

# **ANR-APL1N1FL-XX**

Intel<sup>®</sup> Apollo Lake SoC Series Networking 1U Rack Mount Solution 6x GbE LANs with 3-pair Bypass



## User Manual

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



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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.

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### **Table of Contents**

1.	Sys	stem Introduction	. 5
	1.1.	Specifications	5
	1.2.	Package Contents	7
	1.3.	Dimensions	8
	1.4.	Front Panel	9
	1.5.	Rear Panel	10
2.	Со	nponents Assembly	11
	2.1.	2.5" SATA SSD Installation	.11
	2.2.	DIMM Card Installation	14
	2.3.	PCIe Card Installation	15
3.	BIC	S Settings	17
	3.1.	Main Setup	17
	3.2.	Advanced Setup	18
		3.2.1. Trusted Computing	19
		3.2.2. ACPI Settings	20
		3.2.3. Super IO Configuration	21
		3.2.5. Hardware Monitor	23
		3.2.6. LAN Bypass Control & Watchdog Settings	23
		3.2.7. Power Button & PXE Control	24
		3.2.8. SAIA Drivers	25
		3.2.9. S5 RTC Wake Settings	20 27
		3.2.11. CPU Configuration	28
		3.2.12. CSM Configuration	29
		3.2.13. USB Configuration	30
	3.3.	Chipset Setup	31
		3.3.1. North Bridge	32
		3.3.3 South Cluster Configuration	33 34
	34	Security Setup	35
	3.5	Boot Setun	36
	3.6.	Save & Exit Setup	37
4	Driv	ver and Utility Installation	38
••	<u> </u>		38
	ד.ו. ⊿ י		30
	4.2.	4.2.1. Driver Installation Page	40



		4.2.2. Utility Page	
		4.2.3. Application Installation Page	47
		4.2.4. Document Page	50
	4.3.	Linux Configuration	51
5.	So	ftware Installation and Programming Guide	55
	5.1.	Introduction	
	••••	5.1.1. Environment	
		5.1.2. GPIO	55
		5.1.3. Watchdog	55
		5.1.4. LAN Bypass Subsystem	55
	5.2.	File Descriptions	56
		5.2.1. GPIO/Watchdog/LAN Bypass Subsystem	56
	5.3.	API List and Descriptions	56
		5.3.1. GPIO	56
		5.3.2. Watchdog	57
		5.3.3. LAN Bypass Subsystem	57
		5.3.4. Notes	59
6.	FA	Q	61
	Q 1.	Where is the serial number located on my system?	
			•



#### System Introduction 1.

### 1.1. Specifications

Thermal Solution	1x Fanless Heatsink			
CPU	<ul> <li>Intel<sup>®</sup> Apollo Lake SoC Celeron<sup>®</sup> J-Series CPU</li> <li>Intel<sup>®</sup> Apollo Lake SoC Celeron<sup>®</sup> N-Series CPU</li> <li>Intel<sup>®</sup> Apollo Lake SoC Celeron<sup>®</sup> E-Series CPU</li> </ul>			
System Memory	System Memory • 1x SO-DIMM DDR3L-1866 (up to 8GB)			
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 Boot from	RJ45 LAN[1:6]	
BIOS Function	•	Support SSID		

#### Network Interface

Ethernet Chip	<ul> <li>6x GbE Copper</li> <li>Intel<sup>®</sup> I210-AT (10/100/1000Mbps) LAN[1:6]</li> </ul>	
LAN Bypass (3-pair)	<ul> <li>(1st LAN bypass) by LAN[1:2]</li> <li>(2nd LAN bypass) by LAN[3:4]</li> <li>(3rd LAN bypass) by LAN[5:6]</li> </ul>	

#### Storage

-		
SATA/mSATA	<ul> <li>1x 2.5" Internal HDD Bay (default), or 1x mSATA Socket (full-size module) (reserved)</li> </ul>	
CF/CFast	<ul> <li>1x CF Socket (default), or 1x CFast Socket (reserved)</li> </ul>	

#### Other Features

Watchdog Timer	<ul> <li>Software Programmable 0 ~ 255 seconds (0=Disable Timer)</li> </ul>	
Battery	Lithium Battery, 3V 220mAH (CR2032)	



Security	• TPM 2.0	
Hardware Monitoring	<ul> <li>CPU Voltage</li> <li>CPU Temperature</li> <li>System Temperature</li> <li>RTC Battery Voltage</li> </ul>	

Power Supply	60W Open Frame Power Supply (AT mode)	
Software		
OS Support	<ul> <li>Windows 10 IoT Enterprise LTSB Entry, (64-bit)</li> <li>Linux Kernel 4.4 &amp; above, (64-bit)</li> </ul>	

### Mechanical & Environment

Dimension	• 440mm (W) x 266mm(D) x 44mm(H)
Operating Temperature	• 0 ~ 40°C (32 ~ 104°F)
Storage Temperature	• -20 ~ 80°C (-4 ~ 176°F)
Relative Humidity	• 0 ~ 90% @40°C, non-condensing

### EMC & Safety

EMC	CE, FCC Class A
Vibration Test	<ul> <li>IEC 60068-2-64, 5~500Hz, 3GRMS</li> </ul>
Drop Test	• ISTA-2A 2006



### 1.2. Package Contents

Check if the following items are included in the package.

