AND-DNV3N3-4C

Networking Micro Box

- *Intel® Denverton® SoC*
- *8 GbE Copper*
- *2 SFP+*

User Manual

Acrosser Technology Co., Ltd.
www.acrosser.com

Disclaimer

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Purpose

This document is intended to provide the information about the features and use of the product.

Audience

The intended audiences are technical personnel, not for general audiences.

Ver: 100-001
Date: May 7, 2020

To read this User Manual on your smart phone, you will have to install an APP that can read PDF file format first. Please find the APP you prefer from the APP Market.

Table of Contents

1. System Introduction

The AND-DNV3N3-4C networking product is based on Intel's Atom C3000, powerful and scalable for vary application scenarios.

The AND-DNV3N3-4C provides a flexible system expansion versatility by supporting from Intel Atom C3558(4 core) with 8x GbE copper LANs and 2x 10G fiber networks (SFP+). Furthermore, in the system design, there are one 2.5-inch HDD/SSD and two Mini PCIe slots to support the latest WLAN function (IEEE 802.11 a/b/g/n/ac) and 4G LTE feature as well.

1.1. Specifications

(Specifications are subject to change without notice.)

General

Thermal Solution
- Fanless, Passive heat dissipation

CPU
- Intel® Denverton® C3558 4 cores, 2.2GHz

Memory
- 1x SO-DIMM DDR4

BIOS
- Support Console Re-direction
- Support Bypass Setting

Status	Normal	Bypass
SYS (ON)	V	
SYS (OFF)		V
WDT (Timeout)		V
PWR (Lost)	Remained prior status	

- Support PXE boot from all RJ-45 Coppers

Network Interface

Ethernet (on-board)
- 8x Copper, 2/4x SFP+
- Intel i211, LAN [1:8] Copper
- SoC embedded SFI, SFP+[1:2]

Storage

HDD Bay
- 1x 2.5” Internal HDD Bay

CFast
- 1x CFast socket

I/O

Front Panel	• Ethernet Link/Act LED x8 (LAN[1:8) • Ethernet 1000M LED x8 (LAN[1:8]) • Ethernet 100/10M LED x8 (LAN[1:8]) • SFP+ Link LED x2 • SFP+ Act LED x2 • Sys Power LED x1 (12V) • Storage LED x1
Rear Panel	• Reset button • 2x USB 3.0 • 1x RJ45 Console Port • 2x SFP+ • 8x GbE LAN (Copper) • 4x Antenna holes for SMA connector (for WLAN & WWAN module) • 1x DC-in connector for 12V input
Internal I/O	• 1x mini-PCIe connector (for Wi-Fi IEEE 802.11 a/b/g/n/ac 3T3R module) • 1x mini-PCIe connector (w USB 2.0+3.0 signal only, for 4G module only, USB 3.0) • 1x SATA3+power connector • GPIO pin header

Other Features

Watchdog Timer	• Software programmable 0~255 Seconds, 0=disable timer.
Battery	• Lithium Battery, 3V 220mAH (CR2032), for RTC
Hardware Monitoring	• CPU Voltage • CPU Temperature • System Temperature

Power Requirement

Power Adapter	• 12VDC, 40W Adapter

Software

OS Support	• Linux Kernel 4.8 & above, (64-bit)

Mechanical & Environment

Dimension	• 300(L) x 201(W) x 44(H) mm

Operating Temperature	• 0 ~ 40°C (32 ~ 104°F)
Storage Temperature	• -20 ~ 80°C (-4 ~ 176°F)
Relative Humidity	• 0 to 90% @40°C, non-condensing

EMC & Safety

Certification	• CE, FCC Class A, RoHS 2, cULus
Vibration Test	• IEC 60068-2-64, 5~500Hz, 3GRMS
Drop Test	• ISTA-2A 2006

1.2. Package Contents

Check if the following items are included in the package.

	Item	Q'ty
☐	AND-DNV3N3-4C System	1
☐	Console Cable	1
☐	CD with Driver and Manual	1
☐	Power Adapter (12V)	1
☐	Power Cord	1
☐	Screw Pack	1

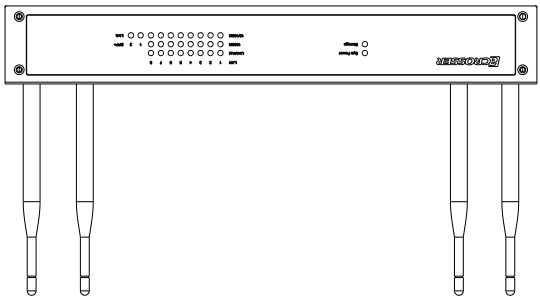
1.3. Optional DDR4 List (6 SKUs)

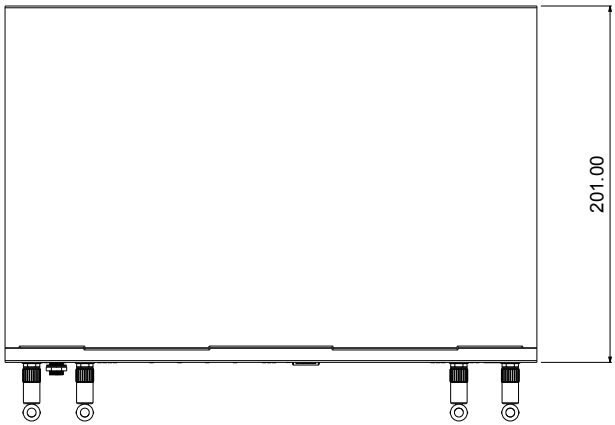
Model Name	Description
AND-DNV3N3-4C	4GB DDR4-2666 memory (ECC)
	8GB DDR4-2666 memory (ECC)
	16GB DDR4-2666 memory (ECC)
	4GB DDR4-2666 memory (Non-ECC)
	8GB DDR4-2666 memory (Non-ECC)
	16GB DDR4-2666 memory (Non-ECC)

