



AVS-301

Aplex Palm-Size System

Intel Celeron J1900 Platform

User Manual

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Revision

V1.1

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Revision History

Reversion	Date	Description
1.0	2021/03/02	Official Version
1.1	2022/08/19	Delete Ch4 Driver Installation part information

Warning!

This equipment will generate, use and radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which is designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user with its own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Packing List

Accessories (as ticked) included in this package are:
<input type="checkbox"/> Adaptor
<input type="checkbox"/> Driver & manual CD disc
<input type="checkbox"/> Other. _____ (please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- ◆ Avoid your system from static electricity on all occasions.
- ◆ Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- ◆ Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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Chapter 1

Getting Started

1.1 Features

- Intel Celeron J1900 Processor (2M, Cache 2.00GHz)
- 1 x SO-DIMM Socket, up to 8GB DDR3L support
- 2 x Display Port
- 9~36V DC Wide-ranging Power input
- 3 x LAN, 3 x USB2.0, 1 x USB3.0, 1 x USB2.0 (Dongles)
- 1 x mSATA for SSD storage, 1 x SATAII for HDD
- 1 x Full-size mini PCIe, with Wi-Fi/LTE/BT Expansion
- Compound Mounting Design with wall mount kit
- Rugged, Fan-less, Compact design
- 2 x COM(DB9)

1.2 Specifications

Model Name	AVS-301
System	
CPU	Intel Celeron J1900 Processor(onboard, 2.00GHz)
Chipset	SoC
Memory	1 x 204-pin DDR3L SO-DIMM memory, up to 8GB
BIOS	AMI/UEFI
Outside IO Port	
Super I/O	Nuvoton NCT6106D
Serial	1 x RS232/RS485/RS422, DB9 connector 9Pin 1 x RS232, DB9 connector 9Pin (COM2)
Audio	1 x Line out
Ethernet	3 x GbE ports by RJ45 with Intel I210AT
USB	1 x USB 3.0(Type A) stack ports 3 x USB 2.0(Type A) stack ports 1 x USB2.0 (Type A) stack port (internal)
RTC	CR-2032
GPIO/SIM	1 x 8-bit GPIO(4 x DI+4 x DO)

	1 x SIM slot(option)
Storage Space	
Storage	1 x SATAII Connector(7 pin) 1 x mSATA Connector
Expansion	
Expansion Slot	1 x mPCIe connector(Default)
Display	
Controller	Intel Graphics 688/854 MHz(J1900)
VGA	1 x 1920 x 1200, by DB15 connector
HDMI	1 x 1920 x 1200
Power	
Power Input	9~36V DC with 1x 3Pin power input connector 1 x 2Pin Power Switch
Mechanical	
Construction	Aluminum Alloy Heat-sink Fin Enclosure
Mounting	Compound with Wall-Mount
Dimensions(unit: mm)	207 x 130 x 35.5 (DxWxH)
Net Weight(unit: Kg)	0.95
Environmental	
Operating Temperature	-20~70°C
Storage Temperature	-40~85°C
Humidity	10 to 90% @ 40°C, non-condensing
Certification	NA
Operating System Support	Microsoft® Win10 IoT, Linux(TBD)

1.3 Dimensions

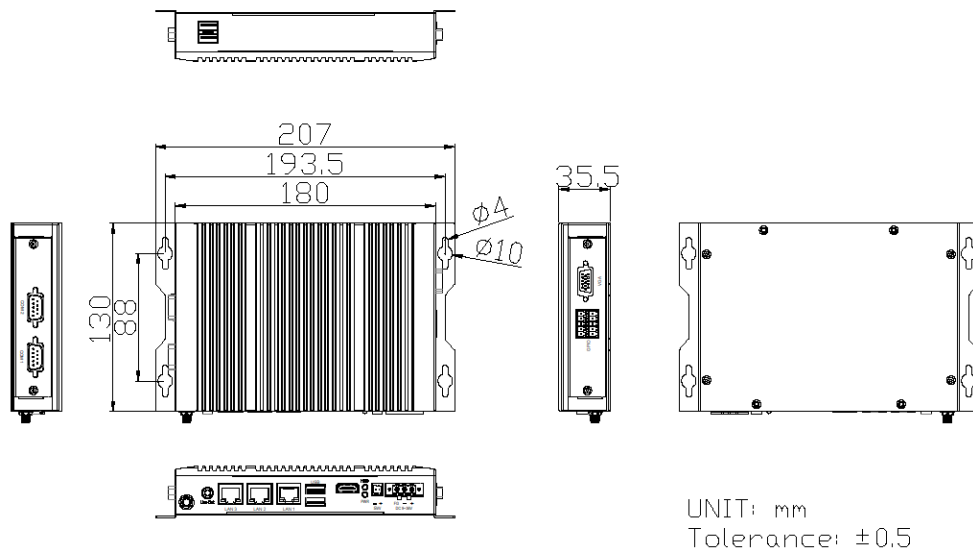


Figure 1.1: Dimension of AVS-301

1.4 Brief Description of AVS-301

AVS-301 is fanless-design high-efficiency BOX PC, powered by Intel Celeron J1900 Processor and supports 1 x 204-pin DDR3 SO-DIMM memory up to 8GB. It comes with multiple choices of USB 3.0 Type A and USB 2.0 Type A, LAN, VGA, HDMI, COM ports, and 1 x audio line-out for AVS-301. AVS-301 supports SATAII, mSATA connectors and SIM slot for storage use, and 9~36V DC wide-ranging power input. AVS-301 has 1x mPCIe slot for expansion and it is plating titanium gray aluminum heatsink and black steel chassis designed. AVS-301 can be wall mounted, and it works well with our other products and they can provide an absolute easy way to perform control maintenance.