Item	Q'ty
ANR-APL1N1FL-XX Series System	1
SATA Power Cable	1
SATA Cable	1
Driver CD	1
Console Cable (RJ45)	1
Rack Bracket	2
Power Cord	1
Box Packing	1



### 1.3. Dimensions

(Unit: mm)



A			
			0 0
		0	
	266.0		
		P	•
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### 1.4. Front Panel



#### • LCM Display / Menu Buttons / Indicators

LCM Display	Character Mode: 16-character x 2-line	
Menu Buttons	LCM menu control buttons	
RST	Reset button	
HDD	HDD activity indicator	
PWR	Power indicator	

#### • Bypass 1, Bypass 2, Bypass 3

Bypass LED. In-active: Green, Active: Red.

Console

COM1 connector.

USB

USB 3.0 connector.

#### • LAN1 ~ LAN6

LAN connectors.

	LED	Light	Status
	LED1	Green Blinking	Link w/ Act
		Green On	Link w/o Act
		Off	No Link
		Off	10Mbps
	LED2	Orange On	100Mbps
		Green On	1000Mbps



### 1.5. Rear Panel



• AC Inlets

AC power inlets.

Power Switch

Power on/off switch.



### 2. Components Assembly

### 2.1. 2.5" SATA SSD Installation

Step 1: Place the chassis on the table. Unscrew the 7 screws that fasten the top cover.



Step 2: Flip over to the bottom side. Remove the 4 screws that fastened the HDD holder.





Step 3: Open the top cover. Take out the HDD holder.



Step 4: Install your 2.5" HDD. Fasten with screws.





Step 5: On the bottom side, fasten the HDD holder with 4 screws.



Step 6: Connect the HDD to mainboard with SATA cable and SATA power cable.



Step 7: Lock the top cover with screws.



### 2.2. DIMM Card Installation

Step 1: Place the chassis on the table. Unscrew the 7 screws that fasten the top cover.



Step 2: Install your DIMM card into the **DIMM** slot on the mainboard. Pay attention to its orientation, and do not scratch the contacts.



Step 3: Lock the top cover with screws.



### 2.3. PCIe Card Installation

Step 1: Place the chassis on the table. Unscrew the 7 screws that fasten the top cover.



Step 2: Remove the screw that fastened the cover plate.





Step 3: Take out the cover plate.



Step 4: Firmly insert your PCIe card.



Step 5: Lock the cover plate with screw.



Step 6: Lock the top cover with screws.



### 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
- Security Setup
- Boot Setup
- Save & Exit Setup

Once you enter the Award BIOS<sup>™</sup> 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.

Aptio Setup Utility Main Advanced Chipset	- Copyright (C) 2018 American Security Boot Save & Exit	Megatrends, Inc.
BIOS Information BIOS Version Build Date and Time	APLINIFL 010-004 05/04/2018 11:22:33	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 2005-2099 Months: 1-12
Ststem Date Ststem Time Access Level	[Wed 06/13/2018] [11:22:33] Administrator	Days: dependent on month
		: Select Screen  . : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263.	Copyright (C) 2018 American M	Megatrends, Inc.

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. Use Tab to switch between Date elements.

#### System Time

Set the system time. Use Tab to switch between Time elements.

### 3.2. Advanced Setup

Aptio Setup Utility - Copyright (C) 2018 American Main <mark>Advanced</mark> Chipset Security Boot Save & Exit	Megatrends, Inc.
<ul> <li>Trustad Computing</li> <li>ACPI Settings</li> <li>Super IO Configuration</li> <li>Hardware Monitor</li> <li>Fan Function</li> <li>LAN Bypass Control &amp; Watchdog Settings</li> <li>Power Button &amp; FXE Control</li> <li>SATA Drivers</li> <li>S5 RTC Wake Settings</li> <li>Serial Port Console Redirection</li> <li>CPU Configuration</li> <li>CSM Configuration</li> <li>USB Configuration</li> </ul>	Trusted Computing Settings. Select Screen :: Select Item Enter: Select :: Select Item Enter: Select :: Select Item Enter: Select :: Select Screen :: Select Item Enter: Select :: Select Item :: Select ::
Version 2.18.1268. Copyright (C) 2017 American M	egatrends, Inc.

- **Trusted Computing** Trusted Computing Settings.
- ACPI Settings
   Set system ACPI parameters.
- Super IO Configuration System Super IO Chip Parameters.
- Hardware Monitor Monitor hardware status.
- Fan Function Fan function setting.
- LAN Bypass Control & Watchdog Settings
   LAN Bypass Control & Watchdog Settings
- Power Button & PXE Control
   Power Button & PXE Control
- SATA Drivers Select the SATA device configuration setup options.



- S5 RTC Wake Settings Enable system to wake from S5 using RTC alarm.
- Serial Port Console Redirection Set serial port console redirection.
- CPU Configuration
   CPU Configuration Parameters.
- CSM Configuration
   Compatibility Support Module Configuration. Enable/Disable Option ROM execution
   settings, etc.
- USB Configuration
   USB Configuration Parameters.