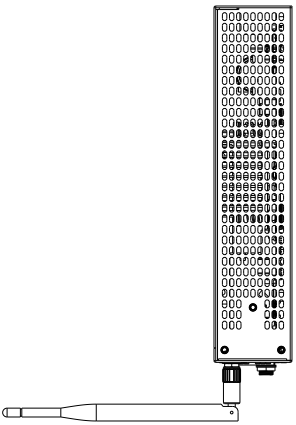
1.4. System Dissection

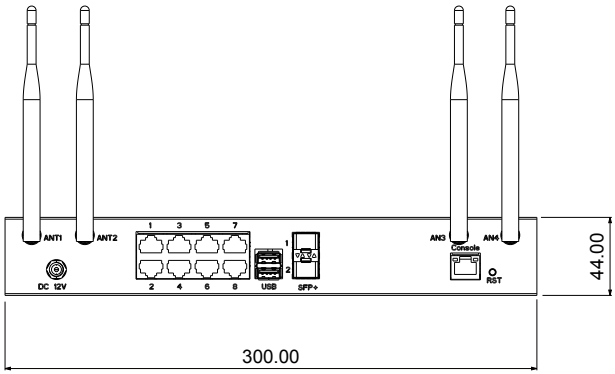
1.4.1. Dimensions

(Unit: mm)

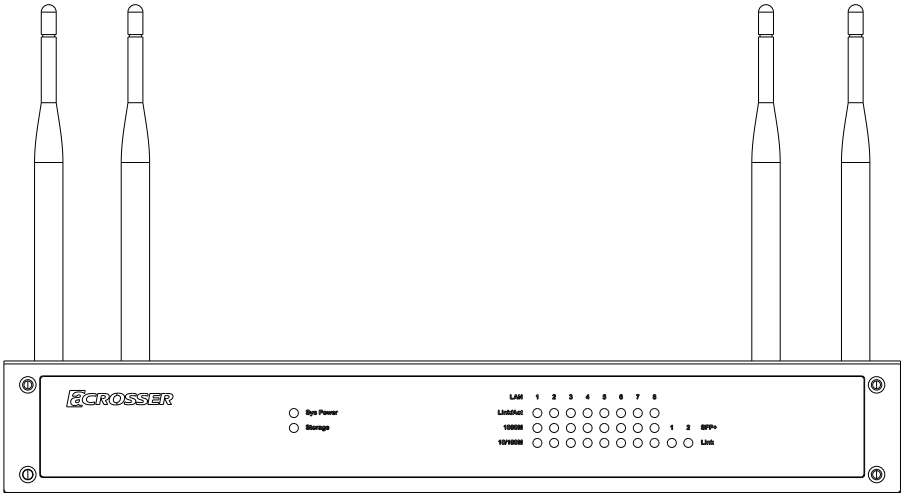






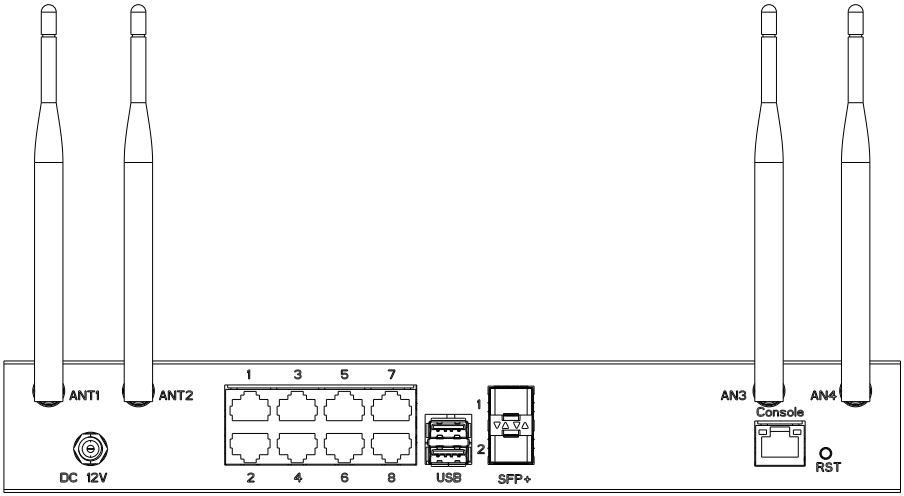


1.4.2. Front I/O Panel



- **Sys Power**
  System Power LED
- **Storage**
  Storage Active LED
- **LAN 1~8**
  LAN 1~8 Link/Active LED
- **SFP+ 1~2**
  SFP+ 1~2 Link/Active LED

1.4.3. Rear I/O Panel



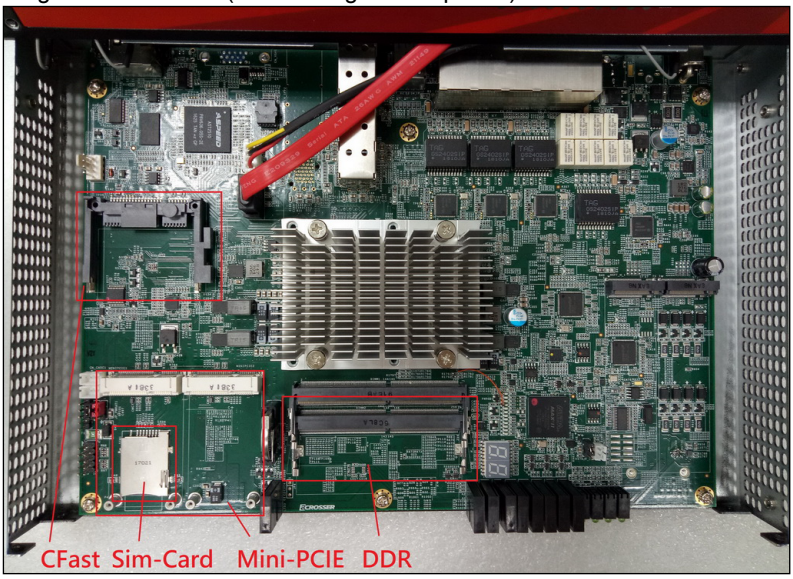
- **ANT1 ~ ANT4**
  SMA Antenna Hole. Reserved for optional Wi-Fi / BT, 4G LTE antenna.
- **DC 12V**
  DC12V Power Input
- **LAN1 ~ LAN8**
  RJ45 LAN Port
- **USB**
  USB 3.0 Port
- **SFP1 ~ SFP2**
  SFP LAN Port
- **Console**
  Console Port (RJ45)
- **RST**
  Reset Button