Figure 1.2: Front view of AVS-301



Figure 1.3: Rear view of AVS-301

2.1 Motherboard Introduction

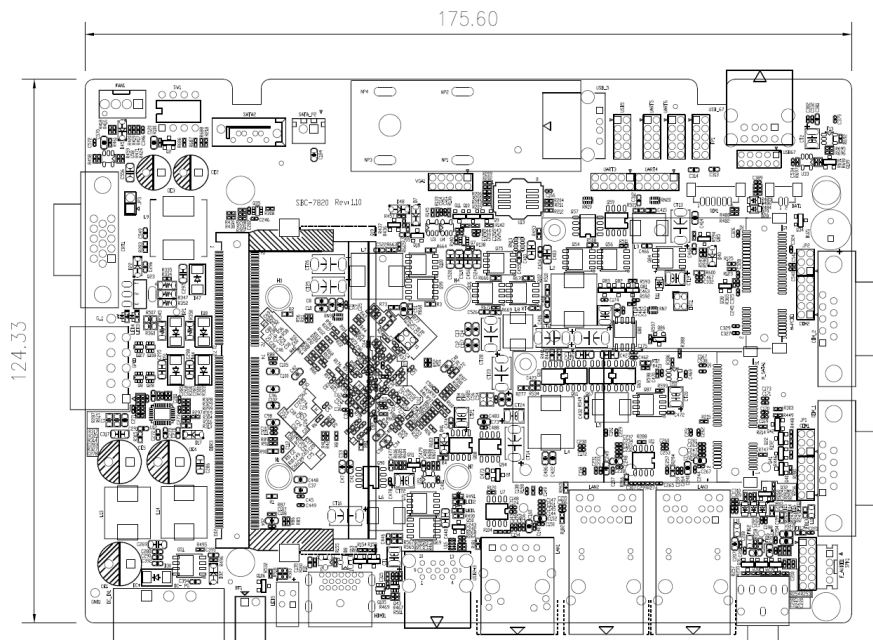
SBC-7820-NP is an industrial motherboard developed on the basis of Intel Bay Trail, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features three GbE ports, 2x COM ports and one Mini PCIE and one mSATA configuration. To satisfy the special needs of high-end customers. Due to its compact size, the product is widely used in various sectors of industrial control.

2.2 Specifications

Specifications	
Board Size	175mm x 124mm x 1.6mm
CPU Support	Onboard Intel Celeron J1900 Processor
Chipset	SOC
Memory Support	1 x SO-DIMM (204pins), up to 8GB DDR3L
GPIO/SIM	4 x DI, 4 x DO, DB9 connector 9Pin (GPIO, option) 1 x SIM Slot (option)
Super I/O	Nuvoton NCT6106D
BIOS	AMI Flash
Storage	1 x SATAII connector (7Pin) 1 x mSATA connector
Ethernet	2 x PCIe Gbe LAN, RJ45 via GT211V controller
USB	2 x USB3.0 (typeA) stack ports 2 x USB2.0 (typeA) stack ports
Serial	1 x RS232/RS422/RS485 DB9 connector 9Pin (COM1) 1 x RS232 DB9 connector 9Pin (COM2) 2 x RS485 DB9 connector 9Pin (COM3/COM4) 1 x RS232 DB9 connector 9Pin (COM5/GPIO, option) 1 x RS232 DB9 connector 9Pin (COM6, option)
Audio	Line out by Jack

Expansion Bus	1 x mini-PCI-express connector
Display Controller	Integrated Intel HD Graphics 688/854 MHz (J1900)
VGA Interface	1 x DB15
HDMI Interface	1 x HDMI
Resolution	Up to 1920 x 1200 for HDMI Up to 1920 x 1200 for VGA1
Power Management	Wide Range DC 9~36V input 1 x 3Pin Power input Connector 1 x 2Pin Power Switch
TPM	Infineon's Trusted Platform Module(TPM2.0, option)
Temperature	Operating: -20°C to 70°C Storage: -40°C to 85°C
Humidity	10% - 90%, non-condensing, operating
EMI/EMS	Meet CE/FCC Part15 class A RoHS

2.3 Motherboard Dimension (SBC-7820-NP)



(Unit: mm)

