# USER'S MANUAL

# VIO-200-PC100-EHL Series

# **Industrial Panel PCs**



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# **Prefaces**

### Revision

Revision	Description	Date
1.0	Manual Released	2023/08/25

## Disclaimer

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## **Environmental Protection Announcement**

Do not dispose this electronic device into the trash while discarding. Please recycle to minimize pollution and ensure environment protection.



#### **Safety Precautions**

Before installing and using the equipment, please read the following precautions:

- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The power outlet shall be installed near the equipment and shall be easily accessible.
- Turn off the system power and disconnect the power cord from its source before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge
- of power could ruin sensitive components. Make sure the equipment is properly grounded.
- When the power is connected, never open the equipment. The equipment should be opened only by qualified service personnel.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Disconnect this equipment from the power before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- Avoid the dusty, humidity and temperature extremes.
- Do not place heavy objects on the equipment.
- If the equipment is not used for long time, disconnect it from the power to avoid being damaged by transient over-voltage.
- The storage temperature shall be above -20°C and below 70°C.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
- If one of the following situation arises, get the equipment checked be service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well or it cannot work according the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.

## **Technical Support and Assistance**

- Visit the Premio Inc website at <u>www.premioinc.com</u> where you can find the latest information about the product.
- 2. Contact your distributor, our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
  - Model name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

#### **Conventions Used in this Manual**

ARNIN



This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.



This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.



NOT

This indication provides additional information to complete a task easily.

# **Package Contents**

Before installation, please ensure all the items listed in the following table are included in the package.

VIO-212-PC100-EHL   VIO-212-PC100-EHL-1E		VIO-2	215-PC100-EHL   VIO-215-PC100-E	HL-1E	
Item	Description	Q'ty	Item	Description	Q'ty
1	VIO-212-PC100-EHL Series Panel PC	1	1	VIO-215-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	10	2	Panel Mount Kit	10
3	Screw Pack	1	3	Screw Pack	1

VIO-W215-PC100-EHL   VIO-W215-PC100- EHL-1E		
Item	Description	Q'ty
1	VIO-W215-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	8
3	Screw Pack	1

VIO-217-PC100-EHL   VIO-217-PC100-EHL-1E		
Item	Description	Q'ty
1	VIO-217-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	10
3	Screw Pack	1

VIO-219-PC100-EHL   VIO-219-PC100-EHL-1E		
Item	Description	Q'ty
1	VIO-219-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	14
3	Screw Pack	1

VIO-W224-PC100-EHL   VIO-W224-PC100- EHL-1E		
Item	Description	Q'ty
1	VIO-W224-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	12
3	Screw Pack	1

VIO-W221-PC100-EHL   VIO-W221-PC100- EHL-1E		
Item	Description	Q'ty
1	VIO-W221-PC100-EHL Series Panel PC	1
2	Panel Mount Kit	12
3	Screw Pack	1

# **Ordering Information**

12.1" XGA Thin Frame Panel PC	Product Description
VIO-212R-PC100-EHL	12.1" XGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-212C-PC100-EHL	12.1" XGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-212R-PC100-EHL-1E	12.1" XGA Resistive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
VIO-212C-PC100-EHL-1E	12.1" XGA Capacitive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
15" XGA Thin Frame Panel PC	Product Description
VIO-215R-PC100-EHL	15" XGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-215C-PC100-EHL	15" XGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-215R-PC100-EHL-1E	15" XGA Resistive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
VIO-215C-PC100-EHL-1E	15" XGA Capacitive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
17" SXGA Thin Frame Panel PC	Product Description
17" SXGA Thin Frame Panel PC VIO-217R-PC100-EHL	Product Description 17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
17" SXGA Thin Frame Panel PC VIO-217R-PC100-EHL VIO-217C-PC100-EHL	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
17" SXGA Thin Frame Panel PC VIO-217R-PC100-EHL VIO-217C-PC100-EHL VIO-217R-PC100-EHL-1E	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle
17" SXGA Thin Frame Panel PCVIO-217R-PC100-EHLVIO-217C-PC100-EHLVIO-217R-PC100-EHL-1EVIO-217C-PC100-EHL-1E	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle
17" SXGA Thin Frame Panel PCVIO-217R-PC100-EHLVIO-217C-PC100-EHLVIO-217R-PC100-EHL-1EVIO-217C-PC100-EHL-1E	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     18     19     19     10     10     10     10     10     10
17" SXGA Thin Frame Panel PCVIO-217R-PC100-EHLVIO-217C-PC100-EHLVIO-217R-PC100-EHL-1EVIO-217C-PC100-EHL-1E19" SXGA Thin Frame Panel PC	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     Product Description
17" SXGA Thin Frame Panel PCVIO-217R-PC100-EHLVIO-217C-PC100-EHLVIO-217R-PC100-EHL-1EVIO-217C-PC100-EHL-1E19" SXGA Thin Frame Panel PCVIO-219R-PC100-EHL	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     Product Description     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle
17" SXGA Thin Frame Panel PC VIO-217R-PC100-EHL VIO-217C-PC100-EHL VIO-217R-PC100-EHL-1E VIO-217C-PC100-EHL-1E 19" SXGA Thin Frame Panel PC VIO-219R-PC100-EHL VIO-219C-PC100-EHL	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     Product Description     I9" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle     I9" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413, 1x Universal I/O Bracket, 1x PCle
17" SXGA Thin Frame Panel PCVIO-217R-PC100-EHLVIO-217C-PC100-EHLVIO-217R-PC100-EHL-1EVIO-217C-PC100-EHL-1EI9" SXGA Thin Frame Panel PCVIO-219R-PC100-EHLVIO-219R-PC100-EHLVIO-219R-PC100-EHL	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,
17" SXGA Thin Frame Panel PC VIO-217R-PC100-EHL VIO-217C-PC100-EHL VIO-217R-PC100-EHL-1E VIO-217C-PC100-EHL-1E 19" SXGA Thin Frame Panel PC VIO-219R-PC100-EHL VIO-219C-PC100-EHL VIO-219C-PC100-EHL-1E	Product Description     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     17" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413,     19" SXGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6

15.6" Full HD Thin Frame Panel PC	Product Description
VIO-W215R-PC100-EHL	15.6" Full HD Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W215C-PC100-EHL	15.6" XGA Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W215R-PC100-EHL-1E	15.6" XGA Resistive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
VIO-W215C-PC100-EHL-1E	15.6" XGA Capacitive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe

21.5" Full HD Thin Frame Panel PC	Product Description
VIO-W221R-PC100-EHL	21.5" Full HD Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W221C-PC100-EHL	21.5" Full HD Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W221R-PC100-EHL-1E	21.5" Full HD Resistive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
VIO-W221C-PC100-EHL-1E	21.5" Full HD Capacitive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe

23.8" Full HD Thin Frame Panel PC	Product Description
VIO-W224R-PC100-EHL	23.8" Full HD Resistive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W224C-PC100-EHL	23.8" Full HD Capacitive Touch Thin Frame Panel PC with Intel® Celeron® Processor J6413
VIO-W224R-PC100-EHL-1E	23.8" Full HD Resistive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe
VIO-W224C-PC100-EHL-1E	23.8" Full HD Capacitive Touch Thin Frame Panel PC with Intel <sup>®</sup> Celeron <sup>®</sup> Processor J6413, 1x Universal I/O Bracket, 1x PCIe

# **Optional Accessories**

Model No.	Product Description
1-E09A06008	Adapter AC/DC 12V 5A 60W with 3pin Terminal Block Plug 5.0mm Pitch
SFICBL022	Power Cord, 3-pin US Type, 180cm
1-TPCD00002	Power Cord, European Type, 180cm
1-TPCD00001	Power Cord, 3-pin UK Type, 180cm
3-DINR-0003	DIN-Rail Mount Kit

# Chapter 1

# **Product Introductions**

#### **1.1 Overview**

The VIO-200-PC100-EHL series Panel PC is based on Intel<sup>®</sup> Celeron<sup>®</sup> Processor J6413. Designed with flat surface, IP 65 dust / waterproof front panel, and aluminum die-casting front frame with rugged body structure, it is a versatile I/O connections, and rugged reliability industrial panel PC.

The VIO-200-PC100-EHL series supports Multi-Mode Display Module which makes it more flexible in system maintaining and upgrading. It offers modularize expansion I/O, rich connectivity interfaces, wide range (9~36V) DC power input, and high reliability even operating in temperature extremes.

Featuring with completely high functional, VIO-200-PC100-EHL series are ruggedized display systems that can operate in harsh environments and easy to install and maintain. A build in over voltage protection (OVP), over current protection (OCP), and reverse protection DC power input makes VIO-200-PC100-EHL series are safety system for all industrial applications.



