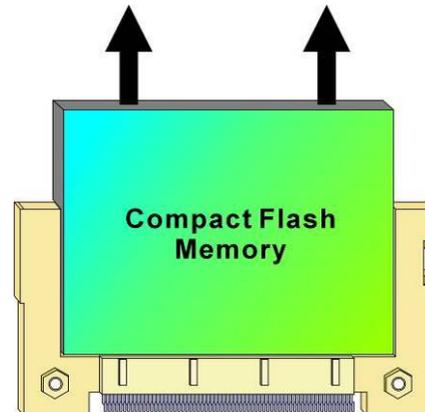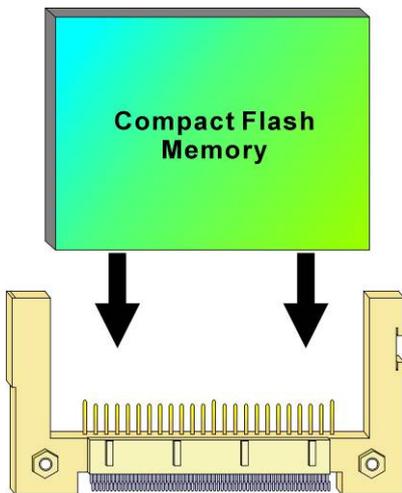
2.2.4　　CF Card and HDD Master/Slave Setting

The VISION BOX allows using Compact Flash card and Hard Disk at the same time. You will need to go to BIOS setup to change the system boot up priority.

■　**VB-115 Series BIOS setting**

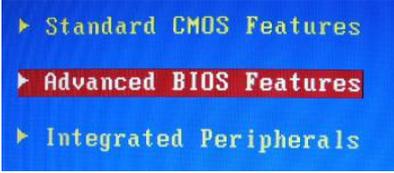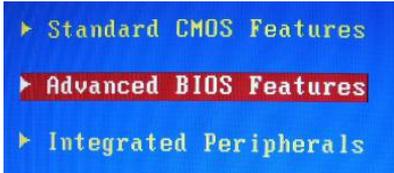|	
Step 1: Power on the system; hold the DEL key down until the blue BIOS screen appears. And then scroll down to 'Advanced BIOS Features'	▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Integrated Peripherals
Step 2: Press 'First Boot Device'	Virus Warning　　　　　[Disabled] CPU L1 & L2 Cache　　[Enabled] First Boot Device　　　[HDD-1] Second Boot Device　　[Disabled]
Step 3: Use ' ↑ ' or　' ↓ ' key to select options. Please note: HDD-0 is CF card and HDD-1 is 2.5"HDD. Then press 'F10' and save your setting. And reboot the system.	**First Boot Device** Floppy　　.....　[ ] HDD-0　　.....　[■]　-> CF Card SCSI　　.....　[ ] CDROM　　.....　[ ] HDD-1　　.....　[ ]　-> 2.5'' HDD
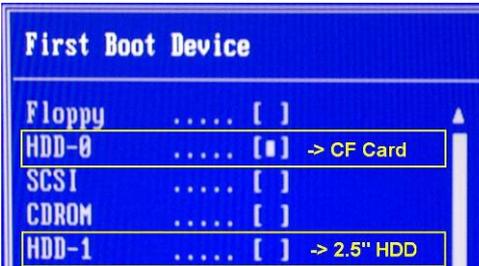
If you install only either one of CF card or 2.5" HDD on VB-115, the system BIOS will be set as 'HDD-0' automatically for system boot up.

■　**VB-216 Series BIOS setting**

Step 1: Power on the system; hold the DEL key down until the blue BIOS screen appears. And then scroll down to 'Advanced BIOS Features'	▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Integrated Peripherals
Step 2: Press 'Hard Disk Boot Priority'	▶ Hard Disk Boot Priority　[Press Enter] First Boot Device　　　[Hard Disk] Second Boot Device　　[Disabled] Third Boot Device　　　[Disabled]
Step 3: Use '+' or '-'key to select options. Press 'F10' to save your settings. And reboot the system.	1. Ch0 M.　　:　TRANSCEND 2. Ch1 S.　　:　Hitachi HTS541640J9SA0 3. Bootable Add-in Cards

If you install only either one of CF card or 2.5" HDD on VB-115, the system BIOS will be set as 'Ch0 Master' automatically for system boot up device.
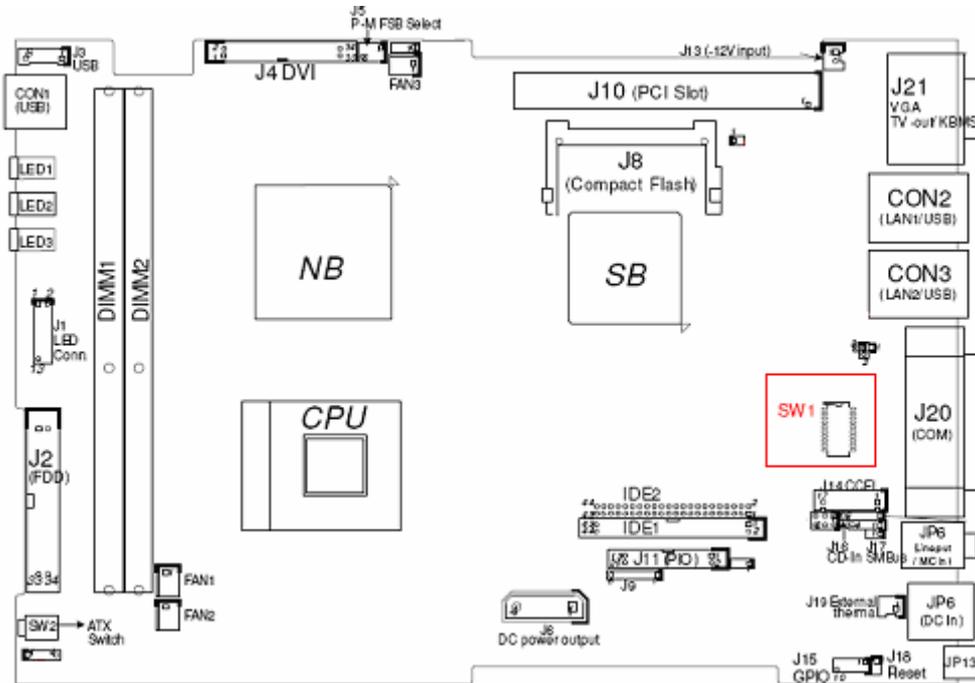
2.2.5 COM Port Switch Setting