Figure 2.1: Motherboard SBC-7820-NP Dimensions

2.4 Jumpers and Connectors Location

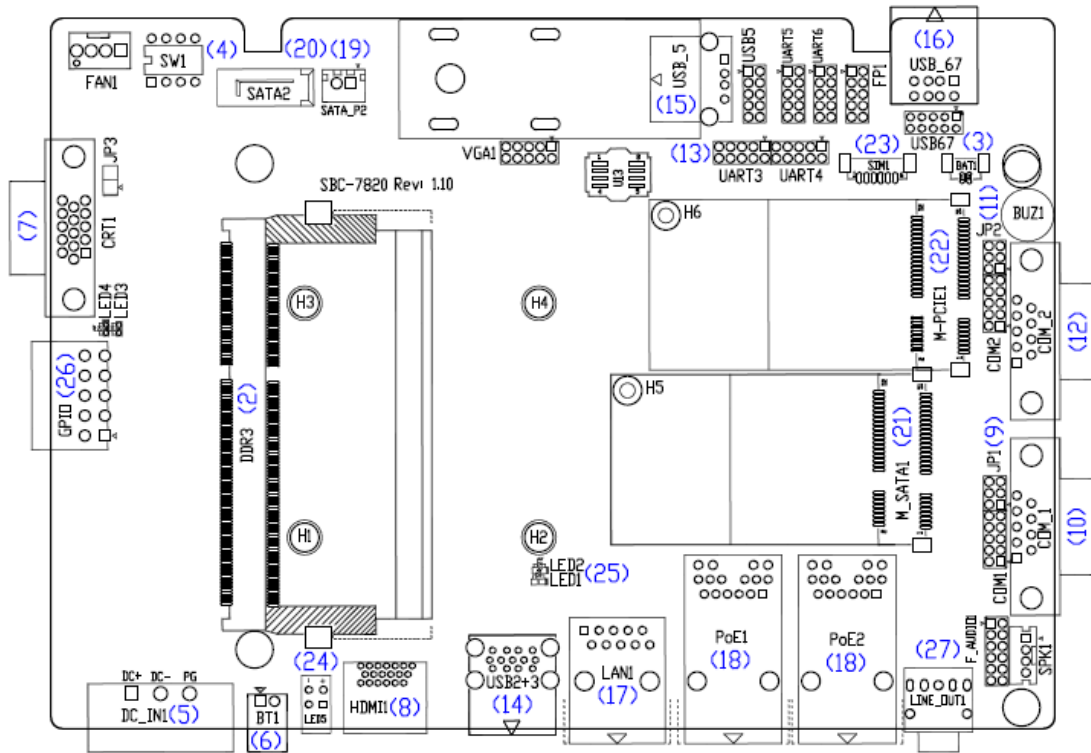


Figure 2.2: Jumpers and Connectors Location- Board Top

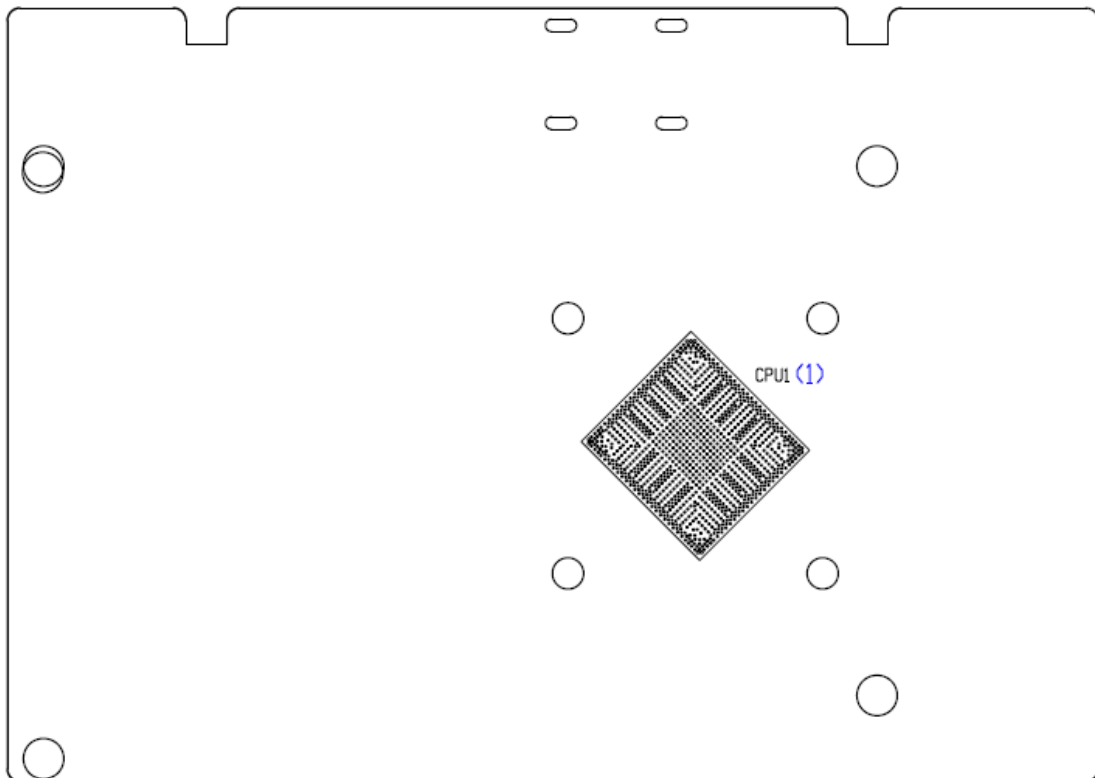


Figure 2.3: Jumpers and Connectors Location- Board Bottom

2.5 Jumpers Setting and Connectors

1. CPU:

Onboard Intel Celeron J1900 processor, the basic frequency of the processor is 2.00GHz, the pulse frequency can reach up to 2.41 GHz. It contains 4 cores and 4 threads, and with 2MB cache. The power consumption of J1900 is up to 10 watts.

2. DDR3L:

1 x SO-DIMM (204PINs), up to 8GB DDR3L 1333MHz

3. RTC:

(1.25mm Pitch 1x2 wafer Pin Header) 3.0V Li Battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	Ground
Pin2	VCC_RTC

4. SW1:

Switch, Auto Power on jumper setting.

SW1	Mode
Pin1 ON	Auto Power on (Default)
Pin1 OFF	FP_PWBTN (option)

CMOS clear switch, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

SW1	Mode
Pin2 OFF	Normal (Default)
Pin2 ON	Clear CMOS



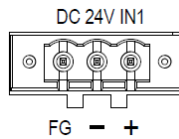
Procedures of CMOS clear:

- a) Turn off the system and unplug the power cord from the power outlet.
- b) To clear the CMOS settings, use the switch to Pin2 on for about 3 seconds then move the switch Pin2 off.
- c) Power on the system again.
- d) When entering the POST screen, press the key to enter CMOS Setup Utility to load optimal defaults.
- e) After the above operations, save changes and exit BIOS Setup.

SW1	CMOS
Pin3 OFF	Default
Pin4 OFF	Default

5. DC_IN1:

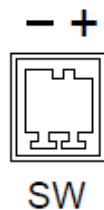
(5.08mm Pitch 1x3 Pin Connector), DC9~36V system power input connector. Before inserting this Phoenix connector, make sure that the power polarity is connected correctly. If connects to POE equipment, confirm that the output voltage of power adapter is DC24V/5A. When the power consumption of the whole machine is large, you need to consider the power supply for the power adapter of the whole machine. When the external POE1/ POE2 port is not connected to POE equipment and only use as three network ports, the output voltage range of power adapter is + DC9~36V.