#### **Key Features**

- 12.1"~ 23.8" Multi-functional All-in-One Panel PCs
- Intel<sup>®</sup> Celeron<sup>®</sup> Processor J6413
- 1x 260-pin DDR4 SODIMM. max up to 32GB
- 1x 2.5" SATA HDD bay, 1x mSATA, 2x SIM socket
- 1x Full-size Mini PCIe (USB 2.0, SATA)
- 2x LAN, 1x DP, 1x HDMI, 1x LVDS
- 6x RS-232/422/485 (w/ 2x internal)
- 2x USB 3.2 Gen 2, 2x USB 2.0
- 8x DI + 8x DO with isolation
- 9 to 36VDC wide range power input
- Designed with aluminum die-casting front frame
- IP65 compliant front panel / Fanless Industrial Display Computer
- Two 10W internal speakers built-in
- Multi-language OSD built-in
- 1x Universal I/O Bracket for Expansion (VIO-XXX-PC100-EHL-1E Only)

# **1.2 Hardware Specification**

## Hardware Specification

<b>Display</b> (Model No.)	LCD Size	Max. Resolution	Brightness (cd/m2):	Contrast Ratio	LCD Color	Pixel Pitch (mm):	Viewing Angle (H-V):	Backlight MTBF
VIO-212-PC100-EHL VIO-212-PC100-EHL-1E	12.1" (4:3)	1024 x 768	600	1000 - 1	16.2M	0.24 (H) x 0.24 (V)	178 / 178	
VIO-215-PC100-EHL VIO-215-PC100-EHL-1E	15" (4:3)	(XGA)		1000.1		0.297 (H) x 0.297 (V)	170 / 160	
VIO-217-PC100-EHL VIO-217-PC100-EHL-1E	17" (4:3)	1280 x 1024 (SXGA)	350	800:1		0.264 (H) x 0.264 (V)	160 / 140	50000 hrs
VIO-219-PC100-EHL VIO-219-PC100-EHL-1E	19" (4:3)		(SXGA)	)		16 704	0.294 (H) x 0.294 (V)	170 / 160
VIO-W215-PC100-EHL VIO-W215-PC100-EHL-1E	15.6" (16:9)	1920 x 1080 (Full HD)	500		10.7101	0.17925 (H) x 0.17925 (V)		
VIO-W221-PC100-EHL VIO-W221-PC100-EHL-1E	21.5" (16:9)		500 0 x 1080 ull HD)	1000 : 1		0.248 (H) x 0.248 (V)	178 / 178	
VIO-W224-PC100-EHL VIO-W224-PC100-EHL-1E	23.8" (16:9)		450			0.2745 (H) x 0.2745 (V)		30000 hrs (LED Backlight)

Touch	Model No.
Resistive 5-Wire	VIO-212R-PC100-EHL, VIO-212R-PC100-EHL-1E VIO-215R-PC100-EHL, VIO-215R-PC100-EHL-1E VIO-217R-PC100-EHL, VIO-217R-PC100-EHL-1E VIO-219R-PC100-EHL, VIO-219R-PC100-EHL-1E VIO-W215R-PC100-EHL, VIO-W215R-PC100-EHL-1E VIO-W221R-PC100-EHL, VIO-W221R-PC100-EHL-1E VIO-W224R-PC100-EHL, VIO-W224R-PC100-EHL-1E
Projected Capacitive	VIO-212C-PC100-EHL, VIO-212C-PC100-EHL-1E VIO-215C-PC100-EHL, VIO-215C-PC100-EHL-1E VIO-217C-PC100-EHL, VIO-217C-PC100-EHL-1E VIO-219C-PC100-EHL, VIO-219C-PC100-EHL-1E VIO-W215C-PC100-EHL, VIO-W215C-PC100-EHL-1E VIO-W221C-PC100-EHL, VIO-W221C-PC100-EHL-1E VIO-W224C-PC100-EHL, VIO-W224C-PC100-EHL-1E

# Hardware Specification

System	
Processor	Intel <sup>®</sup> Celeron <sup>®</sup> J6413 Processor Quad core (1.5M Cache,1.8GHz up to 3.00 GHz) FC-BGA16F, Tray 10W
System Chipset	SoC Integrated
LAN Chipset	GbE1: Intel <sup>®</sup> I210 (Support Wake-on-LAN and PXE) 2.5 GbE2: Intel <sup>®</sup> I225 (Support Wake-on-LAN and PXE)
Audio Codec	Realtek ALC888S
System Memory	1x 260-Pin DDR4 2400/2667/3200MT/s SODIMM. Max. up to 32 GB
BIOS	AMI 128Mbit SPI BIOS
TPM	TPM 2.0
Watchdog	Software Programmable Supports 1~255 sec. System Reset

Storage	
M.2	1x M.2 (E Key, PCIe x1, USB 2.0, 2230) 1x M.2 (B Key, PCIex 2 + USB 3.2 Gen1, 2242/3042/3052)
mSATA	1x mSATA
SIM Socket	2x External SIM socket
SSD/HDD	1x Removable 2.5" SATA HDD Bay

Expansion		
Mini PCle	1x Full-size Mini PCIe (USB 2.0, SATA)	
PCIe	VIO-xxx-PC100-EHL	VIO-xxx-PC100-EHL-1E
	-	1x PCIe x4 (1-lanes)

# **Hardware Specification**

I/O			
Audio	1x Mic-in, 1x Line-out		
CAN	2x CAN 2.0 A/B 2-pin Header (Internal)		
COM	4x RS-232/422/485 2x RS-232/422/485 (internal)		
DIO	8 in / 8 out (Isolated)		
LAN	2x RJ45		
Universal I/O	VIO-xxx-PC100-EHL	VIO-xxx-PC100-EHL-1E	
Bracket	-	1x Universal I/O Bracket (By mini PCIe interface)	
USB	2x USB 3.2 Gen 2 (10 Gbps) 2x USB 2.0		
DP	1x DisplayPort 1.2 (4096 x 2160@60Hz)		
HDMI	1x HDMI 2.0b (4096 x 2160@60Hz) (Optional)		
Others	4x WiFi Antenna Holes 1x Power Switch 1x AT/ATX Switch 1x Remote Power On/Off 1x DB9 Cutting Hole		
Optical Bonding	Optional, contact us for more information		
OSD	LCD On/Off, Auto, Menu, Up and Down Multi-language		
	AMP 10W + 10W		
Speaker	AMP 5W + 5W (VIO-212-PC100-EHL, VIO-212-PC100-EHL-1E only)		
Operating System			
Windows	Windows 10, Windows 11		
Linux	Linux kernel 5.X		

#### Construction

Extruded Aluminum with Heavy Duty Metal

# Hardware Specification

Power				
Power Adapter	Optional AC/DC 12V/5A, 60W			
Power Management	Power Ignition Management (by	Optional Module)		
Power Mode	AT, ATX			
Power Supply Voltage	9~36 VDC			
Power Connector	3-Pin Terminal Blcok			
Power Protection	OVP (Over Voltage Protection) OCP (Over Current Protection) Reserve Protection	OVP (Over Voltage Protection) OCP (Over Current Protection) Reserve Protection		
Environment				
Operating Temperature	0°C to 50°C (19", 21.5", 23.8") 0°C to 60°C (12.1", 15", 17", 15.6	5")		
Storage Temperature	-20°C to 60°C (19", 21.5", 23.8") -20°C to 70°C (12.1", 15", 17", 15	5.6")		
Relative Humidity	10%~80% (non-condensing)			
IP Level	IP 65 Compliant Front Panel	IP 65 Compliant Front Panel		
Certification	CE, FCC Class A	CE, FCC Class A		
Vibration	With SSD: 1.5 Grms, 5 - 500 Hz, 0 With HDD: 1 Grms, 5 - 500 Hz, 0	With SSD: 1.5 Grms, 5 - 500 Hz, 0.5 hr/axis With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis		
Shock	With SSD: 20G, half sine, 11ms			
Physical (Model No.)	Dimensions	Weights	Mounting Options	
VIO-212-PC100-EHL	319 (W) x 257 (D) x 61.7 (H) mm	6.17 kg		
VIO-212-PC100-EHL-1E	319 (W) x 257 (D) x 83.7 (H) mm	6.29 kg		
VIO-215-PC100-EHL	377 (W) x 301 (D) x 64.7 (H) mm	5.12 kg		
VIO-215-PC100-EHL-1E	377 (W) x 301 (D) x 87.7 (H) mm	5.24 kg		
VIO-217-PC100-EHL	407.5 (W) x 339 (D) x 70.5 (H) mm	7.27 kg		
VIO-217-PC100-EHL-1E	407.5 (W) x 339 (D) x 92.5 (H) mm	7.48 kg		
VIO-219-PC100-EHL	450 (W) x 375 (D) x 71 (H) mm	7.68 kg	VESA Mounting Holes	
VIO-219-PC100-EHL-1E	450 (W) x 375 (D) x 93 (H) mm	7.79 kg	75 x 75mm, 100 x 100mm	
VIO-W215-PC100-EHL	398 (W) x 247 (D) x 70.7 (H) mm	6.46 kg		
VIO-W215-PC100-EHL-1E	398 (W) x 247 (D) x 92.7 (H) mm	6.57 kg		
VIO-W221-PC100-EHL	527.5 (W) x 323 (D) x 71 (H) mm	8.11 kg		
VIO-W221-PC100-EHL-1E	527.5 (W) x 323 (D) x 93 (H) mm	8.22 kg		
VIO-W224-PC100-EHL	588 (W) x 360 (D) x 71.8 (H) mm	9.82 kg		
	588 (W) x 360 (D) x 93.8 (H) mm	10.11 kg		