2.2.5.1 VB-115 location of COM port switch

2.2.5.2 VB-216 location of COM port switch
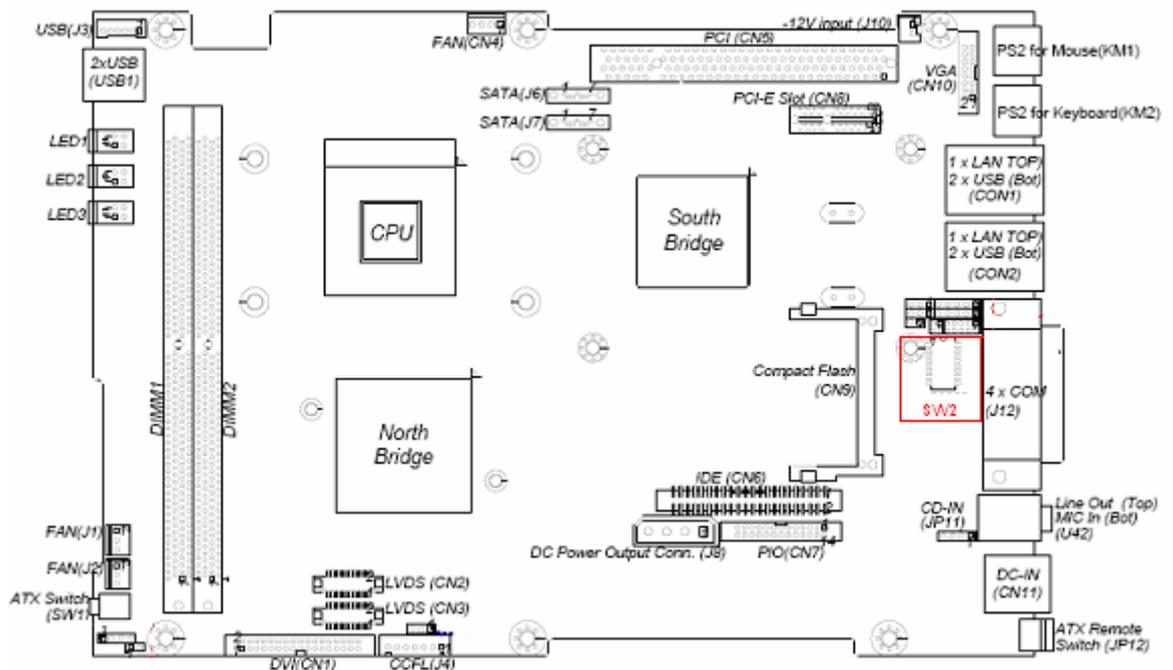
2.2.5.3 COM1 ~ COM4 RS-232/422/485 Selection

Mode	1	2	3	4	5	6	7	8	9	10
RS232*	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
RS422	OFF	OFF	ON	OFF	ON	OFF	ON	ON	ON	ON
RS485	ON	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ON

2.2.6 ATX power remote on/off switch

User can wire out to other remote power switch to control VISION BOX power on or off.
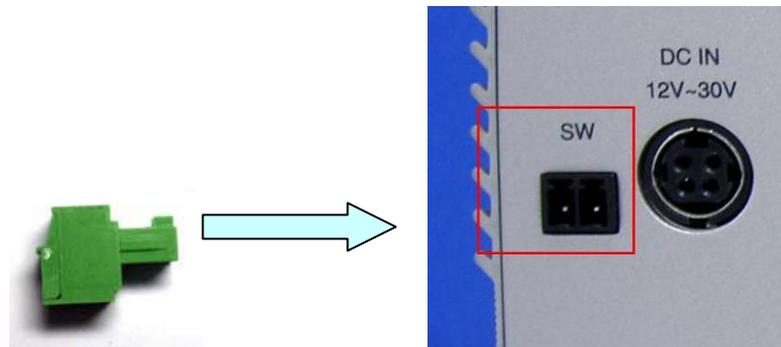
Pin.	Def.
1	GND
2	PWR_ON

3 Software

3.1 Standard Operation System

3.1.1 VB-115H/VB-216H

VB-115H/VB-216H default does not offer any licensing system OS. We recommend that users install licensing Windows XP Pro with Service Pack2 into the Hard disk for your application development.