Pin#	Power Input (DC_IN1)
Pin1	DC+9V~36V
Pin2	Ground
Pin3	FG

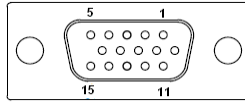
6. SW:

SW1 is triggered. When the external + DC24V (or + DC9 ~ 36V) is powered on, the machine will automatically power on and start up. When the machine is turned on, the + pole and - pole of SW are short circuited for 4 seconds to shut down. Press 4 seconds to shut down or after the operating system is shut down normally, the + pole and - pole of SW need to be contacted once. After normal shutdown, please keep it for more than 30 seconds before starting up. Illegal shutdown has the risk of damaging the operating system or the machine. Repeated switching may affect the service life of the machine. The power switch button interface can be connected with the button switch through the cable.



7. VGA:

(CRT Connector DB15), Video Graphic Array Port, provide high-quality video output.



8. HDMI:

(HDMI 19P Connector) High Definition Multimedia Interface connector



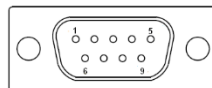
9. JP1:

(2.0mm Pitch 2x3 Pin Header), COM1 jumper setting, pin 1~6 are used to select signal out of pin9 of COM1 port.

JP1 Pin#	Function
Close 1-2	COM1 Pin9 RI (Ring Indicator) (Default)
Close 3-4	COM1 Pin9= +5V/1A (option)
Close 5-6	COM1 Pin9= +12V/1A (option)

10. COM1:

(DB9 Connector), COM1 port, standard RS232 port is provided. It can be used directly via COM cable connection.



RS-232(Default)	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)

9	RI
BIOS Setup: Advanced/NCT6106D Super IO Configuration/Serial Port 1 Configuration 【RS-232】	

RS-422:	
Pin#	Signal Name
1	422_TX-
2	422_TX+
3	422_RX+
4	422_RX-
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup: Advanced/NCT6106D Super IO Configuration/Serial Port 1 Configuration 【RS-422】	

RS-485:	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup: Advanced/NCT6106D Super IO Configuration/Serial Port 1 Configuration 【RS-485】	

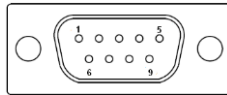
11. JP2:

(2.0mm Pitch 2x3 Pin Header), COM2 jumper setting, pin1~6 are used to select signal out of pin9 of COM2 port.

JP2 Pin#	Function
Close 1-2	COM2 Pin9 RI (Ring Indicator) (Default)
Close 3-4	COM2 Pin9= +5V/1A (option)
Close 5-6	COM2 Pin9= +12V/1A (option)

12. COM2:

(DB9 Connector), COM2 Port, standard RS232 port is provided. It can be used directly via COM cable connection.



Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI

BIOS setup:
Advanced/NCT6106D Super IO Configuration/Serial Port 2 Configuration
【RS-232】

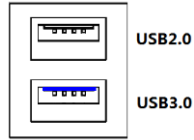
13. UART 3/4:

(2.0mm Pitch 2x5 Pin Header), COM3/4-RS232 signal

14. USB2+3:

(single stack USB type A), USB2.0 connector, it provides two USB ports via a dedicated USB cable, speed up to 480Mb/s.

(single stack USB type A), Rear USB3.0 connector, it provides up to 2 USB3.0 ports. USB3.0 allows data transfers up to 5.0 Gb/s, support USB2.0 and full-speed and low-speed signaling.



Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.
 If the external USB device current exceeds 2.0A, please separate connectors into different Receptacles.

15. USB_5 (USB2.0):

(single stack USB type A) USB2.0 connector, it provides two USB ports via a dedicated USB cable, speed up to 480Mb/s.

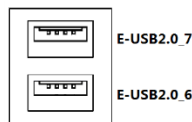


Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.
 If the external USB device current exceeds 2.0A, please separate connectors into different Receptacles.

16. USB_67 (USB2.0):

USB2.0 interface, two standard USB2.0 interfaces are reserved. USB 2.0 allows data transmission up to 480MB/s, and supports USB2.0, USB full speed and USB low speed signals. It can be connected to USB2.0 and USB1.1 devices. By default, there is no load on this interface.

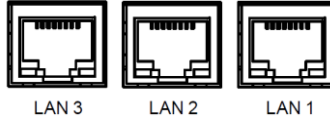
JP5 Pin#	Function
Close 1-2	COM2 Pin9 RI (Ring Indicator) (default)
Close 3-4	COM2 Pin9 = +5V/1A (option)
Close 5-6	COM2 Pin9 = +12V/1A (option)



Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.
 If the external USB device current exceeds 2.0A, please separate connectors into different Receptacles.

17. LAN1/LAN2/LAN3:

(RJ45 connector), 3 standard 10/100/1000M network interfaces with Intel I210AT network chipset. The use of connecting cables requires compliance with relevant protocols and specifications.



18. POE1/POE2:

NA

19. SATA_P2:

(2.5mm Pitch 1x2 Wafer Pin Header), support a stereo Class-D Amplifier with 2 watt per channel output power.

Pin#	Signal Name
1	+DC5V_S0
2	Ground



Note:

Output current of the connector must not be above 1A.

20. SATA2:

(SATA 7P), SATA Connectors, one SATA connector is provided, SATA2 transfer speed up to 3.0 Gb/s.

21. M_SATA1:

(50.95mmx30mm Socket 52Pin), mSATA socket, it is located at the top, and it supports LPCbus, SMBus and USB2.0 and mSATA signals.

Function	Support
Mini SATA	●
LPC bus	●
SMBus	●
USB2.0 (USB 8)	●

22. M-PCIE1:

(Socket 52Pin), mini PCIe socket, it is located at the top, it supports mini PCIe devices with USB2.0, SIM, SMBUS and PCIe signal. MPCle card size is 30 x 50.95mm.