### 3.2.1. Trusted Computing

Set trusted computing settings

TPM20 Device Found		Enables or Disables BIC support for security
		device. O.S. will not
Active PCR banks Available PCR banks	SHA-1 SHA-1,SHA256	show Security Device. TCG EFI protocol and INT1A interface will no
SHA-1 PCR Bank SHA256 PCR Bank	[Enabled] [Disabled]	be available.
Pending Operation	[None]	
Platform Hierarchy	[Enabled]	
Endorsement Hierarchy	[Enabled]	
TPM2.0 UEFI Spec Version	[TCG 2]	, Solost Saroon
Physical Presence Spec Vers	ion [1.2]	ti: Select Item
TPM 20 InterfaceType	[TIS]	Enter: Select
Device Select	[Auto]	+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

Security Device Support

Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

#### • SHA-1 PCR Bank

Enables or Disables SHA-1 PCR Bank.

#### SHA256 PCR Bank

Enables or Disables SHA256 PCR Bank.



#### Pending Operation

Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

- Platform Hierarchy Enables or Disables Pateform Hierarchy.
- Storage Hierarchy Enables or Disables Storage Hierarchy.
- Endorsement Hierarchy Enables or Disables Endorsement Hierarchy.
- TPM2.0 UEFI Spec Version
   Select the TCG2 Spec Version Support,
   TCG\_1\_2: The Compatible mode for Win8/Win10.
   TCG 2: Support new TCG2 protocol and event format for Win10 or later.
- Physical Presence Spec Version Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.

#### Device Select

TPM 1.2 will restrict support to TPM 1.2 devices. TPM2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM2.0 devices if not found, TPM1.2 devices will be enumerated

### 3.2.2. ACPI Settings

Set system ACPI parameters.

Aptio Setup Utility Advanced	- Copyright (C)	2018 American	Megatrends, Inc.
ACPI Settings Enable ACPI Auto Configurati	on [Disabled]		Enables or Disables BIOS ACPI Auto Configuration.
			: Select Screen 11: Select Item Enter: Select F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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#### Enable ACPI Auto Configuration

Enables or Disables BIOS ACPI Auto Configuration.

### 3.2.3. Super IO Configuration

Set system super IO chip parameters.



• COM1

Set Parameters of Serial Port 1.

 COM2 Set Parameters of Serial Port 2.



### 3.2.4. Hardware Monitor

Dsiplay hardware monitor status.

Aptio Setup Advanced	Utility - Copyright (C) 2018 American	Megatrends, Inc.
PC Health Status		
CPU Temp	: +35°C	
SYS Temp	: +25°C	
SYS_FAN1	: N/A	
VCC_CPU	: +0.869 V	
VCC_DDR	: +1.364 V	
+12	: +12.276 V	
+5	: +5.032 V	
+3.3	: +3.412 V	
		: Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous values
		FA: Source Emit
		FQC. Fuit
		ESC. EALC
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CPU Temp

This item displays the CPU temperature.

SYS Temp

This item displays the system temperature.

- VCC\_CPU This item displays the VCORE voltage.
- VCC\_DDR This item displays the VDDR voltage.
- +12V Voltage This item displays the +12V voltage.
- +5V Voltage This item displays the +5V voltage.
- +3.3V Voltage This item displays the +3.3V voltage.



### 3.2.5. Hardware Monitor

Fan function setting.

Aptio Setup Utili Advanced	ty - Copyright (C) 2018 Americ	an Megatrends, Inc.
PC Health Status		SYS_FAN1 mode Select
SYS_FAN1 Mode		
		: Select Screen 1.1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.12	63. Copyright (C) 2018 American	n Megatrends, Inc.

#### • SYS\_FAN1 Mode

This item selects the SYS\_FAN1 mode.

### 3.2.6. LAN Bypass Control & Watchdog Settings

Aptio Setup Utilit Advanced	y - Copyright (C) 2018 Ame	rican Megatrends, Inc.
PIC 1-1 POWER ON PIC 1-1 POWER OFF PIC 1-1 WDT PIC 1-2 POWER ON PIC 1-2 POWER OFF PIC 1-2 WDT PIC 1-3 POWER ON PIC 1-3 POWER OFF PIC 1-3 WDT	[NORMAL] [PASS] [PASS] [PASS] [PASS] [PASS] [NORMAL] [PASS] [PASS]	: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.126	3. Copyright (C) 2018 Ameri	.can Megatrends, Inc.



### 3.2.7. Power Button & PXE Control

Set Power Button & PXE Control.

PowerOn after PowerFail Soft-Off by PWR-BTTN LAN PXE BOOT	[Power Off] [Instant-Off] [Disabled]	Specify what state to go t when power is re-applied after a power failure (G3 state). S0 State: System will boot directly as soon as power applied.
		: Select Screen :1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

#### • PowerOn after PowerFail

Specify what state to go to when power is re-applied after a power failure (G3 state). S0 State: System will boot directly as soon as power applied.

#### • Soft-Off by PWR-BTTN

Select the delay between when you press the power button to when the system turns off.

LAN PXE BOOT

Enable/Disable UEFI LAN PXE BOOT.



### 3.2.8. SATA Drivers

Select the SATA device configuration setup options.



Chipset SATA

Enables or Disables the Chipset SATA Controller.

• SATA Mode Selection

Determines how SATA controller(s) operate.



### 3.2.9. S5 RTC Wake Settings

Enable system to wake from S5 using RTC alarm.

	Enable or Disable system
	wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specific
	: Select Screen   : Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

• Wake system from S5

Enable or Disable system wake on alarm event.



### 3.2.10. Serial Port Console Redirection

Set serial port console redirection.