User can find the chipset drivers of VISION BOX in our recovery DVD. For the PCI interface cards or driver installation, please just follow standard Windows OS operation.

⚠️	**The Image OS files in recovery DVD are authorized legally to use in VB-115C/VB-216C only. If user insert CF card into VB-115H/VB-216H, and use the image OS files of ICPDAS recovery DVD in the CF card without authorization. ICPDAS won't allow this illegally authorization. And user must to take the responsibility for software illegal authorization.**

3.2 XP Embedded Operation System

3.2.1 VB-115C/VB-216C

VB-115C/VB-216C's default standard image OS supports three UI languages: English, Traditional Chinese and Simplified Chinese. The image OS built by Microsoft Windows Embedded SP2 Feature Pack 2007.

Users can find the backup image OS on the recovery DVD. Meanwhile user can change to special image OS for difference language UI requirement.

Image OS	Language support	Version
Standard-XPe	English + Traditional Chinese (Unicode only), Simplified Chinese (Unicode only)	1.0
ENJPN-XPe	English + Japanese (Unicode only)	1.0
ENKOR-XPe	English + Korean(Unicode only)	1.0

If the OS version you require is not included above, a customized one can be provided for additional charges.

3.2.1.1   How to recovery image OS?

User can use Symantec Norton Ghost V.11 or above version to recovery image OS to CF card.
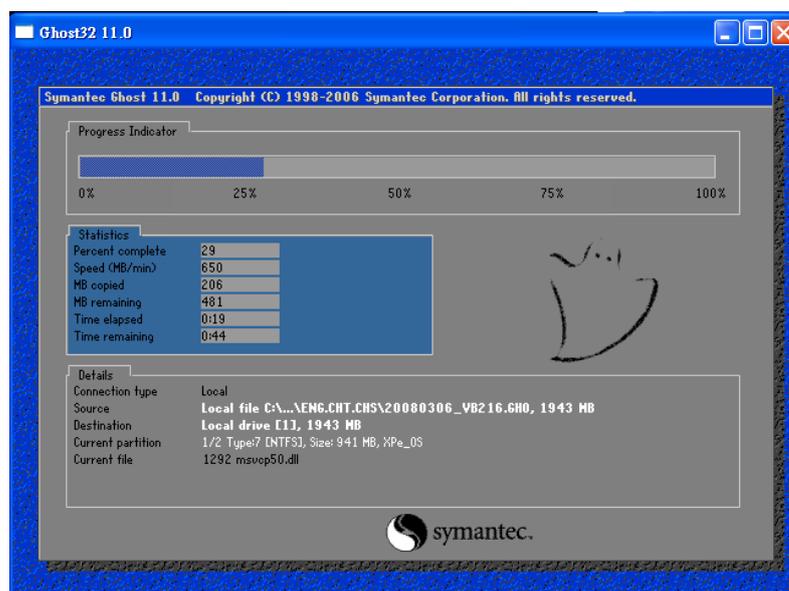
3.2.2 Image OS Component List

The VISION BOX image OS support component list as below. What if the component list that you require is not included then customized is available with charge.

■ **ICPDAS Product Driver List**

Component Item	Description	Note
MAVIS 1394 Camera Device	MAVIS 1394 Camera Device Driver	
PISO-PS400 Motion Card	PIS O-PS400 Motion Card v3.0 Driver	
Texas Instruments OHCI Compliant IEEE 1394 Host Controller	IOI-4601-21 IEEE1394 Card	

■ **Programming Languages Components**

Component Item	Description	Note
Visual Basic 6.0 Runtime Library	Microsoft Visual Basic 6.0 runtime library	
Visual C++ Runtime Libraries (Side X Side)	Microsoft Visual C++ 6.0 runtime library	
Microsoft Foundation Class Library (Legacy)	MFC library	
.NET Framework 1.1	.NET Framework 1.1	
Chinese (PRC) .NET Framework 1.1 MUI	.Net 1.1 Simplified Chinese	Standard-XPe only
Chinese (Taiwan) .NET Framework 1.1 MUI	.Net 1.1 Traditional Chinese	Standard-XPe only
Japan .NET Framework 1.1 MUI	.NET 1.1 Japanese	ENJPG-XPe only
Korea .NET Framework 1.1 MUI	.NET 1.1 Korean	ENKOR-XPe only
.NET Framework 2.0	.NET Framework 2.0	
Chinese (PRC) .NET Framework 2.0 MUI	.Net 2.0 Simplified Chinese	Standard-XPe only
Chinese (Taiwan) .NET Framework 2.0 MUI	.Net 2.0 Traditional Chinese	Standard-XPe only
Japan .NET Framework 2.0 MUI	.NET 2.0 Japanese	ENJPG-XPe only
Korea .NET Framework 2.0 MUI	.NET 2.0 Korean	ENKOR-XPe only
Msxml 3.1	Microsoft language extension 3.1 library	
Explorer Application	Windows Explorer library	
Standard Template Libraries (STL)	Standard Template library	

■ **Installation Components**

Component Item	Description	Note
Add Hardware Control Panel	Add new hardware device	
Add/Remove Programs Control Panel	Add or remove program	
Class Installer - Stream	Class Installer	
Safely Remove Hardware Program	Safety remove hardware	

■ **Interface Components**

Component Item	Description	Note
Communications Port	Com Port	
USB 2.0	USB 2.0 Support	
USB Mass Storage Device	USB Mass Storage Device	
Removable Storage Service	Remove storage device	
CD-ROM Drive	CD-ROM driver	
Keyboard & Mouse Control Panel	Keyboard and mouse	
Smart card Subsystem	IC card or Smart card	