# 1.3 System I/O

#### 1.3.1 PC100-EHL (Top & Bottom)

#### Removable HDD Bay

Used to inserts a 2.5" HDD device

#### Antenna hole

SIM Card Socket Used to insert SIM card

Used to connect an antenna for optional Mini-PCIe WiFi module



#### DC IN

Used to plug a DC power input with terminal block

#### DisplayPort

Used to connect a DisplayPort monitor

**4x USB port** Used to connect USB device

#### LAN port

Used to connect the system to a local area network



#### PC100-EHL (Left & Right)

#### ATX power on/off switch

Press to power-on or power-off the system

#### Power LED

Indicates the power status of the system

#### HDD LED Indicates the status of the hard drive

**Reset switch** Press to reset the system

#### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

#### Line-out Used to connect a speaker

**Mic-in** Used to connect a microphone

#### **Remote Power on/off Terminal Block** Used to plug a remote power on/off terminal block

**COM port** COM1 ~ COM2 support RS232/422/485 serial device



#### COM port

COM3~4 support RS232/422/485 serial device

#### **AT/ATX mode select switch** Used to select AT or ATX power mode



#### 1.3.2 PC100-EHL-1E (Top & Bottom)

#### Removable HDD Bay

Used to inserts a 2.5" HDD device

#### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module



#### DC IN

Used to plug a DC power input with terminal block

#### DisplayPort

Used to connect a DisplayPort monitor

**4x USB port** Used to connect USB device

#### LAN port

**SIM Card Socket** 

Used to insert SIM card

Used to connect the system to a local area network



### PC100-EHL-1E (Left & Right)

ATX power on/off switch Press to power-on or power-off the system

Power LED

Indicates the power status of the system

#### HDD LED

Indicates the status of the hard drive

#### **Reset switch** Press to reset the system

#### **Digital I/O Terminal Block**

The Digital I/O terminal block supports 8 digital input and 8 digital output

ATX Power On/Off Switch

#### Line-out Used to connect a speaker

Mic-in Used to connect a microphone

#### **Remote Power on/off Terminal Block**

Used to plug a remote power on/off terminal block

#### COM port

COM1 ~ COM2 support RS232/422/485 serial device



COM3~4 support RS232/422/485 serial device

#### AT/ATX mode select switch

Used to select AT or ATX power mode



#### COM port

Universal I/O Bracket Used to customized I/O output (VIO-xxx/PC100-EHL-1E only)

# 1.3.3 VESA Mounting Hole

These are mounting holes for VESA mount (75x75mm and 100x100mm)



# **1.4 Mechanical Dimensions**

1.4.1 VIO-212-PC100-EHL



#### VIO-212-PC100-EHL -1E









#### Unit: mm

13 (MAX. Wall Thickness)

#### 0 0 8 0 0 400 407.5 331.5 Cut Out Dimension 339 34.5 0:0 0 0 0 • 50.5 0 0 0 70.5 👾 ^ į żź āż

#### VIO-217-PC100-EHL-1E













#### VIO-PC100-EHL | User's Manual

Unit: mm

Unit: mm

14 (MAX. Wall Thickness)

#### 1.4.5 VIO-W215-PC100-EHL



#### VIO-W215-PC100-EHL-1E

247

# 389.5 238.5 398 Cut Out Dimension Q UNN















323

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#### VIO-W221-PC100-EHL-1E

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# 519.5 0 0 315 Cut Out Dimension Ŀ 0 0

11 (MAX. Wall Thickness)



Unit: mm

0:0 0 0:0





#### VIO-W224-PC100-EHL-1E





Unit: mm



# **Switches and Connectors**

### 2.1 Switch and Connector Locations

#### 2.1.1 Top View



#### 2.1.2 Bottom View



# 2.2 Connector / Switch Definition

List of Connector / Switch

Connector Location	Definition
AT_ATX1	AT / ATX Power Mode Switch
CLR_CMOS1	Clear BIOS Switch
PWR_SW1	Power Switch
RESET1	Reset Switch
USB2, USB1	USB Port (3.2 Gen 2 and 2.0)
SIM1, SIM2	SIM Card Socket
COM1 ~ COM6	RS232 / RS422 / RS485 Connector
LAN1, LAN2	LAN Port
DC_IN1	3-pin DC 9~36V Power Input Connector
DP1	DisplayPort Connector
LINE_OUT1	Line-out Jack
MIC_IN1	Mic-in Jack
DIO	8DI / 8DO Connector
PWR_SW2	Remote Power Switch
MINI-PCIE1	Mini PCI-Express / mSATA Socket
SATA1	SATA with Power Connector
BZ1	Buzzer
HDMI1	HDMI signal connector
SODIMM1	Memory
BAT1	Battery
M2_KB	M.2 B-Key Socket
SIG_OUT1	VIO Display Module Connector
M2 KE	M.2 E Key Socket

#### Chapter 2: Switches and Connectors

#### LAN1





LAN Port i225

Pin	Signal
1	LAN2_MDI0_P
2	LAN2_MDI0_N
3	LAN2_MDI1_P
4	LAN2_MDI1_N
5	R5_CT
6	R6_CT
7	LAN2_MDI2_P
8	LAN2_MDI2_N
9	LAN2_MDI3_P
10	LAN2_MDI3_N
L1_1	LAN2_SPD_2500#
L2_!	L2 LINK1000J
L3_1	+V3.3A_LAN2
L4_1	LAN2_LINK_ACT#

LAN2





#### LAN Port i210

Pin	Signal
1	LAN1_MDI0_P
2	LAN1_MDI0_N
3	LAN1_MDI1_P
4	LAN1_MDI1_N
5	R5_CT
6	R6_CT
7	LAN1_MDI2_P
8	LAN1_MDI2_N
9	LAN1_MDI3_P
10	LAN2_MDI3_N
L1_1	LAN1_MDI3_N
L2_!	L2 LINK1000J
L3_1	+V3.3A_LAN2
L4_1	LAN2_LINK_ACT#

#### USB1



11	ς	R	D	n	r	F	2	1	n
U	J	υ	•	U		L	~	•	U

Pin	Signal	Pin	Signal
1	USB2_VCC1	2	USB2_VCC1
3	USB2_P5_N	4	USB2_P6_N
5	USB2_P5_P	6	USB2_P6_P
7	GND	8	GND

#### USB2



USB Port 3.2 Gen 2

Pin	Signal	Pin	Signal
1	+V5A_USBP12	10	+V5A_USBP12
2	USB2_P1_N	11	USB2_P2_N
3	USB2_P1_P	12	USB2_P2_P
4	GND	13	GND
5	P1_SSRX_N	14	P2_SSRX_N
6	P1_SSRX_P	15	P2_SSRX_P
7	GND	16	GND
8	P1_SSTX_N	17	P2_SSTX_N
9	P1_SSTX_P	18	P2_SSTX_P





**Display Port** 

Pin	Signal	Pin	Signal
1	DP1_TXP0	11	GND
2	GND	12	DP1_TXN3
3	DP1_TXN0	13	DP1_CFG1
4	DP1_TXP1	14	GND
5	GND	15	DP1_AUX+_HDMI_ DDCCLK
6	DP1_TXN1	16	GND
7	DP1_TXP2	17	DP1_AUX- _HDMI_DDCDAT
8	GND	18	DP1_HPD
9	DP1_TXN2	19	DP_PWR Return
10	DP1_TXP3	20	DP_PWR

### HDMI1 (Optional)



#### High Definition Multimedia Interface

Pin	Signal	Pin	Signal
1	HDMI_TX2+_C	11	GND
2	GND	12	HDMI_TXCC
3	HDMI_TX2C	13	NC
4	HDMI_TX1+_C	14	NC
5	GND	15	HDMI_SCL
6	HDMI_TX1C	16	HDMI_SDA
7	HDMI_TX0+_C	17	GND
8	GND	18	VCC5_HDMI
9	HDMI_TX0C	19	HDMI_HPD_CON
10	HDMI_TXC+_C	20	

#### DC\_IN1



PWR\_SW1







#### Power Input DC 9~36V

Pin	Signal
1	Power 9-36V_IN
2	ACC Ignition
3	GND_IN



#### **Power Button**

Pin	Signal		
1	NC		
2	PWRBT_IN#		
3	NC		
4	GND		
5	NC		
6	GND		



Digital	I/O

Pin	Signal	Pin	Signal
1	IN1_1	2	OUT1_1
3	IN2_1	4	OUT2_1
5	IN3_1	6	OUT3_1
7	IN4_1	8	OUT4_1
9	IN5_1	10	OUT5_1
11	IN6_1	12	OUT6_1
13	IN7_1	14	OUT7_1
15	IN8_1	16	OUT8_1
17	XCOM+	18	XCOM-
#### LINE-OUT1