Aptio Setup Utility - Co Advanced	pyright (C)	2017 Ameri	can Megatrends, Inc.
COM1 Console Redirection > Console Redirection Settings	[Enabled]		The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
			: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Console Redirection

Enable/Disable Consol Redirection.

#### Console Redirection Settings

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.



### 3.2.11. CPU Configuration

Set CPU configuration parameters.



- Socket 0 CPU Information Socket specific CPU Information.
- CPU Power Management
   CPU Power Management options
- Active Processor Core
   Number of cores to enable in each processor package.
- Intel Virtualization Technology
   When enabled, a VMM can utilize the additional hardware capabilities provided by
   Vanderpool Technology.
- VT-d Enable/Disable CPU VT-d.
  - **Bi-directional PROCHOT** When a processor thermal sensor trips (either core), the PROCHOT# will be driven. If bi-direction is enabled, external agents can drive PROCHOT# to throttle the processor.
- Thermal Monitor Enable/Disable Thermal Monitor.
- Monitor Mwait
   Enable/Disable Monitor Mwait.



- P-STATE Coordination Change P-STATE Coordination type.
- DTS Enabled/Disable Digital Thermal Sensor.

### 3.2.12. CSM Configuration

Set CSM configuration parameters.



CSM Support

Enable/Disable CSM support.

GateA20 Active

[UPON REQUEST]: GA20 can be disabled using BIOS services.

[**ALWAYS**]: Do not allow disabling GA20; this option is useful when any RT code is excuted above 1MB.

- INT19 Trap Response BIOS reaction on INT19 trapping by Option ROM.
   [IMMEDIATE]: Execute the trap right away.
   [POSTONED]: Execute the trap during legacy boot.
- Boot option filter This option controls Legacy/UEFI ROMs priority.

#### Network

Controls the execution of UEFI and Legacy PXE OpROM.



#### Storage

Controls the execution of UEFI and Legacy Storage OpROM.

Video

Controls the execution of UEFI and Legacy Video OpROM.

#### Other PCI devices

Determines OpROM execution policy for devices other than Network, Storage, or Video.

### 3.2.13. USB Configuration

Set USB configuration parameters.

Aptio Setup Utility - Cop Advanced	oyright (C) 2018 American M	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Module Version	16	AUTO option disables legacy support if no USB
USB Controllers: 1 XHCI USB Devices:	22.4D	devices are connected. DISABLE option will keep USB devices available
1 Drive, 1 Keyboard, 1 M	ouse	only for EFI application.
Legacy USB Support XHCI Hand-off USB Mass Storage Driver Support	[Enabled] [Enabled] [Enabled]	
USB hardware delays and time-out USB transfer time-out Device reset time-out Device power-up delay Mass Storage Devices: SSD	s: [20 sec] [20 sec] [Auto] [Auto]	-: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

#### Legacy USB Support

Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

- USB Mass Storage Driver Support
  Enable/Disable USB Mass Storage Driver Support.
- USB transfer time-out The time-out value for Control, Bulk, and Interrupt transfers.
- Device reset time-out USB mass storage device Start Unit command time-out.



#### Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'AUTO' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

#### Mass Storage Devices

Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

### 3.3. Chipset Setup

Aptio Setup Utility - Copyright (C) 2018 American M Main Advanced <mark>Chipset</mark> Security Boot Save & Exit	Megatrends, Inc.
<ul> <li>North Bridge</li> <li>South Bridge</li> <li>South Cluster Configuration</li> </ul>	North Bridge Parameters
	→: Select Screen ↑:: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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- North Bridge
   North Bridge Parameters.
- South Bridge South Bridge Parameters.
- South Cluster Configuration South Cluster Configuration.



### 3.3.1. North Bridge

Set North Bridge configuration parameters.

Aptio Setup Utility Chipset	- Copyright (C) 2018 Americ	an Megatrends, Inc.
Memory Information		Maximum Value of TOLUD.
Total Memory	4096 MB (LPDDR3)	
Memory Slot0	4096 MB (LPDDR3)	
Max TOLUD Above 4GB MMIO BIOS assign PCIE VGA Workaround	[2 GB] mment[Disabled] [Disabled]	
		: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Max TOLUD

Maximum Value of TOLUD.

• Above 4GB MMIO BIOS assignment

Enable/Disable above 4GB MemoryMappedIO BIOS assignment. This is disabled automatically when Aperture size is set to 2048MB.

PCIE VGA Workaround

Enable it if your PCIe card cannot boot to DOS. This is for Test only.



### 3.3.2. South Bridge

Set South Bridge configuration parameters.

Aptio Set	up Utility - Co Chipset	opyright (C)	2018 American	Megatrends, Inc.
Serial IRQ Mode OS Selection	1	[Continuous [Windows]	1	Configure Serial IRQ Mode.
				: Select Screen 1:: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version	2.18.1263. Cop	yright (C) 2	018 American Me	egatrends, Inc.

- Serial IRQ Mode Configure Serial IRQ Mode.
- OS Selection Select the target OS.



### 3.3.3. South Cluster Configuration

Set South Cluster configuration parameters.

Aptio Setup Utility - Chipset	Copyright (C) 2018 American	Megatrends, Inc.
<ul> <li>PCI Express Configuration</li> <li>USB Configuration</li> </ul>		PCI Express Configuration Settings
		: Select Screen :: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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- PCI Express Configuration PCI Express Configuration Settings.
- USB Configuration USB Configuration Settings.