2. Components Assembly

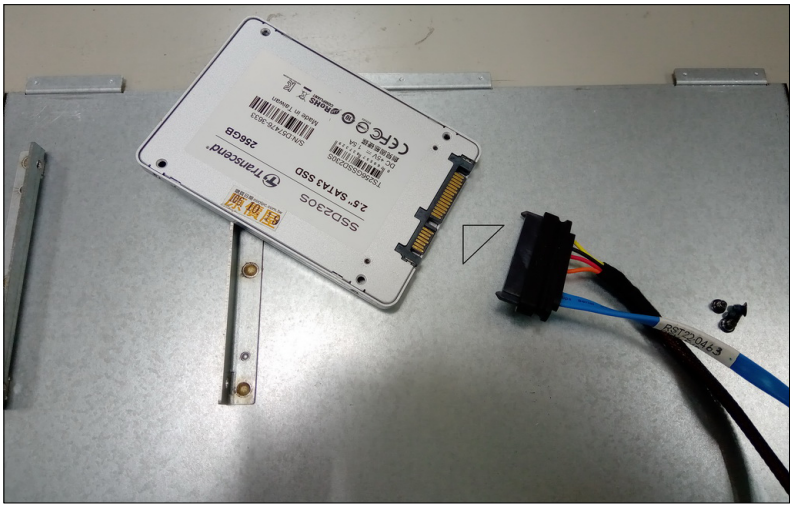
Please follow the instruction to install the inner modules.

2.1. HDD/SSD Installation

Step 1: Plug the SATA cable (both the signal and power) in the socket on PCB.

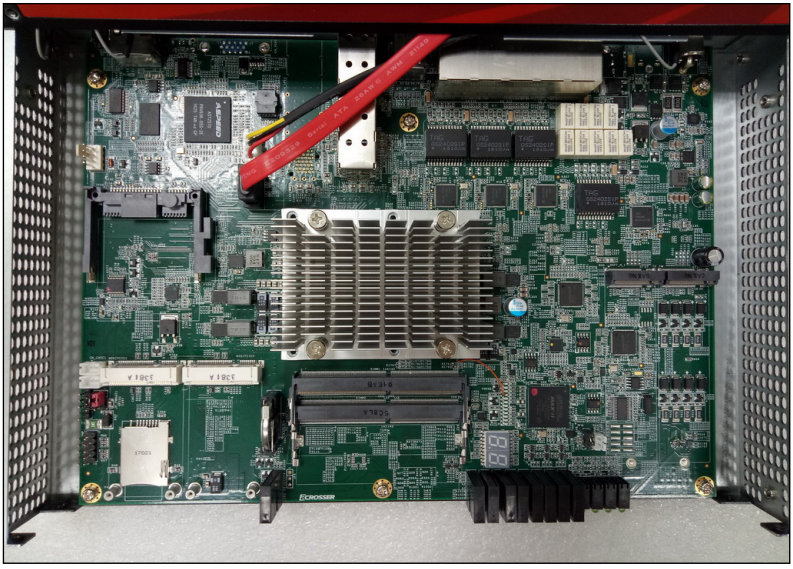


Step 2: Connect the SATA cable with the HDD/SSD.



Step 3: Fasten the HDD/SSD with 4 screws onto the inner side of the chassis top cover.

Step 4: Before closing the top cover, pay attation to arrange the cable wire among the PCB components spaces.

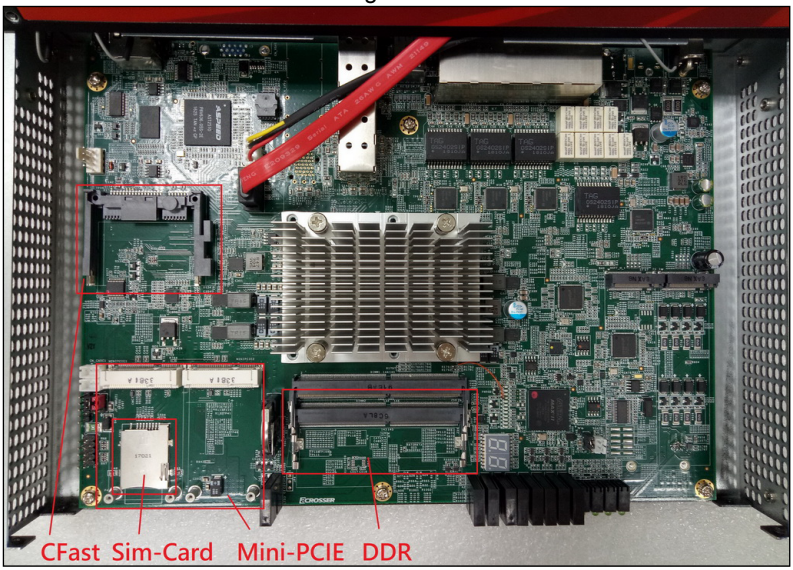


Step 5: Fasten the cover with 4 screws.

2.2. PCB Parts Description

There are four modular sockets/slots reserved to install your modules: CFast, Mini-PCIe, DDR, and CFast.

Step 1: To install the CFast, you will have to remove the fixing screw first, and then have it fastened after inserting the module.



3. BIOS Settings

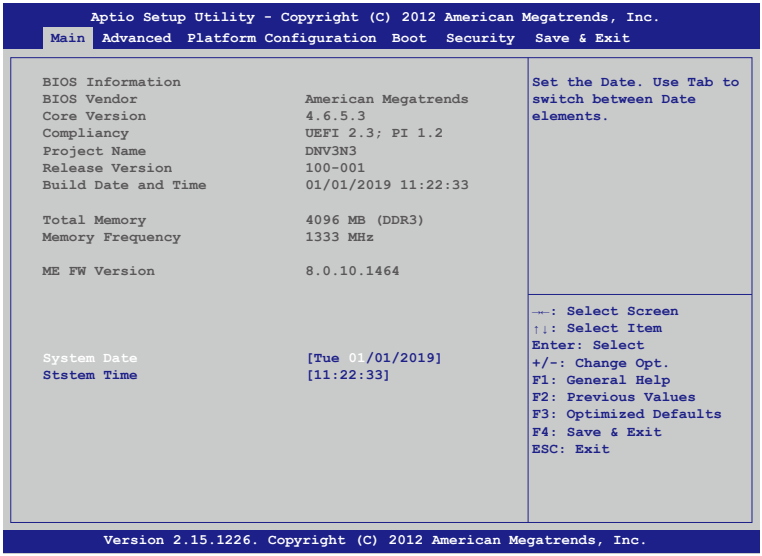
This chapter describes the BIOS menu displays and explains how to perform common tasks needed to get the system up and running. It also gives detailed explanation of the elements found in each of the BIOS menus. The following topics are covered:

- Main Setup
- Advanced Setup
- Chipset Setup
- Boot Setup
- Security Setup
- Save & Exit Setup

Once you enter the Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. Use the arrow keys to highlight the item and then use the <Pg Up> <Pg Dn> keys to select the value you want in each item.