MIC-IN1



# (( -))Line-out JackPinSignal1AGND2LINEOUT\_RIGHT3AGND4AGND5LINEOUT\_LEFT

#### Mic-in Jack





#### RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	NDCD1	6	NDSR1
2	NRXD1	7	NRTS1
3	NTXD1	8	NCTS1
4	NDTR1	9	NRI1
5	GND		

## COM1



#### COM2

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RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	NDCD2	6	NDSR2
2	NRXD2	7	NRTS2
3	NTXD2	8	NCTS2
4	NDTR2	9	NRI2
5	GND		

#### RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	NDCD3	6	NDSR3
2	NRXD3	7	NRTS3
3	NTXD3	8	NCTS3
4	NDTR3	9	NRI3
5	GND		



#### RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	NDCD4	6	NDSR4
2	NRXD4	7	NRTS4
3	NTXD4	8	NCTS4
4	NDTR4	9	NRI4
5	GND		

#### COM5



RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	CM5_DCD	6	CM5_CTS
2	CM5_DSR	7	CM5_DTR
3	CM5_RXD	8	CM5_RI
4	CM5_RTS	9	GND
5	CM5_TXD		

COM6



## RS232 / RS422 / RS485 Connector

Pin	Signal	Pin	Signal
1	CM6_DCD	6	CM6_CTS
2	CM6_DSR	7	CM6_DTR
3	CM6_RXD	8	CM6_RI
4	CM6_RTS	9	GND
5	CM6_TXD		

# PWR\_SW2





#### **Remote Power Switch**

Pin	Signal
1	PWRBT_IN#
2	GND

#### SIM1



SIM Card Socket

Pin	Signal	Pin	Signal
1	P_UIM_PWR	5	GND
2	P_UIM_RST	6	P_UIM_VPP
3	P_UIM_CLK	7	P_UIM_DATA
4	CD	8	СОМ

SIM2





Pin	Signal	Pin	Signal
1	P1_UIM_VDD	5	GND
2	P1_UIM_RST	6	P1_UIM_VPP
3	P1_UIM_CLK	7	P1_UIM_DATA
4	P_UIM_CD	8	СОМ



AT / ATX Power Mode Switch

Switch	Signal
1-2 (Left)	ATX Power Mode
2-3 (Right)	AT Power Mode



## PCIE1



Pin	Signal	Pin	Signal
A1	Pull down	B1	12V
A2	12V	B2	12V
A3	12V	B3	12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	3.3V
A9	3.3V	B9	NC
A10	3.3V	B10	3.3V
A11	PCIE_X4_RST#	B11	PCIE_X4_WAKE_N
A12	GND	B12	NC
A13	CLKOUT_PCIE_P0	B13	GND
A14	CLKOUT_PCIE_N0	B14	X4SLOT_PCIE_6_TX_P
A15	GND	B15	X4SLOT_PCIE_6_TX_N
A16	X4SLOT_PCIE_6_RX_P	B16	GND
A17	X4SLOT_PCIE_6_RX_N	B17	PCIEX4_PRSNT#
A18	GND	B18	GND
A19-	NC	B19-	NC
A32	INC	B32	INC

# SATA1



### SATA with Power Connector

Pin	Signal	Pin	Signal
1	GND	2	SATA_TXP1
3	SATA_TXN1	4	GND
5	SATA_RXN1	6	SATA_RXP1
7	SATA0_PD	8	NC
9	NC	10	DEVSLP
11	GND	12	GND
13	GND	14	5V
15	5V	16	5V
17	GND	18	GND
19	GND	20	12V
21	12V	22	12V

# M2\_KB



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# M.2 B-Key Socket

Pin	Signal	Pin	Signal
1	CONFIG_3	2	VCC1
3	GND	4	VCC2
5	GND	6	FULL_CARD_POWER_O FF#
7	USB_D+	8	W_DISABLE1#
9	USB_D-	10	WWAN_LED#
11	GND	12	NOTCH
13	NOTCH	14	NOTCH
15	NOTCH	16	NOTCH
17	NOTCH	18	NOTCH
19	NOTCH	20	GPIO_5(O/1.8V)
21	CONFIG_0	22	GPIO_6(O/1.8V)
23	GPIO_11(0/1.8V)	24	GPIO_7(O/1.8V)
25	DPR	26	GPIO_10(O/1.8V)
27	GND	28	GPIO_8(O/1.8V)
29	PERn1/USB3.0-Rx-	30	USIM1_RST
31	PERp1/USB3.0-Rx+	32	USIM1_CLK
33	GND	34	USIM1_DATA
35	PETn1/USB3.0-Tx-	36	USIM1_VDD
37	PETp1/USB3.0-Tx+	38	DEVSLP (O)
39	GND	40	USIM2_DET
41	PERn0/SATA-B+	42	USIM2_DATA
43	PERp0/SATA-B-	44	USIM2_CLK
45	GND	46	USIM2_RST
47	PETn0/SATA-A-	48	USIM2_VDD
49	PETp0/SATA-A+	50	PCIE_RST_N
51	GND	52	PCIE_CLKREQ_N
53	PCIE_REFCLK_M	54	PCIE_WAKE_N
55	PCIE_REFCLK_P	56	N/C
57	GND	58	N/C
59	ANTCTLO	60	COEX3(O/1.8V)
61	ANTCTL1	62	COEX2(O/1.8V)
63	ANTCTL2	64	COEX1(O/1.8V)
65	ANTCTL3	66	USIM1_DET
67	RESET_N	68	SUSCLK(32kHz)
69	CONFIG_1	70	VCC3
71	GND	72	VCC4
73	GND	74	VCC5
75	CONFIG_2	76	

# CLR\_CMOS1



# **Clear BIOS Switch**

Switch	Signal
On	Clear CMOS
Off	Default

#### BZ1



#### Buzzer

Pin	Signal
1	Positive
2	Negative

#### Chapter 2: Switches and Connectors

# MPCIE1



Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3V
3	Reserved	4	GND
5	Reserved	6	+1.5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PERST#
23	PERn0	24	+3.3Vaux
25	PERp0	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	Reserved	38	USB_D+
39	Reserved	40	GND
41	Reserved	42	LED_WWAN#
43	Reserved	44	LED_WLAN#
45	Reserved	46	LED_WPAN#
47	Reserved	48	+1.5V
49	Reserved	50	GND
51	Reserved	52	+3.3V
53	GND	54	GND

## BAT1



# Battery

Pin	Signal
1	+VBAT
2	GND

# SIG\_OUT1



# VIO Display Module Connector

Pin	Signal	Pin	Signal
1	PE1_TX+	26	PE3_RX-
2	PE1_TX-	27	GND
3	GND	28	GND
4	GND	29	PE4_TX+
5	PE1_RX+	30	PE4_TX-
6	PE1_RX-	31	GND
7	GND	32	GND
8	GND	33	PE4_RX+
9	PE2_TX+	34	PE4_RX-
10	PE2_TX-	35	GND
11	GND	36	USB_0P
12	GND	37	USB_0N
13	PE2_RX+	38	Power_BTN

# M2\_KE





# M.2 E Key Socket

Pin	Signal	Pin	Signal
1	GND	2	+V3.3A
3	USB_D+	4	+V3.3A
5	USB_D-	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	NOTCH
25	NOTCH	26	NOTCH
27	NOTCH	28	NOTCH
29	NOTCH	30	NOTCH
31	NOTCH	32	NC
33	NOTCH	34	NC
35	PCIE_1_TX_DP	36	NC
37	PCIE_1_TX_DN	38	NC
39	GND	40	NC
41	PCIE_1_RX_DP	42	NC
43	PCIE_1_RX_DN	44	NC
45	GND	46	NC
47	CLKOUT_PCIE_P1	48	NC
49	CLKOUT_PCIE_N1	50	NC
51	GND	52	M.2_E_RST#
53	SRCCLKREQ1_N	54	NC
55	M.2_E_WAKE_L	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	M.2_E_RST#
67	NC	68	NC
69	GND	70	M.2_E1_WAKE_L
71	NC	72	+V3.3A
73	NC	74	+V3.3A
75	GND	76	



# **Front Panel Controls**

# 3.1 Users Controls



#### Power Button

Turns the monitor on or off.

■ - ☆- LED

1. Blue indicates power on.

2. Yellow indicates HDD access status.

#### MENU / Enter Button

Press to view the OSD menu. Press it again to enter a selection in the OSD menu.

#### ■ ▲ Increase Button

1. Activates the Volume control menu, and increases volume (with audio option).

- 2. Scrolls the OSD menu upward.
- 3. Increases the value of a selected function.

#### Decrease Button

1. Activates the Volume control menu, and decreases volume (with audio option).

- 2. Scrolls the OSD menu downward.
- 3. Decreases the value of a selected function.

#### AUTO / Exit Button

1. When the OSD menu is active, press this button to exit the OSD menu.

2. When the OSD menu is inactive, press this button for two seconds to activate the Auto Adjustment function and the monitor will automatically optimize the display position, focus, and clock of your display.

# 3.2 OSD Operation



#### 3.2.1 Luminance



#### Brightness

Adjust the luminance level of the screen.

- Contrast
- Adjusts the contrast level of the screen.