Function	Support
Mini PCIe4 Signal	●
SIM Signal	●

SMbus	●
USB2.0 (USB 4)	●

23. SIM1:

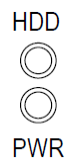
(2.0mm Pitch 1 x 6 Pin Wafer Header), support SIM Card devices

Pin#	Signal Name
1	SIM_VCC
2	Ground
3	SIM_RST
4	NC
5	SIM_CLK
6	SIM_IO

24. HDD/PWR:

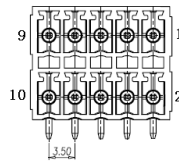
PWR: Power indicator

HDD: HDD indicator



25. GPIO:

(3.50mm, 2 x 5 Pin connector), general I/O port, 8 port GPIO, user can program interface by themselves. GPIO programming routines are required, please contact your sales window staff or agent.



Pin#	Signal	GPIO	Function
1	5V_GPIO	5V_GPIO	5VDC_OUT
2	Ground	Ground	GND
3	GPIO_IN1	6106_GP20	OUT
4	GPIO_IN2	6106_GP21	OUT
5	GPIO_IN3	6106_GP22	OUT
6	GPIO_IN4	6106_GP23	OUT
7	GPIO_OUT1	6106_GP24	OUT

8	GPIO_OUT2	6106_GP25	OUT
9	GPIO_OUT3	6106_GP26	OUT
10	GPIO_OUT4	6106_GP27	OUT

26. Line OUT:

(Diameter 3.5mm Three stack Jack), High Definition Audio Port



27. F_AUDIO1:

(2.0mm Pitch 2x6 Pin Header), Front Audio, Line Out can be connected to a headphone or amplifier. Line In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
+5V	1	2	GND_AUD
LINE-OUT-L	3	4	LINE-OUT-R
FRONT_JD	5	6	LINE_JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

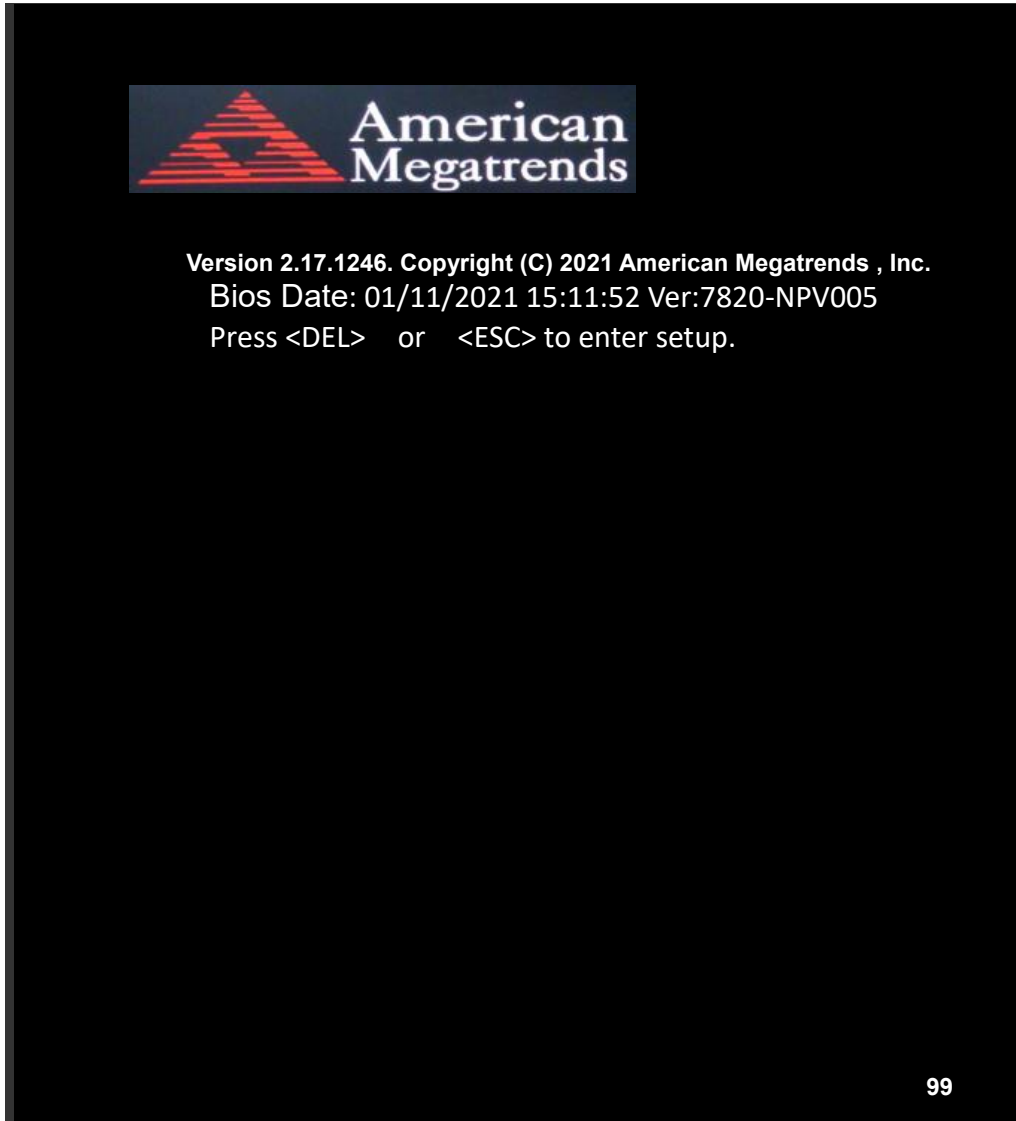
28. SPK1:

(2.0mm Pitch 1x4 Wafer Pin Header), support a stereo Class-D Speaker Amplifier with 2 watt per channel output power.

Pin#	Signal Name
1	SPK_OUTL_P
2	SPK_OUTL_N
3	SPK_OUTR_N
4	SPK_OUTR_P

3.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation, press [Delete] key to enter CMOS Setup.



After optimizing, exits CMOS Setup.