3.1. Main Setup

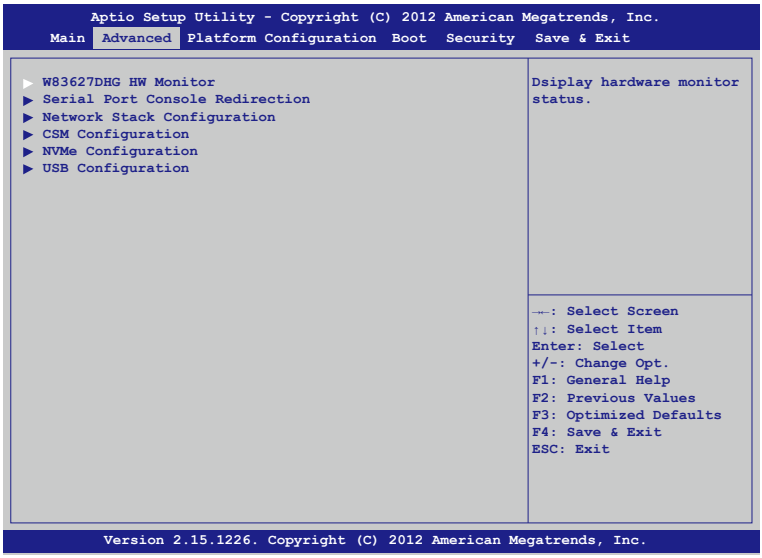
The BIOS setup main menu includes some options. Use the [Up/Down] arrow key to highlight the option, and then press the [**Enter**] key to select the item and configure the functions.



Note: *Listed at the bottom of the menu are the control keys. If you need any help with the item fields, you can press <**F1**> key, and it will display the relevant information.*

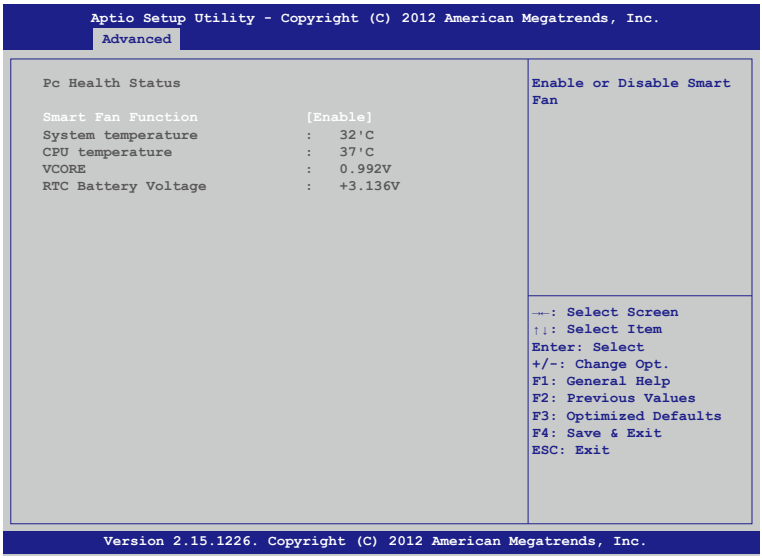
- **System Date**
  Set the system date.
- **System Time**
  Set the system time.

3.2. Advanced Setup

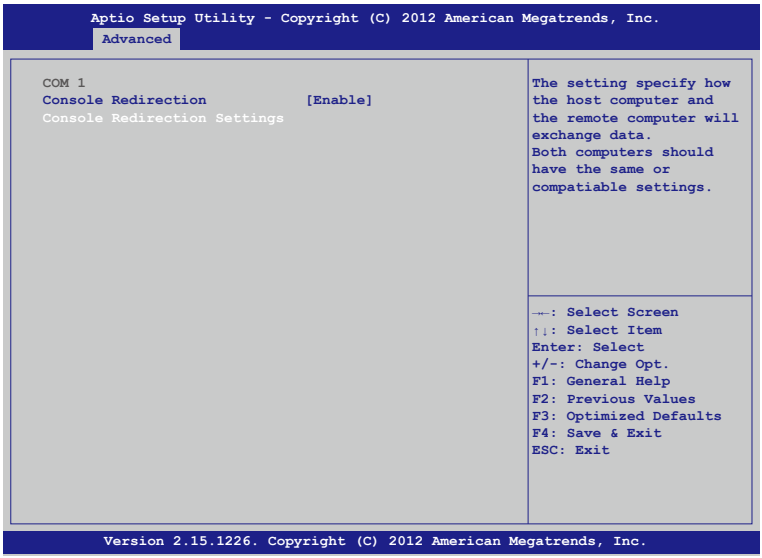


- **W83627DHG HW Monitor**
  Dsiplay hardware monitor status.
- **Serial Port Console Redirection**
  Console port setting.
- **Network Stack Configuration**
  Network stack setting.
- **CSM Configuration**
  Compatibility Support Module Configuration. Enable/Disable Option ROM execution settings, etc.
- **NVMe Configuration**
  Set NVMe configuration.
- **USB Configuration**
  Set USB configuration parameters.