■ **Networking Support Components**

Component Item	Description	Note
Intel 8255x-based PCI Ethernet Adapter (10/100)	NIC Driver	VB-115C only
Marvell Yukon 88E8053 Gigabit Ethernet Controller	Gigabit Ethernet Driver	VB-216C only
DHCP Client Service	DNS Client	
Windows Firewall/Internet Connection Sharing (ICS)	Windows Firewall	
Internet Connection Wizard	Internet connection wizard	
Internet Explorer	IE 6.0 explorer	
Map Network Drives/Network Places Wizard	Network driver connection	
Network Setup Wizard	Network setup wizard	
Workstation Service	Create or maintain remote client server connection	
Security Accounts Manager Server Library	Accounts manager	
Security Shell Extension	Security shell	
Simple Network Management Protocol (SNMP)	SNMP	

■ **Touch Panel Support List**

Component Item	Description	Note
Elo TouchSystems 2216 AccuTouchR USB Touchmonitor Interface	ELO Touch Panel Driver	
Serial Touchscreen Controller(Professional)	EETI eGalax Touch Panel Driver	
Touchkit Filter	EETI eGalax Touch Panel Driver	
PenMount_Apps	SALT PenMount Touch Panel Driver	Driver compatible

■ **Compact Flash Read/Writer Protection Components**

Component Item	Description	Note
Enhanced Write Filter	Enhanced Write Filter	

■ **Printer Support Components**

Component Item	Description	Note
Printer Common #1 (Client Side Shared Components)	Printer Support	
USB Printing Support	USB Printing Support	
Local Printing	Local printing support	
Server Printing	Server printing support	

■ **System Tool Components**

Component Item	Description	Note
Accessories/System Tools	System Properties	
ACPI Uniprocessor PC	ACPI Uniprocessor PC	VB-115C only
ACPI Multiprocessor PC	ACPI Multiprocessor PC	VB-216C only
Administration Support Tools	Administrative Tools	
WMI Core	WMI Core	
Tray Icon Add/Remove Support	Tray icon add/remove	
CDFS	CDFS	
UDFS	UDFS	
FAT	FAT	
NTFS	NTFS	
Volume Shadow Copy Service	Volume shadow copy service	
Event Log	Event log	
File Sharing	File sharing	
HID Keyboard Device	Keyboard properties	
Indexing Service	Remote server file index and access	
Task Manager	Task Manager	
Intel Corporation 855 Embedded Graphics Controller	VGA Driver	VC-115C only
Intel Corporation 945GME Embedded Graphics Controller	VGA Driver	VC-216C only
Dos Windows on Windows Support	Support 16-bit applications	
Time Service Core	Time Zone and Internet Time	

■ Windows Tool Components

| Component Item	Description	Note
CMD – Windows Command Processor	Command Prompt	
Windows Accessories	Windows Accessories program	
Windows API – User	Windows API	
Windows Clean-Up Utilities	Disk clean-up utilities	
Windows Image Acquisition Core	Scanner or digital camera image acquisition service	
Windows Installer Service	Add or remove program	
Windows Logon (Standard)	Windows Standard Logon	
Direct3D	DirectX 9.0C	
Display Control Panel	Display	
Windows Picture and Fax Viewer	Windows picture and fax viewer	
Windows XP Visual Style	Windows XP visual style	
Wireless Zero Configuration	Auto setting for 802.11 interface card	
Computer Browser Service	My Network Places	
Computer Name User Interface	Computer name setting	
Cryptographic Network Services	Authentication	
Date/Time Control Panel	Date and Time Properties	
Desktop Wallpaper	Desktop wallpaper	
Device Manager	Device Manager	
NTFS	NTFS system file	
Power Meter Control Panel	Power setting	
Compression and Expansion Tools	Windows Compression and Expansion Tools	
System Control Panel	System control Panel	
Text Services Framework	Language for non-Unicode program	
Microsoft IME Language Model Manager	Input languages manager	
International Control Panel	Regional and language options	
Microsoft IME Pad	Languages	
Microsoft Simplified Chinese IME Core	Simplified Chinese keyboard input language	Standard-XPe only
Microsoft Taiwan IME Core	Traditional Chinese keyboard input language	Standard-XPe only
Microsoft Japan IME Core	Japanese keyboard input language	ENJPG-XPe only
Microsoft Korean IME Core	Korean keyboard input language	ENKOR-XPe only

3.2.3 CF card EWF (Enhance Write Filter) Setting

The VB-115C and VB-216C used 266x 2GB Compact Flash card for image OS operation and user data storage requirement. ICPDAS has partition the CF card to two memory disk section as below.

Memory disk section	Size	EWF default setting
C:	941MB Image OS (around 700MB)	Enable
D:	992MB	Disable

When set the EWF of memory disk section to enable then user will not be able to install any driver or write any data in to the area. User can use 'Command Prompt' tool to check or modify EWF state.