### 3.4. Security Setup

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. Main Advanced Chipset <mark>Security</mark> Boot Save & Exit				
Password Description		Set Setup Administrator		
If ONLY the Administrator's then this only limits access only asked for when enterin If ONLY the User's password is a power on password and boot or enter Setup. In Set have Administrator rights. The password length must be in the following range: Minimum length	a password is set, is to Setup and is ig Setup. I is set, then this muste be entered to cup the User will			
Maximum Fength Setup Administrator Passwor User Passwordword	zu rd	: Select Screen ::: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit		
Version 2.18.1263. 0	Copyright (C) 2018 American Me	egatrends, Inc.		

- Setup Administrator Password Set Setup Administrator Password.
- User Password Set User Password.



### 3.5. Boot Setup

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. Main Advanced Chipset Security <mark>Boot</mark> Save & Exit				
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot Boot Option Priorities Boot Option #1	1 [On] [Enabled] [UEFI: Built-in EFI]	Number of seconds to wait for setup activation key. 65355(0xFFF) means indefinite waiting.		
Boot Option #2	[Windows Boot Manager] [Default]			
		: Select Screen 1:: Select Itam Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Grand Control		
Version 2.18.1263.	Copyright (C) 2018 American M	F4: Save & Exit ESC: Exit		

Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

- Bootup NumLock State
   Select the keyboard NumLock state.
- Quiet Boot
   Enables or disables Quiet Boot option.
- Boot Option #1
   Sets the system boot order.
- Fast Boot Enable or Disable FastBoot features.
   Most probes are skipped to reduce time cost during boot.
- New Boot Option Policy Controls the placement of newly detected UEFI boot optins.



### 3.6. Save & Exit Setup

Aptio Setup Utility - Copyright (C) 2018 American	Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit	
Save Options Save Changes and Reset Discard Changes and Reset Default Options Restore Defaults Boot Override	Reset system setup after saving the changes.
UEFI: Bult-in EFI Shell Windows Boot Manager Launch EFI Shell from filesystem device	
	<pre>: Select Screen '\:: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.18.1263. Copyright (C) 2018 American Me	gatrends, Inc.

- Save Changes and Reset Reset system setup after saving the changes.
- **Discard Changes and Reset** Reset system setup without saving any changes.

#### Restore Defaults

Restore/Load Default values for all the setup options.

• Launch EFI Shell from filesystem device Attemps to Launch EFI Shell application (shell.efi) from one of the available filesystem devices.



## 4. Driver and Utility Installation

### 4.1. Driver CD Interface Introduction

Acrosser provides a Driver CD compiled with all the drivers, utilities, applications and documents this product may need.

Put the Driver CD into your CD-ROM drive. The Driver CD will automatically detect the mainboard information to see if they are matched. The following error messages appear if you use an incorrect Driver CD version with your mainboard. Please find the correct Driver CD to proceed.

Model error Message	×
Model Type Driver UnCompatiable	



### 4.2. Windows Installation

Put the correct Driver CD of your mainboard into your CD-ROM drive. The following installation screen should appear.

E 010-006		-		×
CROSSER	W	/ww.ac	rosser.	com
Driver Utility   Application   Document		APL1	N1FL	
Chipset VGA LAN TXEI SD				
Select Clear Install	/se ic	•	Close	*

If not, enter the root folder of the Driver CD, run the excution file "Setup.exe".

E 🛛 🖸	) 🔜 🖬 🗐			磁碟模工具	DVD 光碟機 (D:) Across	er Driver Disc				-		×
相案	常用	共用	檢視	智理								~ 👩
← -3	· · •	<u></u> 7 、本根	ŧ → DVI	D 光碟機 (D:) A	crosser Driver Disc				v Ö	授尋 DVD 光碟機 (D:) Ad	ross	P
		^	名稱		^	修改日期	類型	大小				
* 1	総存取		AP	L1N1FL		2017/10/2 上午 1	檔案資料夾					
	展出	1	📙 im	age		2017/10/2 上午 1	檔案資料夾					
+	下戴		🗟 au	torun		2011/5/19 下午 0	安裝資訊	1 KB				
4	文件	1	🗟 bo	ard		2017/10/31 下午	组融設定	3 KB				
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	-105 T#0											
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•4 a 5 個項(	2日1年4月 日	~									0.01	):: <b>-</b>



### 4.2.1. Driver Installation Page

#### Step 1: Select the "Driver" tab.

010-006	-		×
CROSSER	www.ac	rosser.c	om
Driver Utility Application Document	APL11	N1FL	1
☐ Chipset □ VGA □ LAN □ TXEI □ SD			
Select All Clear All Install		Close	

Step 2: Click the "Select All" button to select all the driver checkboxes, and then click "Install" button to start installing all the selected drivers.

€ 010-006	-		×
CROSSER	www.ac	rosser.c	om
Driver Utility Application Document	APL1	N1FL	
₩ Chipset ₩ VGA ₩ LAN ₩ TXEI ₩ SD			
Select All Clear All Install		Close	

<b>E</b> 010-006	-		×
acrosser	www.aci	osser.c	om
Driver Utility Application Document	APL11	N1FL	1
☑ Chipset			
₩ VGA			
⊠ TXEI			
⊠ SD			
installing Now:Unipset			
Select Select All Clear All Install			
Brows Disc	e 🚺	Close	

Step 3: The driver installation completed. The configuration will be valid after reboot.