# Gamma

This item allows you to on or off the Gamma function.

#### SuperResolution

This setting allows you to select options for the SuperResolution. Select <Off> , <Weak>, <Median> or <Strong>.

#### 3.2.2 Picture



#### Phase

Adjust the monitor internal signal phase.

#### Clock

Adjust the monitor internal sampling clock rate.

#### H. Position

Adjusts the position of the screen image left and right.

#### V. Position

Adjusts the position of the screen image up and down.

# 3.2.3 Color



#### Color Temperature

6500K: Select the setting of screen color to be reddish white.
7500K: Select the setting of screen color to be bluish white.
9300K: Select the setting of screen color to be bluish white.
sRGB: Set the screen color to fit the sRGB standard color specification.
User Define: Individual adjustments for red (R), green (G), blue (B).

#### 3.2.4 OSD Settings



#### Horizontal

Changes the viewing position of the OSD menu to the left or right area of the screen.

#### Vertical

Changes the viewing position of the OSD menu to the top or bottom area of the screen.

#### Transparency

Adjust to view the background information through the OSD.

#### OSD Time Out

Sets the time duration in seconds that the OSD is visible after the last button is pressed.

#### 3.2.5 Setup



#### Language

Selects the language in which the OSD menu is displayed. The factory default is English.

#### Mute

Allows the user to turn the Mute On or Off.

#### Input

When press Input Select change Input signal to D-SUB, DVI or DP.

#### Reset

Reset monitor parameters back to factory preset values.



# **System Setup**

# 4.1 Set torque force to 3.5 kgf-cm to execute all the screwing and unscrewing



In order to prevent electric shock or system damage, before removing the chassis cover, must turn off power and disconnect the unit from power source.

# 4.2 Installing SODIMM

**WARNING** 

1. Remove the SODIMM cover in the below circled area.



2. Insert the memory card at a 45 degree angle.



3. Press the memory card down until you hear a click. Ensure the memory card is secure before replacing the cover.



# 4.3 Installing mini PCIe card / mSATA / M.2 E Key.

1. Two mini PCIe slots with M.2 E Key Support is available on PC100 Series.



2. Insert mini PCIe card/mSATA module at a 45 degree angle.



3. Press the mini PCIe card or mSATA module down and ensure it is secure before screwing the cover back on.



# 4.4 Installing HDD on removable STAT HDD bay

1. To unlock the tray lock press the location highlighted at the red circle below and pull the tray towards you to remove the SATA HDD/SSD bay.



- 2. Unlock the drive lock by lifting the plastic insert up, then insert the HDD/SSD card.
- 3. Once the HDD/SSD card is inserted, push the plastic insert back down and to secure it.



4. Place the tray back into the bay and ensure the tray lock is secured.



# 4.5 Installing SIM card

1. There are two SIM card slots are available on system chassis located next to the removable HDD bay, as shown below.



2. Place the SIM card inside the SIM slot until you hear a click.



3. Please refer to the table below to note which SIM slot to insert your SIM card into according to the matching Mini PCIe type.

SIM Card Socket Number	Matching Mini PCIe Slot
SIM 1	М.2 В Кеу
SIM 2	Mini PCle / mSATA





4. To remove the SIM card, push the SIM card into the slot and it will be released from the slot.



# 4.6 Removing chassis top cover

1. To remove the chassis top cover, there are 6 screws to be unscrewed at the locations highlighted by the red circles below.





2. Once all six screws are removed, the chassis top cover can be lifted up as shown below.



# 4.7 Installing antenna

1. Remove 3 screws located at the back of the system as pictured below. The screw locations are highlighted in red.



2. Remove 4 screws located at the front and side face of the system as pictured below. The screw locations are highlighted in red.



3. Remove antenna hole cover on the system panel as indicated below.



4. Pass the RF connector at the end of the cable around the gap between the iron piece and the motherboard and connect it to the communication module  $\circ$ 



5. Put on washer and fasten the nut with antenna jack as indicated below.



6. Fasten the 5 screws at the locations indicated by the red circles.



7. Fasten the 4 screws located at the front and side face of the system as pictured below. The screw locations are highlighted in red.



8. Assemble the antenna and antenna jack together.



# 4.8 Assembling chassis top cover

1. Ensure thermal pad is in place on the CPU thermal block.



2. Close the chassis top cover following the below direction and make sure the aluminum part on the top cover is touching the thermal pad on CPU thermal block.



3. Fasten the 6 screws to lock the system body with top cover. The locations are highlighted by the red circles below.







# 4.9 Connecting PC module with VIO display module

1. Place the PC module with its connector facing the back of VIO display module as shown in the picture below.



2. Ensure the PC Module is aligned with the VIO Display Module and push it down gently.



3. Screw the PC Module onto the Displau Module at the locations highlighted below.



# 4.10 PC100-EHL-1E Installing PCIe expansion card

1. Unscrew the 6 screws indicated at the circles in the photos below.





2. Once unscrewed, remove the top cover of PC module as shown below.



3. Unscrew the 3 screws below indicated at the locations highlighted below.



4. Then, unscrew the screw indicated in the red circle below.



5. Attach the PCIe expansion card and then fasten the screw in the circle indicated below.



6. Install the PCIe/PCI card according to direction indicated in the picture below.



7. Ensure the gold fingers are inserted properly into the slot.



8. Fasten the 3 screws indicated at the locations in the red circles below.



9. Replace the chassis top cover and make sure the aluminum part on the top cover is touching the thermal pad on CPU thermal block.



10. Fasten the 6 screws indicated by the red circles in the pictures below.



# Chapter 5

# **BIOS Setup**

# 5.1 BIOS Introduction

The BIOS provides an interface to modify the configuration. When the battery is removed, all the parameters will be reset.

#### **BIOS Setup**

Power on the embedded system and by pressing <Del> immediately allows you to enter the setup screens. If the message disappears before you respond and you still wish to enter the Setup, restart the system by turning it OFF and ON or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys		
<→> <←>	Select Screen	
<↑> <↓>	Select Item	
<enter></enter>	Select	
<page +="" up=""></page>	Increases the numeric value or makes changes	
<page -="" down=""></page>	Decreases the numeric value or makes changes	
<f1></f1>	General Help	
<f2></f2>	Previous Value	
<f3></f3>	Load Optimized Defaults	
<f4></f4>	Save Configuration and Exit	
<tab></tab>	Select Setup Fields	
<esc></esc>	Exit BIOS Setup	

#### Main Setup

The main menu lists the setup functions you can make changes to. You can use the arrow keys (  $\uparrow \downarrow$  ) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

#### General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

# 5.2 Main Setup

Press <Del> to enter BIOS CMOS Setup Utility. The Main setup screen is showed as following when the setup utility is entered. System Date/Time is set up in the Main Menu.

Main Advanced Chipset	Aptio Setup – AMI Security Boot Save & Exit	
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level	American Megatrends 5.19 UEFI 2.7; PI 1.6 P1EHORO1 x64 O6/30/2023 12:18:15 Administrator	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998–9999 Months: 1–12 Days: Dependent on month Range of Years may vary.
Compute Die Information Name Type Microcode Revision Memory Information Total Memory Memory Data Rate ME FW Version ME Firmware SKU System Date System Time	ElkhartLake ULX Intel(R) Celeron(R) J6413 @ 1.80GHz 15 4096 MB 2133 MTPS 15.40.16.2485 Consumer SKU [Fri 01/29/2021] [02:39:34]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	Version 2.22.1282 Copyright (C) 2023	3 AMI

#### System Date

Set the system date. Please use <Tab> to switch between data elements.

#### System Time

Set the system time. Please use <Tab> to switch between time elements.

# 5.3 Advanced Setup

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit	
CPU Configuration PCH-FW Configuration SATA Configuration Trusted Computing ACPI Settings Super IO Configuration Hardware Monitor Power IGN Mode SS RTC Wake Settings Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration	CPU Configuration Parameters ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.22.1282 Copyright (C) 2023	3 AMI

# 5.3.1 CPU Configuration

Advanced	Aptio Setup – AMI	
CPU Configuration		When enabled, a VMM can
Type ID Speed L1 Data Cache L1 Instruction Cache L2 Cache L3 Cache L4 Cache VMX	Intel Atom(R) x6425RE Processor @ 1.90GHz 0x90661 1900 MHz 32 KB x 4 32 KB x 4 1536 KB x 4 4 MB N/A Supported	utilize the additional hardware capabilities provided by Vanderpool Technology.
SMX/IXI Intel (VMX) Virtualization Technology	[Enabled]	<pre>++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt</pre>
C states	[Enabled]	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Versi	on 2.22.1282 Convright (C) 20	22 AMI

ltem	Options	Description
Intel (VMX) Virtualization Technology	Disabled, Enabled <b>[Default]</b>	When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology.
Active Processor Cores	All <b>[Default]</b> 1 2 3	Number of cores to enable in each processor package.
C states	Disabled, Enabled <b>[Default]</b>	Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.
# 5.3.2 PCH-FW Configuration