Command purpose	Command example
To check EWF state	**ewfmgr c:**
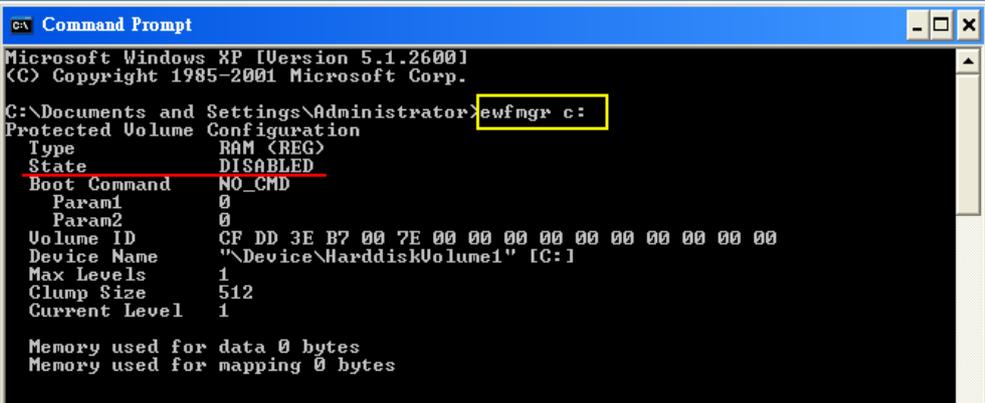
■ **When you need to enable EWF?**

    a. For protect the system image OS and your application program or data safety

Command purpose	Command example
Set EWF enable	**ewfmgr –enable c:**
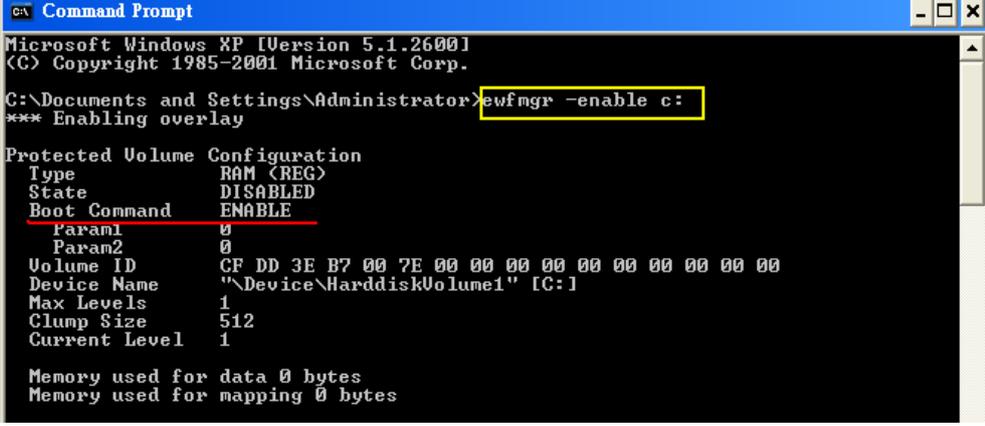
■ **When you need to disable EWF?**

a. Need to install new device driver

b. Change OS UI language or other system setting

c. Need to put your application program in to C: for system boot up and auto operation.

Command purpose	Command example
Set EWF disable	**ewfmgr –commitanddisable c:**

3.2.4 OS UI Language Setting

The VISION BOX image OS set the Windows welcome message and default UI language present by English and no matter which image OS version.

⚠️	**Non-English languages will support by UNICODE only. Any user application program must change the UI language to this condition.**

3.2.4.1 Standard-XPe

Users can go to the 'Regional and Language Options' in the 'Control Panel' to change OS UI language to Traditional Chinese or Simplified Chinese. Meanwhile users must disable EWF of c: for this change. Otherwise the UI language will keep in English by default setting when re-boot the system.

■ When you change UI language to Simplified Chinese and system logout or re-boot, then system will present the UI language screen as below.
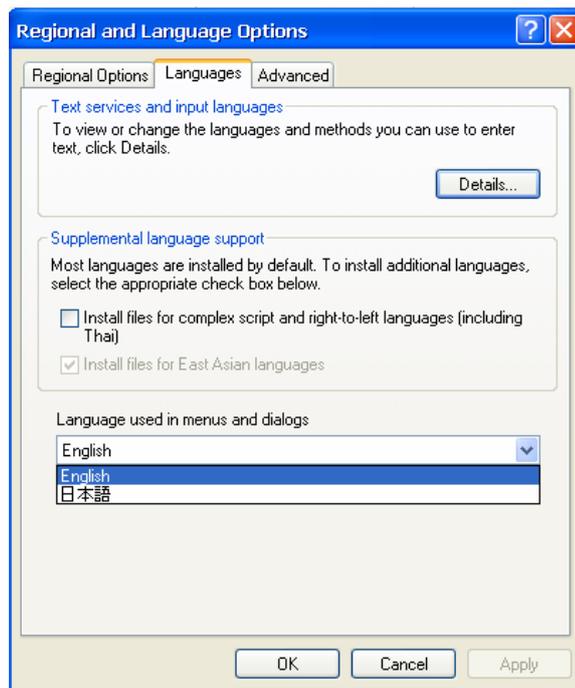

■ When you change UI language to Traditional Chinese and system logout or re-boot, then system will present the UI language screen as below.

3.2.4.2　ENJPG-XPe

When users change to use image OS version from 'Standard-XPe' to 'ENJPG-XPe. Then user will be able to change UI language to Japanese.

Users can go to the 'Regional and Language Options' in the 'Control Panel' to change OS UI language to Japanese. Meanwhile user must to disable EWF of c: for this change. Otherwise the UI language will keep in English by default setting when re-boot the system.


■　When you change UI language to Japanese and system logout or re-boot, then system will present the UI language screen as below.