<b>E</b> 010-006		- 🗆 X			
ECROS	<u>a</u> crosser				
Driver Utility Appl	ication   Document	APL1N1FL			
🗆 Chipset					
🗆 VGA	Message X				
	ALL Drivers Install Finished! Will Reboot Computer.				
TXEI	福定 取消				
🗆 SD					
	Installing Now:SD				
	Select All Clear Install				
	Prows Disc	e 🕃 Close			

Note: Select the "Clear All" button will clear all the selections, and then you can select the driver you want to install one by one, but the "Chipset" driver has to be installed before installing all the others.



### 4.2.2. Utility Page

Before launching the utility, you should run the Windows test mode by running the command "**BCDEdit** /set testsigning on", and restart the system.

If you want to call this **AcrosserLib.dll** API file to initiate peripherals function, e.g. GPIO, PIC, or WatchDog, also run this command first, and restart the system.



To shutdown the Windows test mode, run the command "**BCDEdit /set testsigning off**", and restart the system.

Step 1: Select the "Utility" tab. Click the "Test Utility" box.

<b>E</b> 010-006		-		×
CROSSER	ww	w.ac	rosser.	com
Driver Utility Application Document	A	PL1	N1FL	
Test Utility				
Brows Disc	e	0	Close	a

Step 2: The "Test Utility" screen appears.













#### Select (3) LanBypass TEST:

🛃 Lan Bypa	ass Ver	rsion : 010-001				×
Status						
Action		Bypass 1	Bypass 2	Bypass 3		
WDT		Normal	Normal	Normal		
Power O	N	Normal	Normal	Normal		
Power O	FF	Normal	Normal	Normal		
Current		Normal	Normal	Normal		
Function Set bypass WDT action V Set						
Action	Вура	ass v B	ypass 1 📮 F	Run time 1	Stop	
Log						
					Clear	r



#### Select (4) LCM TEST Utility:

E LCM TEST	×
Backlight for LCD module	
● ON ○ OFF	
Cursor	
Current Position Row = 0 Column = 0	
O Turn On Set Row 0 €	$\leftarrow$ $\rightarrow$ Home
● Turn Off Set Column 0 ÷	
Display	
● Turn On ○ Turn Off	Backspace Clear Screen
Text	
Log	
11:00:16 Display ON	
11:00:16 Cursor OFF 11:00:16 Backlight ON	
The Ducking in City	
	Clear



### 4.2.3. Application Installation Page

Step 1: Select the "Application" tab. Click the "Drivers for Optional Modules" box.

<b>E</b> 020-001	- 🗆 X
CROSSER	www.acrosser.com
Driver Utility Application Document	APL1V1FL
Drivers for Optional Modules	]
Audio Driver	
Fintek Serial	
	Prowse Disc Close

Step 2: Select the driver you want to install.

📙   🕑 📃 🖛   Windows					-	×
檔案 常用 共用 檢視						~ 🔞
★ 前編到[ 初編到[ 快速存取]	· · · · · · · · · · · · · · · · · · ·	新增項目、 新增 資料次	<ul> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>₩</li> <li>₩</li></ul>	計 全選 計 全選 計 全部不選 ○○ 全部不選 ○○ 反向選擇		
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← → · ↑	D 光碟機 (D:) Acrosser Driver Disc > A	APL1V1FL > Application	n → Modules → Wind	ows 🗸	<ul> <li>授尋 Windows</li> </ul>	P
Windows ^ 名稱	^	修改日期	51111111111111111111111111111111111111	七小		
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SIE	RRA MC73XX Driver	2017/5/22 上午 1	檔案資料夾			
💻 本機 🔡 Sp	arklan 251NBT	2017/5/22 上午 1	檔案資料夾			
↓ 下載						
🖹 文件						
♪ 音樂						
三 桌面						
▶ 国月						
🚟 影片						
🏪 本機磁碟 (C:)						
፫ DVD 光碟機 (D:)						
APL1V1FL						
Application						
- Modules						
Linux						
Windows Y						_
5 保項目						Bii 🖭



Step 3: Select the "Application" tab. Click the "Audio Driver" box.

<b>E</b> 020-001	–
CROSSER	www.acrosser.com
Driver Utility Application Document	APL1V1FL
Drivers for Optional Modules	
Audio Driver	
Fintek Serial	
	Prowse Disc Close

Step 4: Click "Setup.exe" to install audio driver.