Advanced	Aptio Setup - AMI	
ME Firmware Version ME Firmware Mode ME Firmware SKU ME Firmware Status 1 ME Firmware Status 2	15.40.16.2485 Normal Mode Consumer SKU 0×90000255 0×32850106	<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	Version 2 22 1282 Convright (C) 20	122 AMT

# 5.3.3 SATA and RST Configuration

Chipset	Aptio Setup – AMI	
SATA Configuration		Enable or Disable SATA Port
PO:Serial ATA Port (Mini-PCIE1) Software Preserve Port O SATA Device Type P1:Serial ATA Port (SATA1) Software Preserve Port 1 Hot Plug SATA Device Type	Empty Unknown [Enabled] [Hard Disk Drive] Empty Unknown [Enabled] [Enabled] [Hard Disk Drive]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.22.1282 Copyright (C) 2023 AMI		

Item	Options	Description
Port0 ~1	Disabled, Enabled <b>[Default]</b>	Enable or Disable SATA Port.
Hot Plug	Disabled, Enabled <b>[Default]</b>	Designates this port as Hot Pluggable.
SATA Device Type	Hard Disk Drive <b>[Default] ,</b> Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

### 5.3.4 Trusted Computing

Advanced	Aptio Setup – AMI	
TPM 2.0 Device Found Firmware Version: Vendor:	7.85 IFX	Enables or Disables BIOS support for security device. O.S. will not show Security Device, ICG FEL protocol and
Security Device Support Active PCR banks Available PCR banks	[Enable] SHA256 SHA256	INT1A interface will not be available.
Pending operation	[None]	
		<pre> ++: Select Screen  1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Venet	on 0 00 1000 Conunicht (	P) 0000 ANT

ltem	Options	Description
Security Device Support	Enabled <b>[Default]</b> , Disabled,	Enable/Disable BIOS support for security device. O.S. will not show Security Device.TCG EFI protocol and INT1A interface will not be available.
Pending operation	None <b>[Default]</b> , TPM Clear	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

#### 5.3.5 ACPI Settings

Advanced	Aptio Setup – AMI	
ACPI Settings		Enables or Disables System
Enable Hibernation ACPI Sleep State	[Enabled] [S3 (Suspend to RAM)]	ability to Hibernate (US/S4 Sleep State). This option may not be effective with some operating systems.
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Ve	ersion 2.22.1282 Copyright (C) 20	22 AMI

Item	Options	Description
Enable Hibernation	Disabled , Enabled <b>[Default],</b>	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM <b>)[Default]</b>	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.

#### 5.3.6 Super IO Configuration

This setting allows you to select options for the Super IO Configuration, and change the value of the selected option.

Advanced	Aptio Setup – AMI	
Super IO Configuration Super IO Chip > Serial Port 1 Configuration		Set Parameters of Serial Port 1 (COMA)
<ul> <li>Serial Port 2 Configuration</li> <li>Serial Port 2 Configuration</li> </ul>		
<ul> <li>Serial Port &amp; Configuration</li> <li>Serial Port &amp; Configuration</li> <li>Serial Port 5 Configuration</li> </ul>		
▶ Serial Port 6 Configuration Watch Dog Timer	[Disabled]	
		↔: Select Screen ↑↓: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vension	9 99 4999 Comunicht (0) 9099	

Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).
Serial Port 6 Configuration	Set Parameters of Serial Port 6 (COMF).

Item	Options	Description
Watch Dog Timer	Disabled <b>[Default],</b> Enabled	Enabled or Disabled Watch Dog Timer function.
Watch Dog Timer Count Mode	Second Mode <b>[Default]</b> , Minute Mode	Select Second Mode or Minute Mode.
Watch Dog Timer Time out Value	20~255(Second) <b>[Default],</b> 1~255(Minute)	Watch Dog Timer Time out Value.

# Serial Port 1 Configuration

Aptio Setup Utility - Advanced	- Copyright (C) 2018 America	n Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	
Change Settings Device Type Select	[Auto] [RS232]	
		<pre>++: Select Screen 14: 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. 0	Copyright (C) 2018 American	Megatrends, Inc.

Item	Options	Description
Serial Port	Disabled, Enabled <b>[Default]</b>	Enable or Disable Serial Port (COM).
Change Settings	Auto <b>[Default]</b> , IO=3F8h; IRQ=4; , IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	This item allows you to change the address & IRQ settings of the specified serial port.
Device Type Select	UART 232 <b>[Default],</b> UART 422, UART 485	Set the Serial Port to RS232 & RS422 & RS485
RS-485 Auto Flow Function	Disabled, Enabled <b>[Default]</b>	Enabled/Disabled RS485 Autoflow Function

### Serial Port 2 Configuration

Aptio Setup Utility - Advanced	- Copyright	(C) 2018 American	Megatrends, Inc.
Serial Port 2 Configuration			Enable or Disable Serial Port (COM)
Serial Port Device Settings	[Enabled] IO=2F8h;	IRQ=3;	
Change Settings Device Type Select	[Auto] [RS232]		
			<pre>++: Select Screen 11: 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, (	Conuright (C	) 2018 American Mu	egatrends. Inc.

Item	Options	Description
Serial Port	Disabled, Enabled <b>[Default]</b>	Enable or Disable Serial Port (COM).
Change Settings	Auto <b>[Default]</b> , IO=2F8h; IRQ=3; , IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	This item allows you to change the address & IRQ settings of the specified serial port.
Device Type Select	UART 232 <b>[Default],</b> UART 422 <i>,</i> UART 485	Set the Serial Port to RS232 & RS422 & RS485
RS-485 Auto Flow Function	Disabled, Enabled <b>[Default]</b>	Enabled/Disabled RS485 Autoflow Function

# ■ Serial Port 3 Configuration

Aptio Setup Utility – Advanced	Copyright	(C) 2018 American	Megatrends, Inc.
Serial Port 3 Configuration			Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3E8h;	IRQ=7;	
Change Settings Device Type Select	[Auto] [RS232]		
			<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>

Item	Options	Description
Serial Port	Disabled, Enabled <b>[Default]</b>	Enable or Disable Serial Port (COM).
Change Settings	Auto <b>[Default]</b> , IO=3E8h; IRQ=7; , IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	This item allows you to change the address & IRQ settings of the specified serial port.
Device Type Select	UART 232 <b>[Default],</b> UART 422, UART 485	Set the Serial Port to RS232 & RS422 & RS485
RS-485 Auto Flow Function	Disabled, Enabled <b>[Default]</b>	Enabled/Disabled RS485 Autoflow Function

# Serial Port 4 Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2018 American	n Megatrends, Inc.
Serial Port 4 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2E8h; IRQ=7;	
Change Settings Device Type Select	[Auto] [RS232]	
		++: Select Screen 14: Select Item Enter: Select
		+/−: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.18.1263. D	opyright (C) 2018 American H	Megatrends. Inc.

Item	Options	Description
Serial Port	Disabled, Enabled <b>[Default]</b>	Enable or Disable Serial Port (COM).
Change Settings	Auto <b>[Default]</b> , IO=2E8h; IRQ=7; , IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	This item allows you to change the address & IRQ settings of the specified serial port.
Device Type Select	UART 232 <b>[Default],</b> UART 422, UART 485	Set the Serial Port to RS232 & RS422 & RS485
RS-485 Auto Flow Function	Disabled, Enabled <b>[Default]</b>	Enabled/Disabled RS485 Autoflow Function

# ■ Serial Port 5 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 5 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2F0h; IRQ=7;	(con)
Change Settings Device Type Select	[Auto] [RS232]	
		<pre>++: Select Screen t↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Version 2.22.1282 Copyright (C) 2022 AMI

Item	Options	Description
Serial Port	Disabled, Enabled <b>[Default]</b>	Enable or Disable Serial Port (COM).
Change Settings	Auto <b>[Default]</b> , IO=2F0h; IRQ=7; , IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	This item allows you to change the address & IRQ settings of the specified serial port.
Device Type Select	UART 232 <b>[Default],</b> UART 422, UART 485	Set the Serial Port to RS232 & RS422 & RS485
RS-485 Auto Flow Function	Disabled, Enabled <b>[Default]</b>	Enabled/Disabled RS485 Autoflow Function

#### Serial Port 6 Configuration

Advanced	Aptio Setup — AMI	
Serial Port 6 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2EOh; IRQ=7;	(CUM)
Change Settings Device Type Select	[Auto] [RS232]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Item Options Description **Serial Port** Disabled, Enable or Disable Serial Port (COM). Enabled[Default] **Change Settings** Auto[Default], This item allows you to change the address & IO=2E0h; IRQ=7; , IRQ settings of the specified serial port. IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;, IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12; **Device Type Select** UART 232[Default], Set the Serial Port to RS232 & RS422 & RS485 UART 422, UART 485 **RS-485 Auto Flow** Disabled, Enabled/Disabled RS485 Autoflow Function Function Enabled[Default]

#### 5.3.7 Hardware Monitor

These items display the current status of all monitored hardware devices/ components such as voltages and temperatures.