3.2.4.3   ENKOR-XPe

When users change to use image OS version from 'Standard-XPe' to 'ENKOR-XPe.
Then user will be able to change UI language to Korean.

Users can go to the 'Regional and Language Options' in the 'Control Panel' to change
OS UI language to Korean. Meanwhile user must to disable EWF of c: for this change.
Otherwise the UI language will keep in English by default setting when re-boot the
system.
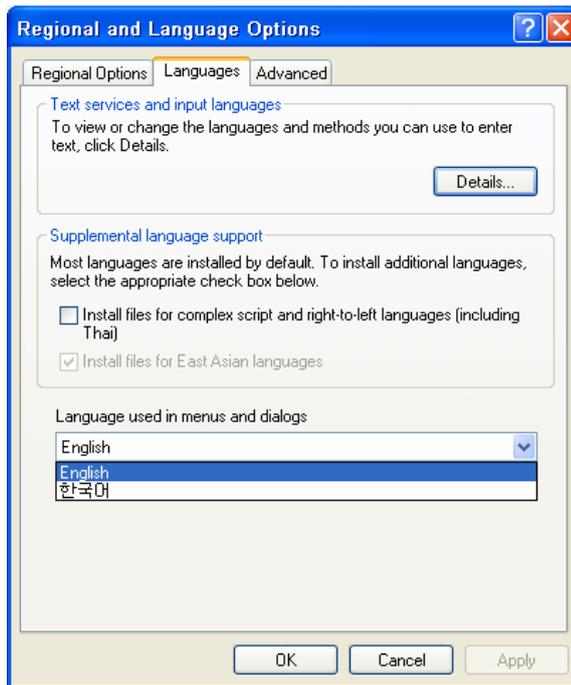
■   When changing UI language to Korean and system logout or re-boot, then system
      will present the UI language screen as below.

3.2.5   Time Zone Setting

The VISION BOX default Time Zone set the location in Taiwan. User can go to 'Regional and Language Options' to change Time Zone for your location. Meanwhile user must to disable EWF of c: for this change. Otherwise the Time Zone will keep in Taiwan by default setting when re-boot the system.
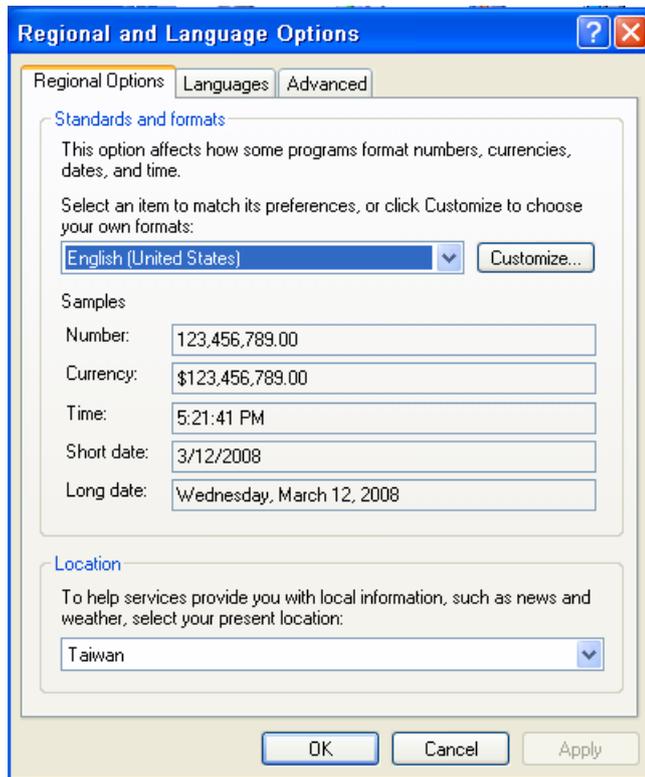
3.2.6 Keyboard Input Language Setting

The VISION BOX image OS set the default UI language present by English. The keyboard input language will also set in English (United States) – US.