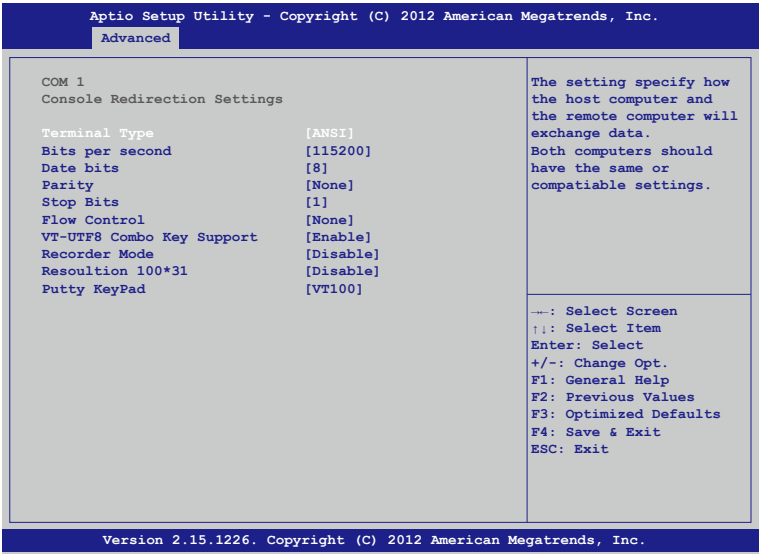
3.2.1. W83627DHG Hardware Monitor



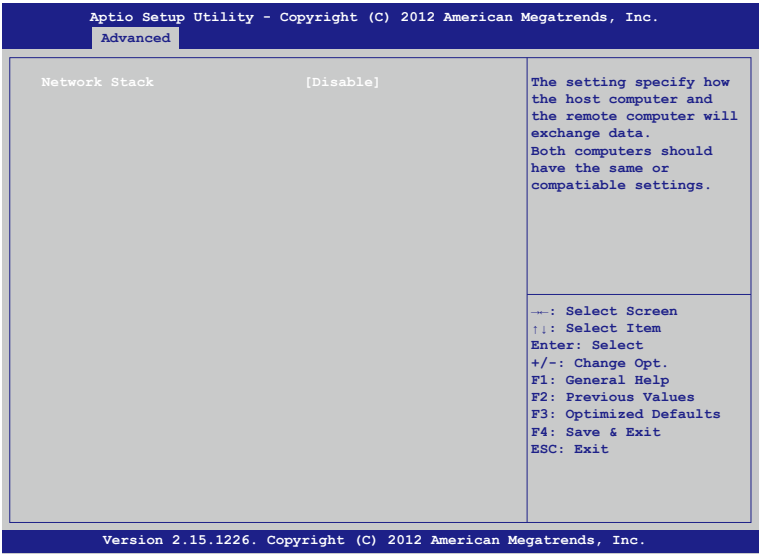
3.2.2. Serial Port Console Redirection



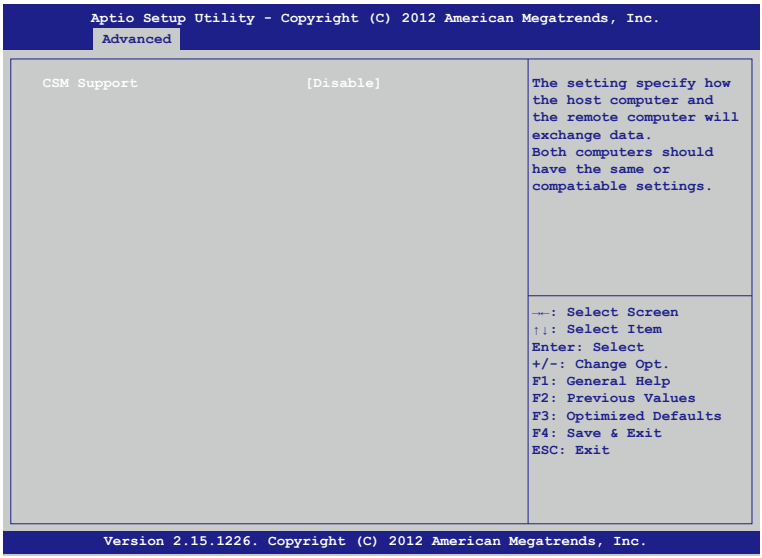
3.2.2.1. Serial Port Console Redirection Settings