3.2 BIOS Setup Utility

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

3.3 Main Settings

Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit
BIOS Information		Choose the system default			
BIOS Vendor	American Megatrends		Language		
Project Version	7820-NPV 0.05 x64				
Build Date and Time	01/11/2021 15:11:52				
CPU Configuration					
Microcode Patch	90a				
BayTrail SoC	D1 Stepping				
Memory Information					
Total Memory	4096 MB (DDR3L)		→← : Select Screen		
Sec RC Version	00.05.00.00		↑↓ : Select Item		
TXE FW Version	01.00.04.1089		Enter : Select		
System Language	[English]		+/- : Change Opt.		
System Date	[TUE 01/01/2021]		F1 : General Help		
System Time	[00:00:08]		F2 : Previous Values		
Access Level1	Administrator		F3 : Optimized Defaults		
			F4 : Save and Exit		
			ESC : Exit		
Version 2.17.1246. Copyright (C) 2021 American Megatrends , Inc.					

System Time:

Set the system time, the time format is:

Hour : 0 to 23

Minute : 0 to 59

Second : 0 to 59

System Date:

Set the system date, the date format is:

Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

3.4 Advanced Settings

Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.	
Main	Advanced
<ul style="list-style-type: none"> ▶ ACPI Settings ▶ NCT6106D Super IO Configuration ▶ NCT6106D HW Monitor ▶ Intel(R) Smart Connect Technology ▶ APM Configuration ▶ CPU Configuration ▶ PPM Configuration ▶ Thermal Configuration ▶ IDE Configuration ▶ Miscellaneous Configuraion ▶ LPSS & SCC Configuration ▶ System Component ▶ Network Stack Configuration ▶ CSM Configuration ▶ SDIO Computing ▶ USB Configuration ▶ Platform Trust Technology ▶ Security Configuration ▶ Intel(R) i210 Gigabit Network Connection-- ▶ Intel(R) i210 Gigabit Network Connection-- ▶ Intel(R) i210 Gigabit Network Connection-- 	<p>System ACPI Parameters.</p> <hr/> <p>→←: Select Screen ↑↓ : Select Item Enter: Select +/- : Charge Opt. F1 : General Help F2: Previous Values F3:Optimized Defaults F4:Save and Exit ESC Exit</p>
Version 2.17.1246. Copyright (C) 2021 American Megatrends , Inc.	

3.4.1 ACPI Settings

Enable ACPI Auto Configuration:

[Disabled]

[Enabled]

Enable Hibernation:

[Enabled]

[Disabled]

ACPI Sleep State:

[S3 (Suspend to RAM)]

[Suspend Disabled]

Lock Legacy Resources:

[Disabled]

[Enabled]

3.4.2 NCT6106D Super IO Configuration

Super IO Chip

NCT6106D

Serial Port 1 Configuration

Serial port

[Enabled]

[Disabled]

Device Settings

IO=3F8h ; IRQ=4 ;

Change Settings

[Auto]

[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 ;]

COM1 Mode Selection

[RS-232]

[RS-485]

[RS-422]

Serial Port 2 Configuration

Serial port

[Enabled]

[Disabled]

Device Settings

IO=2F8h;IRQ=3;

Change Settings

[Auto]

[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 ;]

3.4.3 NCT6106D HW Monitor

Pc Health Status

System Temperature : +45 C

CPU Fan Speed : N/A

VCORE : +0.864 V

12V : +11.960V

5V : +5.160V

1.35V : +1.356V

3.4.4 Intel® Smart Connect Technology

ISCT Support

[Enabled]

[Disabled]

3.4.5 APM Configuration

RTC Power On

[Disabled]

[Enabled]

3.4.6 CPU Configuration

Socket 0 CPU Information

CPU Thermal Configuration

DTS

[Enabled]

[Disabled]

3.4.7 PPM Configuration

CPU c state Report

[Enabled]

[Disabled]

SOix

[Enabled]
[Disabled]

3.4.8 Thermal Configuration Parameters

Critical Trip Point

[90C]

Passive Trip Point

[85C]

Dynamic Platform& Thermal Framework

DPTF

[Disabled]
[Enabled]

CPU Sensor Participant

Critical

[70C]

Passive

[60C]

Ambient Sensor Participant

Critical

[70C]

Passive

[60C]

DDR Sensor Participant

Critical

[70C]

Passive

[60C]

Super Debug

[Disabled]

Current Logical Processor

[Disabled]

Start P-State

[P0]

Step size

[25%]

Power Control Setting

[CORE offlining]

Performance Control Setting

[CORE offlining]

DPPM

[Enabled]

3.4.9 IDE Configuration

Serial-ATA(SATA)

[Enabled]
[Disabled]

SATA Test Mode

[Enabled]
[Disabled]

SATA Speed Support	[Gen2] [Gen1]
SATA ODD Port	[No ODD] [Port0 ODD] [Port1 ODD]
SATA Mode	[AHCI Mode] [IDE Mode]
Serial-ATA Port 0	[Enabled] [Disabled]
SATA Port0 HotPlug	[Enabled] [Disabled]
Serial-ATA Port 1	[Enabled] [Disabled]
SATA Port1 HotPlug	[Enabled] [Disabled]
SATA Port 0 Not Present	
SATA Port1 Not Present	

3.4.10 Miscellaneous Configuration

High Precision Timer	[Enabled] [Disabled]
Boot Timer with HPET Timer	[Enabled] [Disabled]

PCI Express Dynamic Clock Gating

[Enabled]

[Disabled]

3.4.11 LPSS& SCC Configuration

LPSS & SCC Devices Mode

[ACPI mode]

[PCI mode]

SCC Configuration

SCC eMMC Support

[eMMC AUTO MODE]

[Disabled]

[Enable eMMC 4.5 Support]

[Enable eMMC 4.41 Support]

SCC eMMC 4.5 DDR50 Support

[Enabled]

[Disabled]

SCC eMMC 4.5 HS200 Support

[Disabled]

[Enabled]

eMMC Secure Erase

[Disabled]

[Enabled]

SCC SDIO Support

[Enabled]

[Disabled]

SCC SD Card Support

[Enabled]

[Disabled]

SDR25 Support for SDCard

[Disabled]

DDR50 Support for SDCard

[Enabled]