User can go to 'Text Services and Input Languages' to change input language for your keyboard. Meanwhile user must to disable EWF of c: for this change. Otherwise the keyboard input language will keep in default setting when re-boot the system.
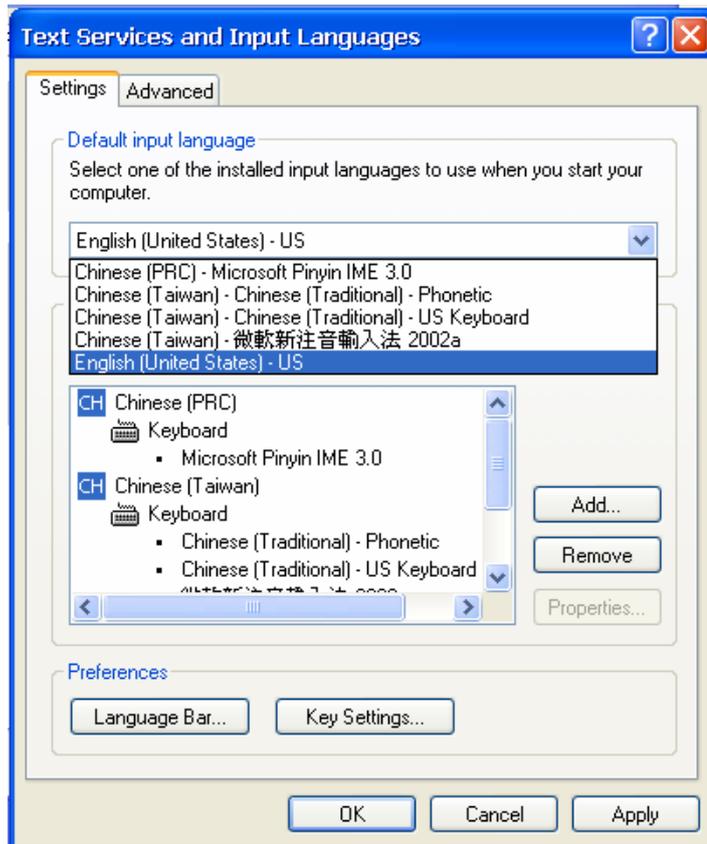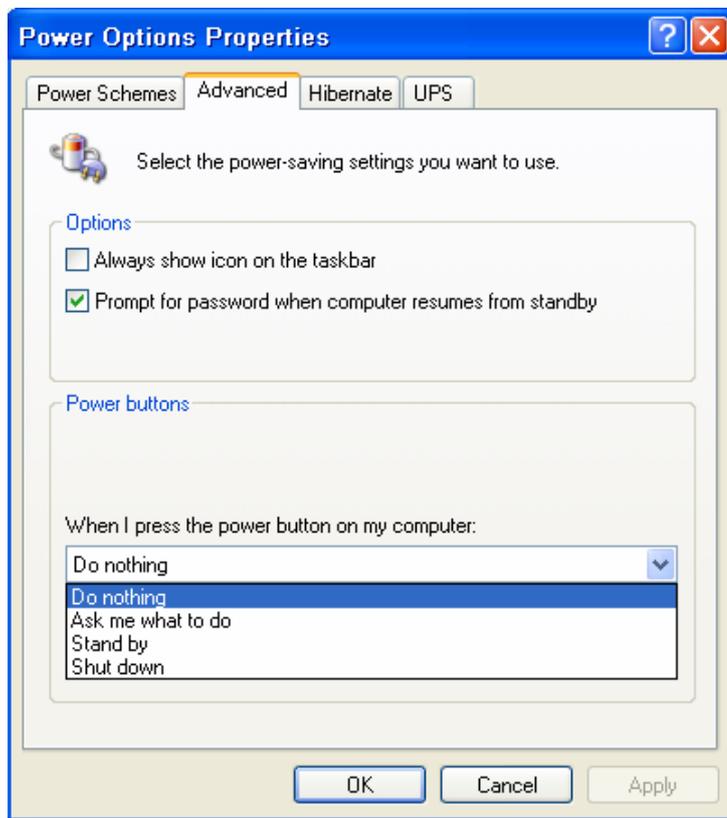
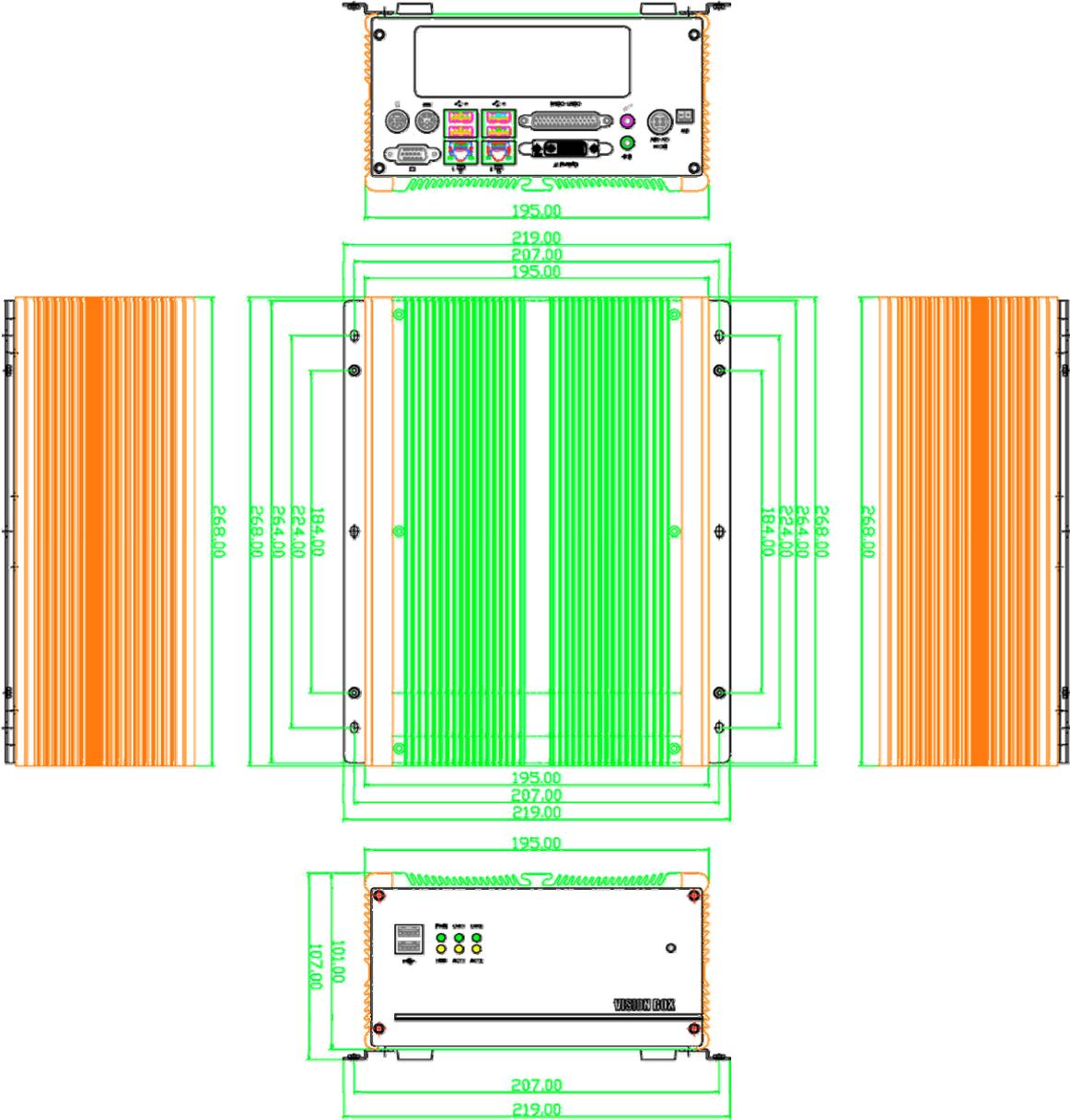### 3.2.7 Front Panel Power Button Setting