Advanced	Aptio Setup – AMI	
Pc Health Status		Enable or Disable Smart Fan
Smart Fan Function Smart Fan Mode Configuration CPU Temperature(Tcase) Fan Speed VCORE +5V +3V3 +12	[Enabled] : +42 % : N/A : +1.656 V : +5.045 V : +3.321 V : +12.672 V	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version	2.22.1282 Copyright (C) 202	2 AMI

ltem	Options	Description
Smart Fan Function	Disabled <b>[Default],</b> Enabled	Enabled or Disable Smart Fan

# Smart Fan Mode Configuration

Advanced	Aptio Setup — AMI	
Smart Fan Mode Configuration		Smart Fan Mode Select
Fan1 SmartFan Control Temperature 1 Temperature 2 Temperature 3 Temperature 4 Duty Cycle 1 Duty Cycle 2 Duty Cycle 3 Duty Cycle 4	[Auto Duty-Cycle Mode] 30 40 50 60 50 60 70 85	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version	2.22.1282 Converight (C) 202	2 AMT

Item	Options	Description
Fan1 SmartFan Control	Manual Duty Mode, Auto Duty-Cycle Mode <b>[Default],</b>	Smart Fan Mode Select
Temperature 1~4	1~100	Auto fan speed control. SMART FAN IV
Duty Cycle 1~4	20~100	Auto fan speed control. SMART FAN IV

#### 5.3.8 Power IGN Mode

Advanced	Aptio Setup — AMI	
Power Ignition Configuration Ignition F/W Version PC/IGN State	A1 PC	Bypass: BIOS will not control IGN Module, Write IGN: BIOS will write setting to IGN
Power On Delay Power Off Delay Force Shutdown Delay	Hour:0 Min:0 sec:10 Hour:0 Min:0 sec:3 Hour:0 Min:1 sec:0	moure
IGN Setting Power On Delay Power Off Delay	[Write IGN] [10 Sec] [3 Sec]	
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
, dession of	- 22 4202 Conumight (8) - 2020	AWT

ltem	Options	Description
IGN Setting	Bypass mode <b>[Default]</b> Write IGN	Bypass: BIOS will not control IGN Module, Write IGN: BIOS will write setting to IGN module
Power On Delay	10 Sec <b>[Default]</b> 20 Sec 30 Sec 40 Sec 50 Sec 1 Min Manual Mode	Power On Delay Select
Manual Mode	10 Sec <b>[Default]</b>	10~60 Sec
Power Off Delay	3 Sec <b>[Default]</b> , 1 Min, 5 Min, 10 Min, 30 Min, 1 Hour, 2 Hour, Manual Mode	Power Off Delay Select
Manual Mode	3 Sec[Default]	3~7200 Sec

### 5.3.9 Wake system from S5

Wake system from S5       [Disabled]       Enable or disable System was on alarm event. Select         FixedTime, system will wake the hr::min::sec specified.       Select DynamicTime, System will wake on the current ti         Wake system from S5       Disabled         Fixed Time       Dynamic Time         ByPass       Herein Select         ++: Select Screen       11: Select Item         Enter: Select       +/-: Change Opt.         F1: General Help       F2: Previous Values         F3: Optimized Defaults       F3: Optimized Defaults	Advanced	Aptio Setup — AMI	
ByPass ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults	Wake system from S5	[Disabled] — Wake system from S5 — Disabled Fixed Time Dunamic Time	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime , System will wake on the current time + Increase minute(s),Bypass : BIOS will not control RTC wake function during system shutdown
F4: Save & Exit ESC: Exit		ByPass	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Item	Options	Description
Wake system from S5	Disabled <b>[Default] ,</b> Fixed Time, Dynamic Time, ByPass	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minute(s),Bypass : BIOS will not control RTC wake function during system shutdown
Wake up day	0[Default]	Date (of month) Alarm (0 is mean daily or you can setup a specific month)
Wake up hour	0[Default]	select 0-23 For example enter 3 for 3am and 15 for 3pm
Wake up minute	0[Default]	select 0-59 for Minute
Wake up second	0[Default]	select 0-59 for Second
Wake up minute increase	0[Default]	1 - 5

#### 5.3.10 Serial Port Console Redirection

Aptio Setup Utility Advanced	– Copyright (C) 2020 Am	erican Megatrends, Inc.
COM1 Console Redirection Console Redirection Settings	[Disabled]	Console Redirection Enable or Disable. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help
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Item	Options	Description
Console Redirection	Disabled <b>[Default],</b> Enabled	These items allows you to enable or disable COM1 console redirection

### 5.3.11 USB Configuration

Advanced	Aptio Setup – AMI	
USB Configuration		Enables Legacy USB support.
USB Module Version	25	support if no USB devices are connected. DISABLE option will
USB Controllers: 1 XHCI		keep USB devices available only for EFI applications.
USB Devices: 1 Drive, 1 Keyboard		
Legacy USB Support	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		++: Select Screen
USB transfer time-out	[20 sec]	↑↓: Select Item
Device reset time-out Device pewer up delou	[2V SEC]	Enter: Select
Device power-up delag	(Huto)	F1: General Heln
Mass Storage Devices:		F2: Previous Values
TOSHIBA TransMemory PMAP	[Auto]	F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
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ltem	Options	Description
Legacy USB Support	Enabled <b>[Default]</b> Disabled Auto	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	Enabled <b>[Default]</b> Disabled	This is a workaround for OSew without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Disabled Enabled <b>[Default]</b>	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec , 5 sec , 10 sec , 20 sec <b>[Default]</b>	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec , 20 sec <b>[Default] ,</b> 30 sec, 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto <b>[Default]</b> Manual	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 form Hub descriptor.

# 5.3.12 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv6 PXE Support PXE boot wait time Media detect count	[Enabled] [Disabled] [Disabled] 0 1	Enable/Disable UEFI Network Stack ++: Select Screen
		<pre>fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

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Item	Options	Description
Network Stack	Disabled <b>[Default] ,</b> Enabled	Enable/Disable UEFI Network Stack.
IPv4 PXE Support	Disabled <b>[Default] ,</b> Enabled	Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.
IPv6 PXE Support	Disabled <b>[Default] ,</b> Enabled	Enable/Disable IPv4 PXE boot support. If disabled, IPv6 PXE boot support will not be available.
PXE boot wait time	0[Default]	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.
Media detect count	1[Default]	Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

# 5.4 Chipset

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility – Copyright (C) 2020 American Main Advanced <mark>Chipset</mark> Security Boot Save & Exit	Megatrends, Inc.
<ul> <li>System Agent (SA) Configuration</li> <li>PCH-IO Configuration</li> </ul>	System Agent (SA) Parameters
	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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### 5.4.1 System Agent (SA) Configuration

Chipset	Aptio Setup — AMI	
System Agent (SA) Configuration		Memory Configuration Parameters
VT-d	Supported	
<ul> <li>Memory Configuration</li> <li>Graphics Configuration VT-d Above 4GB MMIO BIOS assignment</li> </ul>	[Enabled] [Enabled]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
United	0 00 4000 0cm/mint+ (0) 0000	

ltem	Options	Description
VT-d	Disabled, Enabled <b>[Default]</b>	VT-d capability.
Above 4GB MMIO BIOS assignment	Enabled <b>[Default] ,</b> Disabled	Enable/Disable above 4GB MemoryMappedIO BIOS assignment\n\nThis is enabled automatically when Aperture Size is set to 2048MB.

### Memory Configuration

Chipset	Aptio Setup – AMI	
Memory Configuration		Maximum Value of TOLUD.
Memory Data Rate Memory Timings (tCL–tRCD–tRP–tRAS)	2133 MTPS 15-15-15-36	adjust TOLUD automatically based on largest MMIO length
Channel O Slot O Max TOLUD	Not Populated / Disabled [Dynamic]	
		↔: 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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Item	Options	Description
Max TOLUD	Dynamic <b>[Default],</b> 1GB, 1.25GB, 1.5 GB, 1.75 GB, 2 GB, 2.25 GB, 2.5 GB,	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller

### ■ Graphic Configuration

Chipset	Aptio Setup – AMI	
Graphics Configuration		Select the GTT Size
GTT Size Aperture Size PSMI SUPPORT DVMT Pre-Allocated DVMT Total Gfx Mem DDI2 Selection	[8H8] [256M8] [Disabled] [60M] [256M] [DP]	<pre>++: Select Screen t4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

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ltem	Options	Description
GTT Size	2MB, 4MB, 8MB <b>[Default]</b>	Select the GTT Size .
Aperture Size	128MB, 256MB <b>[Default] ,</b> 512MB, 1024MB	Select the Aperture Size. Note : Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.
PSMI SUPPORT	Disabled <b>[Default] ,</b> Enabled	PSMI Enable/Disable.
DVMT Pre-Allocated	32M,64M,96M,128M, 160M,4M, 8M,12M, 16M,20M,24M, 28M, 32M/F7,36M, 40M,44M, 48M,52M,56M, 60M <b>[Default]</b>	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	128M <i>,</i> 256M <b>[Default] ,</b> MAX	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.
DDI2 Selection	DP <b>[Default] ,</b> HDMI	Selects DDI2 function: DP or HDMI

### 5.4.2 PCH-IO Configuration

Chipset	Aptio Setup – AMI	
PCH-IO Configuration		PCI Express Configuration
<ul><li>▶ PCI Express Configuration</li><li>▶ HD Audio Configuration</li></ul>		Settings
Restore AC Power Loss M.2 B–Key Selection PCIe Port Selection	[Power Off] [USB + PCIe x1] [PCIe x4]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Vencion 0	22 1202 Copuniant (C) 2022	омт

Item	Options	Description
Restore AC Power Loss	Power On, Power Off <b>[Default] ,</b> Lase State	Specify what state to go to when power is re- applied after a power failure (G3 state).
M.2 B-Key Selection	USB + PCIe x1 <b>[Default]</b> , PCIe x2	Selects M.2 B-KEy function: PCIe x2 or USB + PCIe x1.
PCIe Port Selection	PCIe x4 <b>[Default]</b> , MiniPCIe1	This setting controls PCIe Port configuration for [PCIex4 slot] or [MiniPCIe1]. This PCIex4 slot connector only have support PCIex1 lanes.