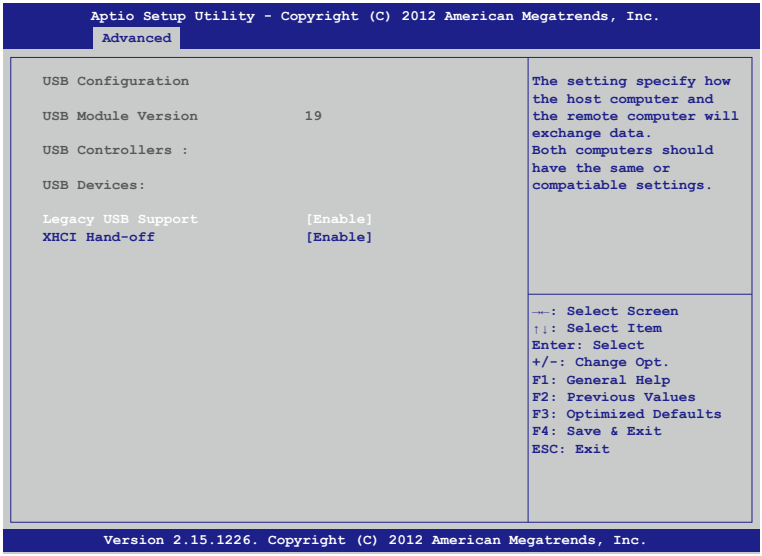
3.2.3. Network Stack Configuration



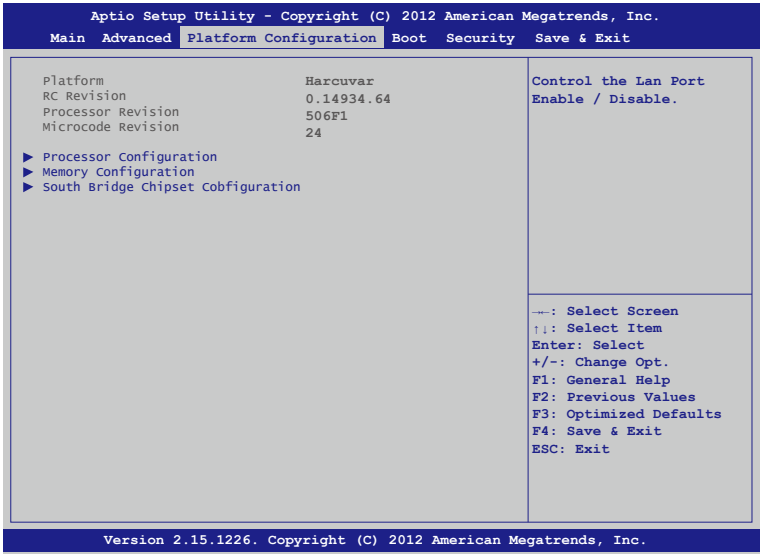
3.2.4. CSM Configuration



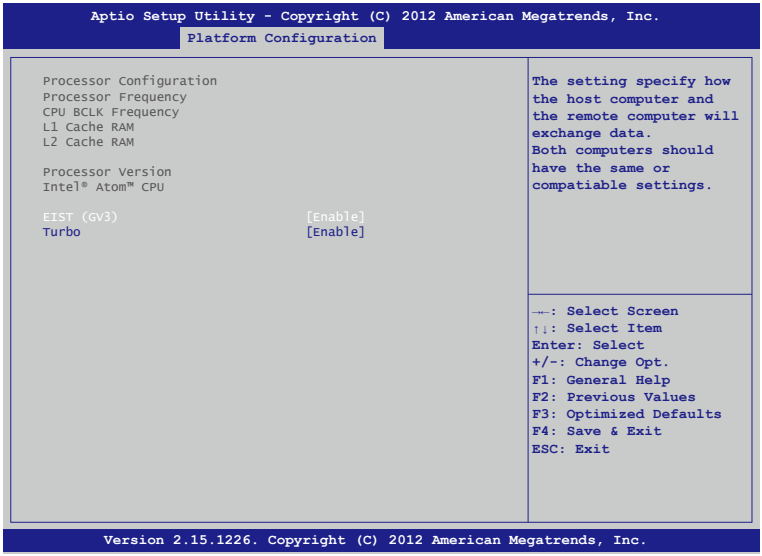
3.2.5. USB Configuration



3.3. Platform Configuration



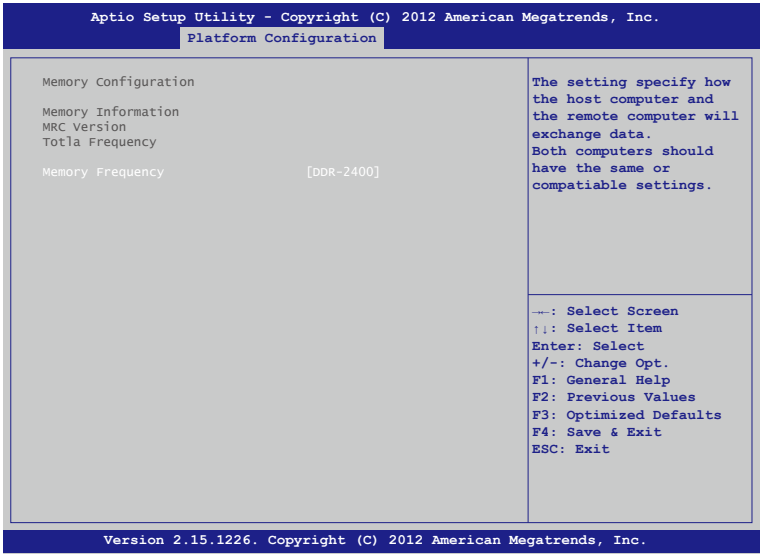
3.3.1. Processor Configuration



- **EIST (GV3)**
  Enable/Disable EIST.

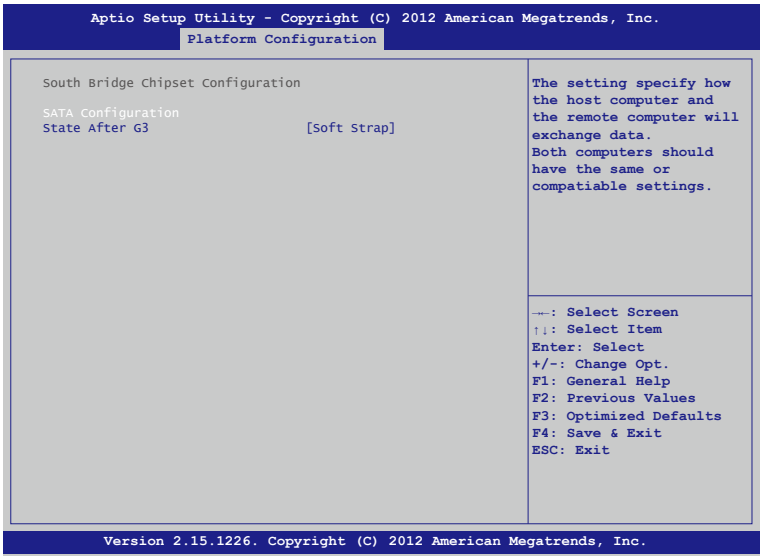
- **Turbo**
  Enable/Disable CPU Turbo capability.