The VISION BOX image OS default set the Power Button in 'Do nothing' mode. When VISION BOX system boot up and during XP embedded OS operation. The power button function will be lock up before XP embedded OS exit.
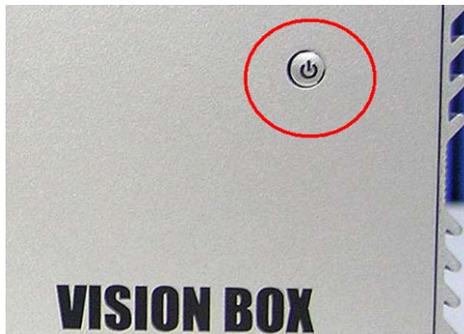
For system operation reliability and safety, we strong to recommend user do not change it.

4 Mechanical Drawing

Appendix A – Storage Performance

Model No.	Storage Device	Read	Write	OS Boot up Speed
VB-115C	Transcend CF Card 2G 266X	26MB/s	14MB/s	45s
VB-115H	2.5" ATA100 HDD (4200rpm)	19MB/s	13MB/s	60s
VB-216C	Transcend CF Card 2G 266X	47MB/s	17MB/s	45s
VB-216H	2.5" SATA HDD (5400rpm)	37MB/s	34MB/s	45s

Appendix B – Revision History

Revision Date	Change Description

Warranty Policy

ICP DAS supplies a one year warranty period for the VISION BOX series, however there certain instances of limited of warranty situations, where by ICP DAS will not take any responsibility in the following cases:

1. Damages or losses caused by fire, earthquake, acts by third parties, deliberate or erroneous misuse by users, and use under extreme operating conditions.

2. Damages or losses are caused by malfunction resulting from bad connection with other equipment.

3. Damages or losses caused by incorrect use which is not in line with instructions in user's manual.

4. In case indirect, additional, consequential damages (loss of expected interest, suspension of business activities) are incurred as results of malfunction or non-function of the equipment, we shall be exempted from assuming responsibility for such damages.

ICPDAS Worldwide

Headquarters

ICP DAS CO., LTD.

No.111, Kuangfu N. Rd., Hukou Shiang,

Hsinchu Hsien, Taiwan 303, R.O.C

TEL: +886-3-597-3366

FAX: +886-3-597-3733

service@icpdas.com

Taiwan Branch Office

Ban-Ciao

8F-2, No.33, Sec. 1, Minson Road, Banciao

City, Taipei Hsien, Taiwan 220, R.O.C

TEL: +886-2-2950-0655

FAX:+886-2-2950-0807

banciao@icpdas.com

Hsin-Tien

7F-2, No. 137, Lane 235, Bao-Chiao R., Hsin-Tien City, Taipei Hsien, Taiwan 231, R.O.C

TEL : (02)8919-2216

FAX : (02)8919-2221

hsintien@icpdas.com

Tai-Chung

9F-6, No.123, Sec. 3, Zhong-Gang Road,

Tai-Chung City, Taiwan 407, R.O.C

TEL : (04)2358-2815

FAX : (04)2358-9114

taichung@icpdas.com

Kao-Hsiung

3F, No. 505, Zhong-Shan second Road,

Kao-Hsiung City, Taiwan 801, R.O.C

TEL : (07)215-7688

FAX : (07)216-2602

kaoshiung@icpdas.com

USA Branch Office

ICP DAS USA, Inc.

1508 W Pacific Coast Highway

Harbor City, CA 90710, USA

TEL: 1-310-517-9888

FAX: 1-310-517-0998

Sales@icpdas-usa.com

Europe Branch Office

ICPDAS-EUROPE GmbH

Humboldtstrasse 36

70771 Leinfelden-Echterdingen

Germany

TEL: 0049-711-9 97 37 75

FAX: 0049-711-9 97 37 84

info@icpdas-europe.com

China Branch Office

Beijing

TEL : 86-10-6298-0924

FAX : 86-10-6296-2890

beijing@icpdas.com.cn

Shanghai

TEL : 86-21-6247-1722

FAX : 86-21-6247-1725

shanghai@icpdas.com.cn

Wuhan

TEL : 86-27-8548-3302

Kunming

TEL : 86-13113689519

86-87-1294-5396