MIPI HSI Support

[Disabled]

[Enabled]

LPSS Configuration	
LPSS DMA #1 Support	[Disabled] [Enabled]
LPSS DMA #2 Support	[Disabled] [Enabled]
LPSS I2C #1 Support	[Disabled] [Enabled]
LPSS I2C #2 Support	[Disabled] [Enabled]
LPSS I2C #3 Support	[Disabled] [Enabled]
LPSS I2C #4 Support	[Disabled] [Enabled]
LPSS I2C #5 Support	[Disabled] [Enabled]
LPSS I2C #6 Support	[Disabled] [Enabled]
LPSS I2C #7 Support	[Disabled] [Enabled]
I2C touch Device Address	[AUTO] [0x4B] [0x4A]
LPSS HSUART #1 Support	[Disabled] [Enabled]

LPSS HSUART #2 Support

[Disabled]

[Enabled]

LPSS PWM #1 Support

[Disabled]

[Enabled]

LPSS PWM #2 Support

[Disabled]

[Enabled]

LPSS SPI Support

[Disabled]

[Enabled]

3.4.12 System Component

PMIC Configuration

PMIC ACPI OBJECT

[Disabled]

[Enabled]

PNP Setting

[Disabled]

[AUTO]

[AX STEPPING]

[BX STEPPING]

Witt Setting

[Disabled]

[Enabled]

3.4.13 Network Stack Configuration

Network Stack

[Disabled]

[Enabled]

3.4.14 CSM Configuration

Compatibility Support Module Configuration

CSM Support

[Disabled]

[Enabled]

CSM16 Module Version 07.76

GateA20 Active
[Upon Request]
[Always]

Option ROM Messages
[Force BIOS]
[Keep Current]

Boot option filter
[UEFI and Legacy]
[Legacy only]
[UEFI only]

Option ROM execution

Network
[Do not launch]
[UEFI]
[Legacy]

Storage
[Do not launch]
[UEFI]
[Legacy]

Video
[Do not launch]
[UEFI]
[Legacy]

Other PCI devices
[UEFI]
[Legacy]

3.4.15 SDIO Configuration

SDIO Configuration
[Auto]
[DMA]
[PIO]

3.4.16 USB Configuration

USB Configuration

USB Module Version 8.11.02

USB Devices:

2 Keyboard, 1 Mouse, 2 Hubs

Legacy USB Support

[Disabled]

[Enabled]

XHCI Hand-off

[Disabled]

[Enabled]

EHCI Hand-off

[Disabled]

[Enabled]

USB Mass Storage Driver Support

[Disabled]

[Enabled]

USB hardware delays and time-outs:

USB transfer time-out

[1 sec]

[5 sec]

[10 sec]

[20 sec]

Device reset time-out

[10 sec]

[20 sec]

[30 sec]

[40 sec]

Device power-up delay

[Auto]

[Manual]

3.4.17 Platform Trust Technology

TPM Configuration

FTPM

[Disabled]

[Enabled]

3.4.18 Security Configuration

Intel® TXE Configuration

Intel® Anti-Theft Technology Configuration

Intel® AT

[Disabled]

[Enabled]

Intel® AT Platform PBA

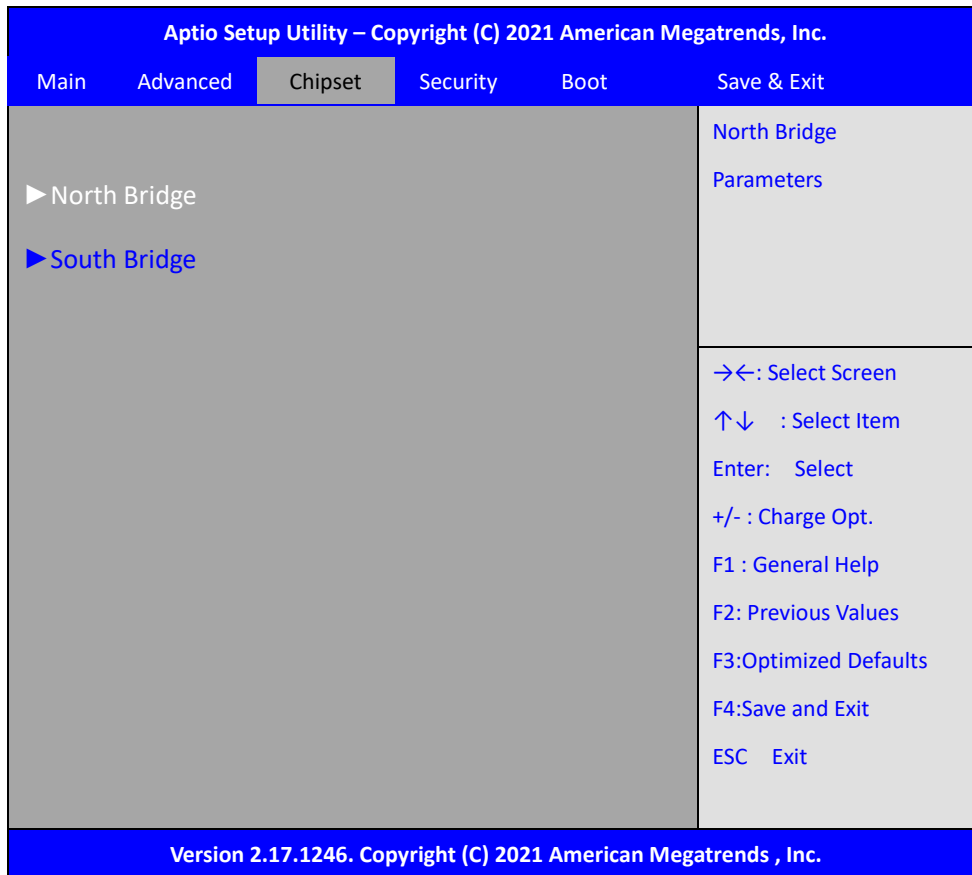
[Disabled]