3.3.2. Memory Configuration



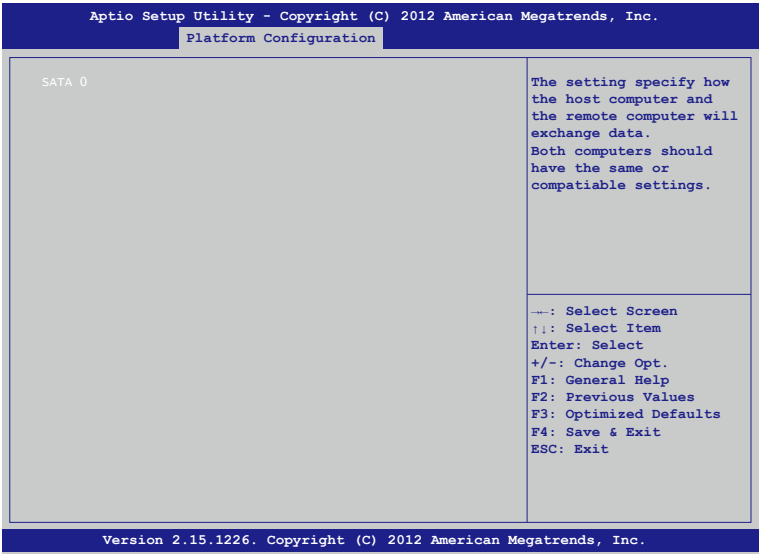
- **Memory Frequency**
  Memory speed

3.3.3. South Bridge Chipset Configuration

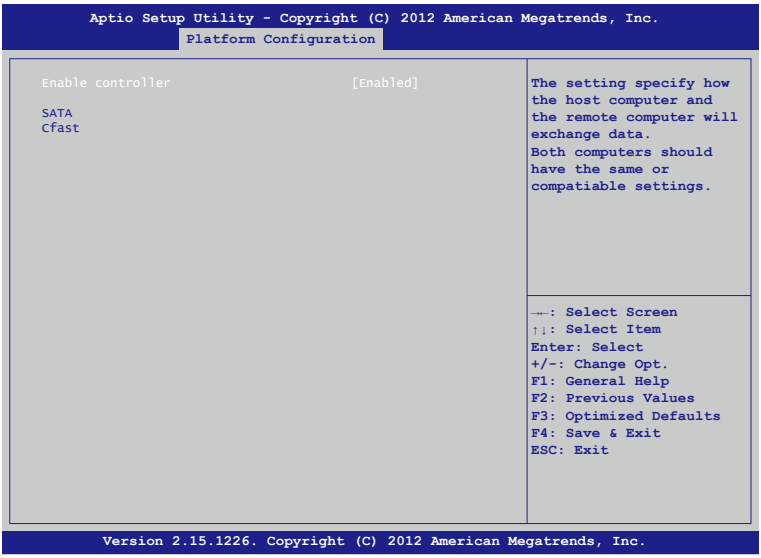


- **SATA Configuration**
  Configuration of SATA controller.
- **State After G3**
  Specify what state to go to when power is re-applied after a power failure (G3 state).

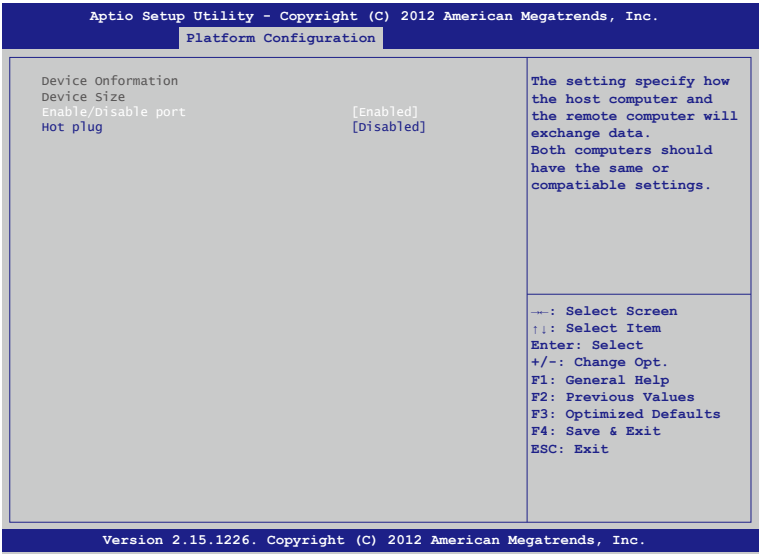
3.3.3.1. South Bridge Chipset Configuration



- **SATA 0**
  Configuration of sata controller

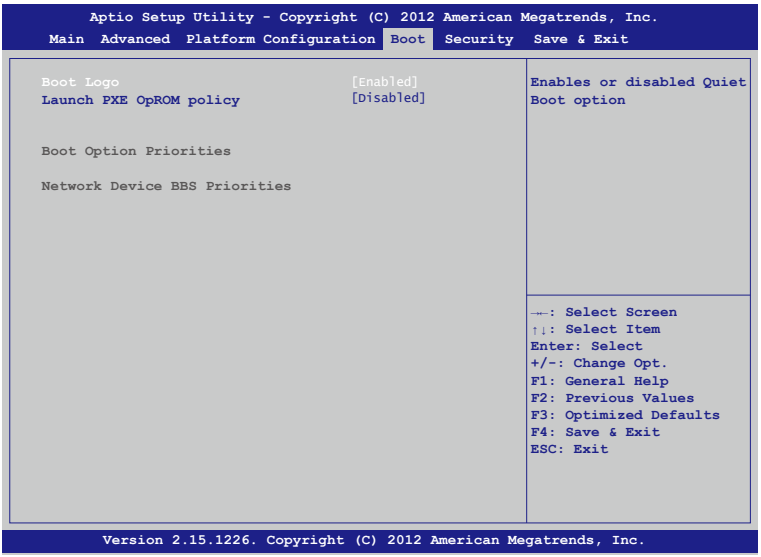


- **Enable controller**
  Enables/Disables SATA Controller if supported by current cpu SKU.



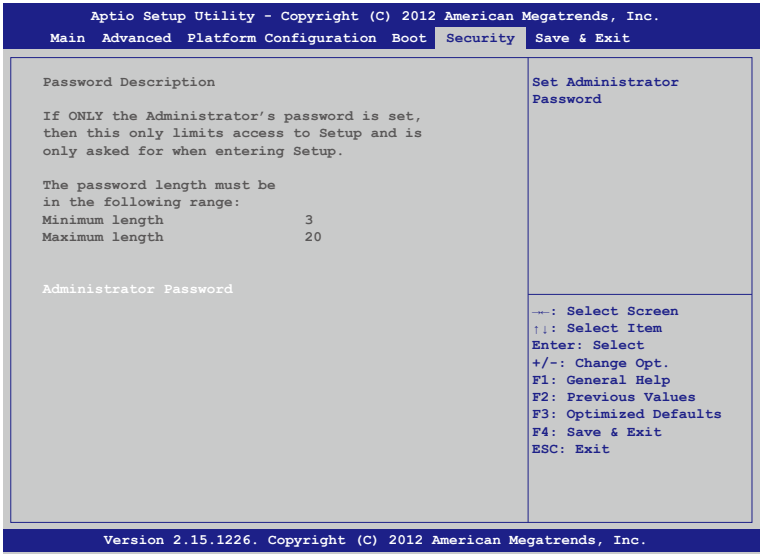
- **Enable/Disable port**
  Enables/Disables SATA Controller port if supported by current cpu SKU.
- **Hot plug**
  Enables/Disables Hot plug