📙   🛃 🗮 🔻   Audio						- 0	×
檔案 常用 共用 檢視							~ 👩
★ 前線到[ 街線到[ 快速存取] 初刻 助上 記 計上運信	₩ 100 100 100 100 100 100 100 100 100 10	新增 新增項目 → 新增 資料夾	<ul> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>▶</li> <li>₩</li> <li>₩</li></ul>	■ 全選 ※ 全部不選 ※ 全部不選 ※ 反向選擇			
剪貼哪	組合管理	新埔	開設	選取			
← → ✓ ↑  → 本機 > DVD	光碟機 (D:) Acrosser Driver Disc → A	PL1V1FL > Drivers >	Audio >	~	ට 搜尋 Audio		P
Windows         ▲ 定場           〕 常葉         ● 0.0           量 影片         ● 0.0           ■ 第第         ● 0.0           ■ 平等         ● 0.0           ● 下客         ● 0.0           ● 下客         ● 0.0           ● 下客         ● 0.0           ● 京本         ● 0.0           ● 丁客         ● 0.0           ● ブタキ         ● 0.0           ■ 万方         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0           ● 0.0         ● 0.0	△ 419 Jini 419 Jini 421 Jini 421 Jini 421 Jini 421 Jini 50 exe 90 Anti- 15 Jini 50 exe 91 Anti- 82 Anti- 82 Anti- 82 Anti- 83 Anti- 83 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti- 84 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti- 84 Anti-84 Anti-84 Anti- 84 Anti-84	생근[편] 2014/9/17 7年1_ 2010/6/22 7年0_ 2010/6/22 7年0_ 2010/6/22 7年0_ 2010/6/22 7年0_ 2014/9/9 7年11_ 2014/11/6 7年- 2016/11/16 7年- 2016/11/16 7年- 2016/11/16 7年- 2016/11/16 7年- 2016/11/17 7年0_ 2016/11/17 7年0_ 2016/11/16 7年- 2016/11/16 7年-	評型 結理致改正 組織期設定 組織期設定 組織期設定 組織期設定 組織期設定 組織期設定 組織期設定 相線期設定 電動電纜 素的電纜 素の電纜 業ので 構成 の に 構成 の に 構成 の に し に の の の の の の の の の の の の の	24 KB 23 KB 25 KB 24 KB 25 KB 24 KB 25 KB 75 KB 1 KB 1 KB 1 KB 1 KB 1 467 KB 2,773 KB 1,167 KB 6 KB 535 KB			~
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Drivers Drivers	up.iss	2005/5/31 下午 0	ISS 檔案	1 KB			
Audio V USe 45 個項目	etup.iss	2007/11/14 下午	ISS 福紫	1 KB			•



Step 5: Select the "Application" tab. Click the "Fintek Serial" box.

2020-001					_	. [		×
ac	ROSSER				www.ac	rosse	r.cc	m
Driver	Utility Application Document				APL1	V1FI		
	Drivers for Optional Modules							
	Audio Driver							
	Fintek Serial							
			۶	Browse Disc	ω	Clo	se	

Step 6: Click "FintekSerial.exe" to install COM Port driver.

📙   🕑 📕 🗢   FintekSerial					-	×
檔案 常用 共用 檢視						~ 🕐
★     ★     新聞     前面     而		● 新増 新増 資料夾 新増	→ ○ 編組 内容 ② 編組 ◎ 歴程記錄 開設	■ 全選 ● 全部不選 ● 反向選擇 - 選取		
← → · 小 → 本機 → DVD ;	光碟機 (D:) Acrosser Driver Disc > A	VPL1V1FL > Drivers > F	intekSerial	× č	提尋 FintekSerial	ø
📲 影片 🔷 名稱	^	修改日期	類型 7	C/JV		
💪 OneDrive 🔤 Finte	kSerial.exe	2015/12/4 上午 1	應用程式	4,152 KB		
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### 4.2.4. Document Page

The user manual is stored in the "Document" folder.

<b>E</b> 010-006		-		×
CROSSER		www.ac	rosser.	com
Driver   Utility   Application Document		APL1	N1FL	
System User Manual				
· · · · · · · · · · · · · · · · · · ·	Browse Disc	Θ	Close	



### 4.3. Linux Configuration

Step 1: Before running the shell script file install\_driver to complete the utility, make sure to have Internet access.

8	8 🗢 🗈 linux				
<	> 企家目録 し	Linux Q			
0	最近開啟	名稱 <b>^</b> 大小 類型 修改時間			
企	家目錄	install_driver 266 位元組 程式 2016年06	月20日上午		
	桌面	ibw83627.a 12.7kB 壓縮檔 9月 27			
∻	下載	Ibbw83627.h         1.1 kB 文字         9月 27			
ø	圖片	libw83627.so 16.1 kB 不明 9月 27			
	影片	i readme 276 位元組 文字 10月 2			
	文件	TestUtility.exe 395.3 kB 程式 10月 12			
8	音樂				
	SI_D_DRIVE				
Ū.	和可正合				
¢	電腦				
모	連接伺服器				

Run the sudo mono TestUtility.exe.

Step 2: The "Test Utility" screen appears.





Click Test Item:



Select (1) GPIO TEST Utility:





#### Select (2) WatchDog TEST Utility:

8	WatchDog TEST	
	value = 1~255 255 <u>··</u> Start Stop	
	System will reboot 252 sec	

#### Select (3) LanBypass TEST:

😣 Lan Bypa	ss Version : 0	10-001			
Status					
Action	Bypass 1	Bypass 2	Bypass 3		
WDT	Normal	Normal	Normal		
Power ON	Normal	Normal	Normal		
Power OFF	Normal	Normal	Normal		
Current	Normal	Normal	Normal		
E cat					<u></u>
Function Set	bypass wDT	action		•	Set
Action Byp	ass 🔻	Bypass 1 🕂	Run time 1	*	Stop
Log					
					Clear



#### Select (4) LCM TEST Utility:

LCM TEST ×	
Backlight for LCD module	
GON COFF	
Cursor	
Current Position Row = 0 Column = 0	
C Turn On Set Row 0 ÷	
$\circ$ Turn Off Set Column $0 \div \longrightarrow \cdots \longrightarrow \cdots$ Home	
Display	
C Turn Off     Backspace     Clear Screen	
Text	
Log	
15:58:56 Display ON	
15:58:56 Backlight ON	
Clear	



## 5. Software Installation and Programming Guide

### 5.1. Introduction

#### 5.1.1. Environment

This test utility develop based on kernel 4.4 above (Ubuntu 18.04 Desktop 64bit) and Window 10 iot 64bit.