# Chapter 5: BIOS Setup

# PCI Express Configuration

Aptio Setup – AMI Chipset	
PCI Express Configuration PCI Express Root Port 3(I210) PCI Express Root Port 4(I225) PCI Express Root Port 5(Mini-PCIe/PCIex4 Slot) PCI Express Root Port 7(M.2 B-key)	PCI Express Root Port Settings.
	<pre>**: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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# PCI Express Root Port 3 /4 /5 /7

Chipset	Aptio Setup – AMI	
PCI Express Root Port 3 ASPM PCIe Speed	[Enabled] [Disabled] [Auto]	Control the PCI Express Root Port.
▶ Extra options		
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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Item	Options	Description
PCI Express Root Port 3 /4 /5 /7	Disabled, Enabled <b>[Default]</b>	Control the PCI Express Root Port.
ASPM	Disabled <b>[Default] ,</b> LOs, L1, LOsL1, Auto	Set the ASPM Level: Force LOs - Force all links to LOs State, AUTO - BIOS auto configure, DISABLE - Disables ASPM,
PCIe Speed	Auto <b>[Default]</b> , Gen1 <b>,</b> Gen2, Gen3	Configure PCIe speed.
Detect Non-Compliance Device	Disabled <b>[Default] ,</b> Enabled	Detect Non-Compliance PCI Express Device. If enable, it will take more time at POST time.

### ■ HD Audio Configuration

	Aptio Setup Utility – Copyright (C) 2020 America Chipset	n Megatrends, Inc.
HD Audio Sub	system Configuration Settings	Control Detection of the
HD Audio	[Enabled]	Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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Item	Options	Description
HD Audio	Disabled, Enabled <b>[Default]</b>	Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled
		Enabled = HDA will be unconditionally enabled.

# 5.5 Security

Security menu allow users to change administrator password and user password settings.

Password DescriptionSet Administrator Password is set, then this only limits access to Setup and is only asked for when entering Setup.Set Administrator Password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range: Minimum lengthSet Administrator Password the User Setup.Administrator Password User Password++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.	
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range: Minimum length 3 Maximum length 20++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.	Password
Maximum length       20         Administrator Password       ++: Select Screen         User Password       Enter: Select         User Comparison       Enter: Select         +/-: Change Opt.	
Administrator Password User Password Enter: Select +/-: Change Opt.	
User Password Enter: Select +/-: Change Opt.	
F1: General Help	
▶ Secure Boot F2: Previous Values F3: Optimized Defau. F4: Save & Exit ESC: Exit	es aults

#### Administrator Password

This item allows you to set Administrator Password.

#### User Password

This item allows you to set User Password.

#### Security Boot

Aptio Se	tup Utility – Copyright (C) 2020 Ame Security	erican Megatrends, Inc.
System Mode	User	Secure Boot feature is Active
Secure Boot	[Disabled] Not Active	Platform Key(PK) is enrolled and the System is in User mode. The mode change requires
Secure Boot Mode ▶ Restore Factory Keys ▶ Reset To Setup Mode	[Custom]	platform reset
▶ Key Management		
		++: Select Screen
		Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
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ltem	Options	Description
Secure Boot	Disabled <b>[Default] ,</b> Enabled	Secure Boot feature is Active if Secure Boot is Enabled,Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard, Custom <b>[Default]</b>	Secure Boot mode options:Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication

#### Key Management

Aptio Setup Utility – Copyright (C) 2020 American Security	Megatrends, Inc.
Vendor Keys Modified	Install factory default Secure
Factory Key Provision [Disabled] ▶ Restore Factory Keys ▶ Reset To Setup Mode ▶ Export Secure Boot variables ▶ Enroll Efi Image	reset and while the System is in Setup mode
Device Guard Ready ▶ Remove 'UEFI CA' from DB ▶ Restore DB defaults	
Secure Boot variable   Size  Keys  Key Source Platform Key(PK)   862  1  Test(AMI) Key Exchange Keys   1560  1  Factory Authorized Signatures  3143  2  Factory Forbidden Signatures  3724  77  Factory Authorized TimeStamps  1565  1  External OsRecovery Signatures  862  1  Test(AMI)	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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ltem	Options	Description
Factory Key Provision	Disabled <b>[Default] ,</b> Enabled	Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode

# **5.6 Boot**

This menu allows you to setup the system boot options.

Main Advanced Chipset Se	Aptio Setup – AMI curity Boot Save & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Full Screen Logo Show	<mark>1</mark> [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1	[UEFI: TOSHIBA TransMemory PMAP, Partition 1 (TOSHIBA TransMemory PMAP)]	
Fast Boot	[DISADIED]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Item	Options	Description	
Setup Prompt Timeout	1[Default]	Number of seconds to wait for setup activation	
		key. 65535(0xFFFF) means indefinite waiting.	
Bootup NumLock State	On <b>[Default] ,</b> Off	Select the Keyboard NumLock state.	
Full Screen Logo Show	Disabled <b>[Default] ,</b> Enabled	Enables or disables Full Screen Logo Show option.	
Fast Boot	Disabled <b>[Default] ,</b> Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.	
Boot Option #1		Set the system boot order.	

### 5.7 Save & Exit

This setting allows users to configure the boot settings.

Aptio Setup Utility – Copyright (C) 2020 American Main Advanced Chipset Security Boot Save & Exit	Megatrends, Inc.
Save Options Save Changes and Reset Discard Changes and Reset	Reset the system after saving the changes.
Default Options Restore Defaults	
Boot Override UEFI: TOSHIBA TransMemory PMAP, Partition 1 TOSHIBA TransMemory PMAP	
	<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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#### Save Changes and Reset

This item allows user to reset the system after saving the changes. This item allows user to reset the system after saving the changes.

#### Discard Changes and Reset

This item allows user to reset the system without saving any changes.

#### Restore Defaults

Use this item to restore /load default values for all the setup options.

# Appendix

# WDT & GPIO

This appendix provides the sample codes of WDT (Watch Dog Timer) and GPIO (General Purpose Input/ Output).

### **WDT Sample Code**

WDT Setting

#### Psuedo Code

// IO Address 0xA16 is time value // IO Address 0xA15 is WDT enable and configuration Example, Set 0xA16=-0x03, 0xA15=0x31, it will reset after 3 seconds

#define TimePort 0xA16 #define TimeEnablePort 0xA15

WriteByte (TimePort, 0x03) WriteByte (TimeEnablePort, 0x31)

### **GPIO Sample Code**

**GPIO Setting** 

IO_DI8	I/O 0xA03h Bit7	IO_DO8	I/O 0xA02h Bit7
IO_DI7	I/O 0xA03h Bit6	IO_DO7	I/O 0xA02h Bit6
IO_DI6	I/O 0xA03h Bit5	IO_DO6	I/O 0xA02h Bit5
IO_DI5	I/O 0xA03h Bit4	IO_DO5	I/O 0xA02h Bit4
IO_DI4	I/O 0xA03h Bit3	IO_DO4	I/O 0xA02h Bit3
IO_DI3	I/O 0xA03h Bit2	IO_DO3	I/O 0xA02h Bit2
IO_DI2	I/O 0xA03h Bit1	IO_DO2	I/O 0xA02h Bit1
IO_DI1	I/O 0xA03h Bit0	IO_DO1	I/O 0xA02h Bit0

The GPIO function is provided by SIO, and it can be accessed through its GPIO port. To access the GPIO register, write value to data port. The configuration on the PC100-EHL is described as below.

#### **Psuedo Code**

#define GPI\_ADDR 0xA03h #define GPO\_ADDR 0xA02h

// 0xA03h is Pin Status(default 0xFF )(at IO\_DI1(Bit0) ~ IO\_DI8(Bit7))
ByteData = ReadByte (GPI\_ADDR) //Read current Pin Status

//Offset 0xA02h default setting is 0x5F (output pin set to output high) (at IO\_DO1(Bit0) ~ IO\_DO8(Bit7))
ByteData = 0xFF //set IO\_DO1~ IO\_DO8 to high
WriteByte (GPO\_ADDR, ByteData)



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