3.4. Boot Setup



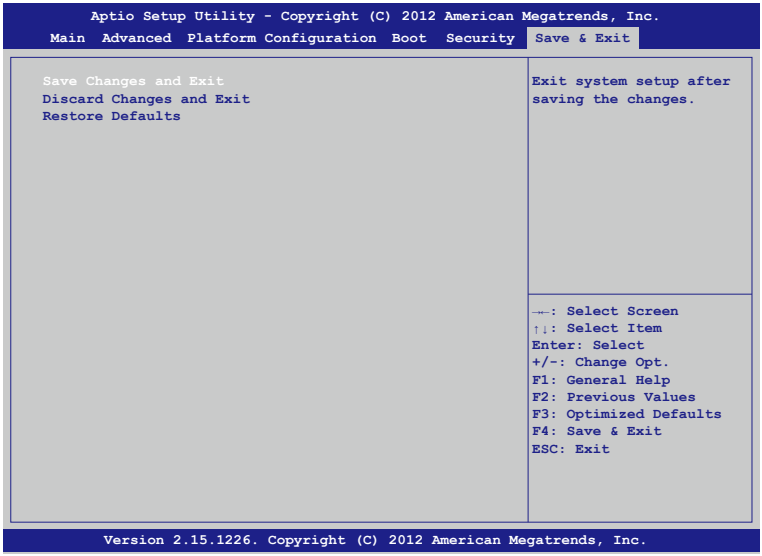
- **Boot Logo**
  Enables or disables Quiet Boot option.
- **Launch PXE OpROM policy**
  This option controls the execution of UEFI and Legacy PXE OpROM.
- **Boot Option Priorities**
  Set the system boot order.
- **Network Device BBS Priorities**
  Set the order of the legacy devices in this group.

3.5. Security Setup



- **Administrator Password**
  Set Administrator Password.

3.6. Save & Exit Setup



- **Save Changes and Exit**
  Exit system setup after saving the changes.
- **Discard Changes and Reset**
  Exit system setup without saving any changes.
- **Restore Defaults**
  Restore/Load the default values for all the set up options.

4. Software Installation and Programming Guide

4.1. Introduction

4.1.1. Environment

This test utility develop is based on kernel 4.8 above (Ubuntu 18.04.1 Server 64bit).

4.1.2. GPIO

The AND-DNV3N3-4C provides GPIO interface. Users can use the GPIO APIs to control GPO Pin.

4.1.3. Watchdog

The AND-DNV3N3-4C provides a Watchdog Timer. Users can use the Watchdog APIs to configure and to access the Watchdog timer. The Watchdog timer can be set to 1~255 seconds. Setting the timer to zero disables the timer. The remaining seconds of the timer to reboot can be read from the timer.

4.2. File Descriptions

4.2.1. GPIO/Watchdog/LAN Bypass Subsystem Module

1. TestUtility.exe

The GPIO,Watchdog, Console user interface bin binary.

2. Libw83627.h

This file includes the declarations of the APIs and macro definitions.

3. Libw83627.a

The static library for linux.

4. Libw83627.so

The dynamic library for linux.

5. Install_driver

This file is linux shell script file. Run this file can help you install environment and modprobe driver on linux.

6. readme

Use this utility first. Please read the readme file first.

4.3. API List and Descriptions

4.3.1. GPIO

Syntax:	Get_gpi_status(int pin)
Description:	Get the status of GPIO input pins status.
Parameters:	This function fills in an integer variable as the parameter. The pin0 ~ pin1 is the status of the input pins.
Return Value:	1: HIGH, 0: LOW.

Syntax:	Get_gpo_status(int pin)
Description:	Get the status of GPIO output pins status.
Parameters:	This function fills in an integer variable as the parameter. The pin0 ~ pin1 is the status of the output pins.
Return Value:	1: HIGH, 0: LOW.

Syntax:	Set_gpo(int pin, int value)
Description:	Set the status of GPIO output value.
Parameters:	Set value 0 is Low, 1 is High
Return Value:	If the function sets the values successfully, it returns 0 or -1, any other returned value stands for error.

4.3.2. Watchdog

Syntax:	Void wdt_start(int _timevalue)
Description:	This function gets the watchdog timer register to the timevalue and starts to count down.
Parameters:	The parameter ‘val’ is the value to set to watchdog timer register. The range is 1 ~ 255.
Return Value:	This function returns the value of the time counter and returns it to the caller as an unsigned integer.

Syntax:	Void wdt_stop(void)
Description:	This function sets the watchdog timer stop.
Parameters:	None.
Return Value:	None.

4.3.3. Notes

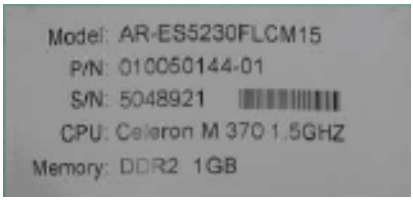
Syntax:	int libw83627_init(void)
Description:	Must call this function first before using the watchdog and gpio function.
Parameters:	None.
Return Value:	0: Successful, -1: Fail

Syntax:	void lib_close(void)
Description:	If not using watchdog and gpio fuction on your program, please call this function.
Parameters:	None.
Return Value:	None.

5. FAQ

Q 1. Where is the serial number located on my system?

- The serial number (S/N) is an alpha-numeric character located on the bottom or side chassis.



(for reference only)

Technical Support Form

We deeply appreciate your purchase of Acrosser products. Please find the "**tech_form.doc**" file in our utility CD. If you have any questions or problems about Acrosser products, please fill in the following information. We will answer your questions in the shortest time possible.

Describe Your Info and Acrosser System Info

- Your Company Name: _____
- Your Contact Info: _____ Phone Number: _____
- Your E-Mail Address: _____
- Your Company Address: _____

  _____
- Acrosser Model Name: _____
- Acrosser Serial Number: _____

Describe System Configuration

- CPU Type: _____
- Memory Size: _____
- Storage Device (e.g. HDD, CF, or SSD): _____
- Additional Peripherals (e.g. Graphic Card): _____
- Operating System & Version (e.g. Windows 7 Embedded): _____
- Special API or Driver: _____

  (If yes, please provide it for debug.)
- Running Applications: _____
- Others: _____

Describe Your Problems or Questions:

Send the above information to one of the following Acrosser contacts:

- Acrosser Local Sales Representative
- Acrosser Authorized Sales Channels
- Acrosser Inquiry --- http://www.acrosser.com/inquiry.html
- Acrosser FAX Number --- 886-2-29992887

To Make Your
Embedded
Idea a Reality

Acrosser Headquarters

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