#### 5.1.2. GPIO

The ANR-APL1N1 provides GPIO interface. Users can use the GPIO APIs to control GPO Pin.

### 5.1.3. Watchdog

The ANR-APL1N1 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.

### 5.1.4. LAN Bypass Subsystem

Three pairs of LAN ports on ANR-APL1N1 implement the bypass function. Users can invoke the LAN Bypass APIs to control the bypass states of the LAN ports.

- 1. Get bypass firmware version.
- 2. Set bypass wdt.
- 3. Set bypass wdt action.
- 4. Get bypass wdt action.
- 5. Set bypass power on action.
- 6. Get bypass power on action.
- 7. Set bypass power off action.
- 8. Get bypass power off action.
- 9. Set bypass current action.
- 10. Get bypass current action.



### 5.2. File Descriptions

### 5.2.1. GPIO/Watchdog/LAN Bypass Subsystem

#### 1. TestUtility.exe

The Watchdog, LAN Bypass Subsystem, GPIO, and Graphic 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.

### 5.3. API List and Descriptions

#### 5.3.1. 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 ~ pin3 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 ~ pin3 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.

### 5.3.2. 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 $1 \sim 255$ .
Return Value:	This function returns the value of the time counter and returns it to the caller as an unsigned integer.
Syntax:	Int get_wdt_count(void)
Description:	This function reads the value of the watchdog time counter.
Parameters:	None.
Return Value:	This function returns the value of the time counter.
Syntax:	Void wdt_stop(void)
Description:	This function sets the watchdog timer stop.
Parameters:	None.
Return Value: None.	

### 5.3.3. LAN Bypass Subsystem

Syntax:	int get_bypass_firmware_ver(char *ver)
Description:	This function can get bypass firmware version and data to save in char pointer.
Parameters:	char pointer, this pointer to 7 character array.
Return Value:	0: Successful, -1: fail.



Syntax:	int set_bypass_wdt(int pair, int time)
Description:	This function can set which pair bypass Wdt timer.
Parameters:	pair: 1-4 , time: 1-255(sec), 0: stop.
Return Value:	0: Successful, -1: fail.

Syntax:	int set_bypass_wdt_action(int pair, int action) This function can set which pair bypass Wdt time up action.	
Description:		
Parameters:	pair: 1-4, action: 0: bypass, 1: normal.	
Return Value:	0: Successful, -1: fail.	

Syntax:	int get_bypass_wdt_action(int pair) This function can get which pair bypass Wdt time up action.	
Description:		
Parameters:	pair: 1-4.	
Return Value:	0: bypass, 1: normal, -1: fail.	

int set_bypass_poweron_action(int pair, int action)	
ch pair bypass power on action.	
pair: 1-4, action: 0: bypass, 1: normal.	

Syntax:	int get_bypass_poweron_action(int pair)	
Description:	This function can get which pair bypass power on action.	
Parameters:	pair: 1-4.	
Return Value:	0: bypass, 1: normal, -1: fail.	

Syntax:	int set_bypass_poweroff_action(int pair, int action)	
Description:	This function can set which pair bypass power off action.	
Parameters:	pair: 1-4, action: 0: bypass, 1: normal.	
Return Value:	0: Successful, -1: fail.	



Syntax:	int get_bypass_poweroff_action(int pair)	
Description:	This function can get which pair bypass power off action.	
Parameters:	pair: 1-4.	
Return Value:	0: bypass, 1: normal, -1: fail.	

Syntax:	int set_bypass_current_action(int pair, int action)	
Description:	This function can set which pair bypass current action.	
Parameters:	pair: 1-4, action: 0: bypass, 1: normal.	
Return Value:	0: Successful, -1: fail.	

Syntax:	int get_bypass_current_action(int pair) This function can get which pair bypass current action.	
Description:		
Parameters:	pair: 1-4.	
Return Value:	0: bypass, 1: normal, -1: fail.	

### 5.3.4. Notes

Syntax:	int libw83627_init(void)	
Description:	Before using the watchdog, gpio functions, must call this function first.	
Parameters:	None.	
Return Value:	0: Successful, -1: fail.	
Syntax:	void lib_close(void)	
Description:	If watchdog and gpio fuctions are not used in your program, please call this function.	
Parameters:	None.	
Return Value:	None.	
Syntax:	void i2c_init(void)	
Description:	Before using psu(i2c), psu(pmbus), chassis, and lan bypass functions, must call this function first.	
Parameters:	None.	
Return Value:	None	



Syntax:	void i2c_close(void)	
Description:	If psu(i2c), psu(pmbus), chassis, and lan bypass functions are not used in your program, please call this function.	
Parameters:	None.	
Return Value:	None.	



### 6. 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:	
<ul> <li>Storage Device (e.g. HDD, CF, or SSD):</li> </ul>	
<ul> <li>Additional Peripherals (e.g. Graphic Card</li> </ul>	):
Operating System & Version (e.g. Window	vs 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 Acrosser Local Sales Representative • Acrosser Authorized Sales Channels • Acrosser Inquiry http://www.acrosser.c	t <b>he following Acrosser contacts:</b> om/inquiry.html





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