[Enabled]

Intel® AT Suspend Mode

[Disabled]

3.5 Chipset Settings



3.5.1 North Bridge

▶ Intel IGD Configuration

GOP Configuration

GOP Driver

[Enabled]

[Disabled]

Intel IGD Configuration

Integrated Graphics Device

[Enabled]

[Disabled]

IGD Turbo Enable

[Enabled]

[Disabled]

Primary Display

[IGD]

GFX Boost	[Enabled] [Disabled]
PAVC	[LITE Mode]
DVMT Pre-Allocated	[64M]
DVMT Total Gfx Mem	[256MB]
Aperture Size	[256MB]
DOP CG	[Enabled] [Disabled]
GTT Size	[2MB]
IGD Thermal	[Enabled] [Disabled]
Spread Spectrum clock	[Enabled] [Disabled]
ISP Enable/Disable	[Enabled] [Disabled]
ISP PCI Device Selection	[Enabled] [Disabled]
Vcc,Vnn Configuration for Power state2: Vcc_Vnn Config for Power state2	[Enabled] [Disabled]
► IGD – LCD Control	
Force Lid Status	[ON] [OFF]
BIA	[AUTO]
ALS Support	[Enabled] [Disabled]

IGD Flat Panel [AUTO]

Panel Scaling [AUTO]

► **Graphics Power Management Control**

Graphics Power Management Control
RC6 (Render Standby) [Enabled]
[Disabled]

Memory Information

Total Memory 4096 MB (DDR3L)

Memory Slot0 4096 MB (DDR3L)
Memory Slot2 Not Present

Max TOLUD [Dynamic]

This is to view the memory configuration information.

3.5.2 South Bridge

► **Azalia HD Audio**

Audio Configuration [Enabled]
LPE Audio Support [Disabled]

Audio Controller [Enabled]
[Disabled]

Azalia VCI Enable [Enabled]
[Disabled]

Azalia Docking Support Enable [Enabled]

	[Disabled]
Azalia PME Enable	
	[Enabled]
	[Disabled]
Azalia HDMI Codec	
	[Enabled]
	[Disabled]
HDMI Port B	
	[Enabled]
	[Disabled]
HDMI Port C	
	[Enabled]
	[Disabled]
► USB Configuration	
USB OTG Support	
	[Enabled]
	[Disabled]
USB VBUS	
	[On]
	[Off]
XHCI Mode	[Smart Auto]
USB2 Link Power Management	
	[Enabled]
	[Disabled]
USB 2.0(ENCI) Support	[Disabled]
USB EHCI debug	[Enabled]
USB Per Port Control	
	[Enabled]
	[Disabled]
USB Port 0	
	[Enabled]
	[Disabled]
USB Port 1	
	[Enabled]
	[Disabled]
USB Port 2	
	[Enabled]

USB Port 3 [Disabled]

[Enabled]

[Disabled]

► **PCI Express Configuration**

PCI Express Port 0

[Enabled]

[Disabled]

Hot Plug

[Enabled]

[Disabled]

Speed

[Auto]

Extra Bus Reserved

1

Reserved Memory

10

Reserved Memory Alignment

1

Prefetchable Memory

10

Prefetchable Memory Alignment

1

Reserved I/O

4

PCI Express Port 1

[Enabled]

[Disabled]

Hot Plug

[Enabled]

[Disabled]

Speed

[Auto]

Extra Bus Reserved

0

Reserved Memory

10

Reserved Memory Alignment

1

Prefetchable Memory

10

Prefetchable Memory Alignment

1

Reserved I/O

4

PCI Express Port 2

[Enabled]

	[Disabled]
Hot Plug	[Enabled]
	[Disabled]
Speed	[Auto]
Extra Bus Reserved	0
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4
PCI Express Port 3	[Enabled]
	[Disabled]
Hot Plug	[Enabled]
	[Disabled]
Speed	[Auto]
Extra Bus Reserved	0
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4
► COM Port Configuration	
COM Port Configuration	[Disabled]
COM1 RS485 Resistance	[Enabled]
COM2 RS485 Resistance	[Disabled]
	[Enabled]
COM3 RS485 Resistance	[Enabled]
	[Disabled]

COM4 RS485 Resistance	[Enabled] [Disabled]
COM5 RS485 Resistance	[Enabled] [Disabled]
COM6 RS485 Resistance	[Enabled] [Disabled]
COM7 RS485 Resistance	[Enabled] [Disabled]
COM8 RS485 Resistance	[Enabled] [Disabled]
COM9 RS485 Resistance	[Enabled] [Disabled]
COM10 RS485 Resistance	[Enabled] [Disabled]
High Precision Timer	[Enabled] [Disabled]
Restore AC Power Loss	[Power off] [power on] [Last State]
LCD PWM DC Mode	[PWM] [DC]
GPIO00-027 Mode	[Input] [Output]
GPIO00 -027	[High] [Low]

Serial IRQ Mode

[Quiet]
[Continuous]

Global SMI Lock

[Enabled]
[Disabled]

BIOS Read/Write Protection

[Enabled]
[Disabled]

3.6 Security Settings

Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit
<p>Password Description</p> <p>If ONLY the Administrator’s password is set, Then this only limits access to Setup and is Only asked for when entering Setup.</p> <p>If ONLY the User’s password is set, then this Is a power on password and must be entered to Is a power on password and must be entered to Boot or enter Setup. In Setup the User will Have Administrator rights.</p> <p>The password length must be In the following range:</p> <p>Minimum length 3</p> <p>Maximum length 20</p> <p>Administrator Password</p> <p>User Password</p>			<p>Set Administrator Password</p> <p>→←: Select Screen ↑↓ : Select Item Enter: Select +/- : Change Opt. F1 : General Help F2: Previous Values F3:Optimized Defaults F4:Save and Exit ESC Exit</p>		
Version 2.17.1246. Copyright (C) 2021 American Megatrends , Inc.					

3.6.1 Administrator Password



3.6.2 User Password

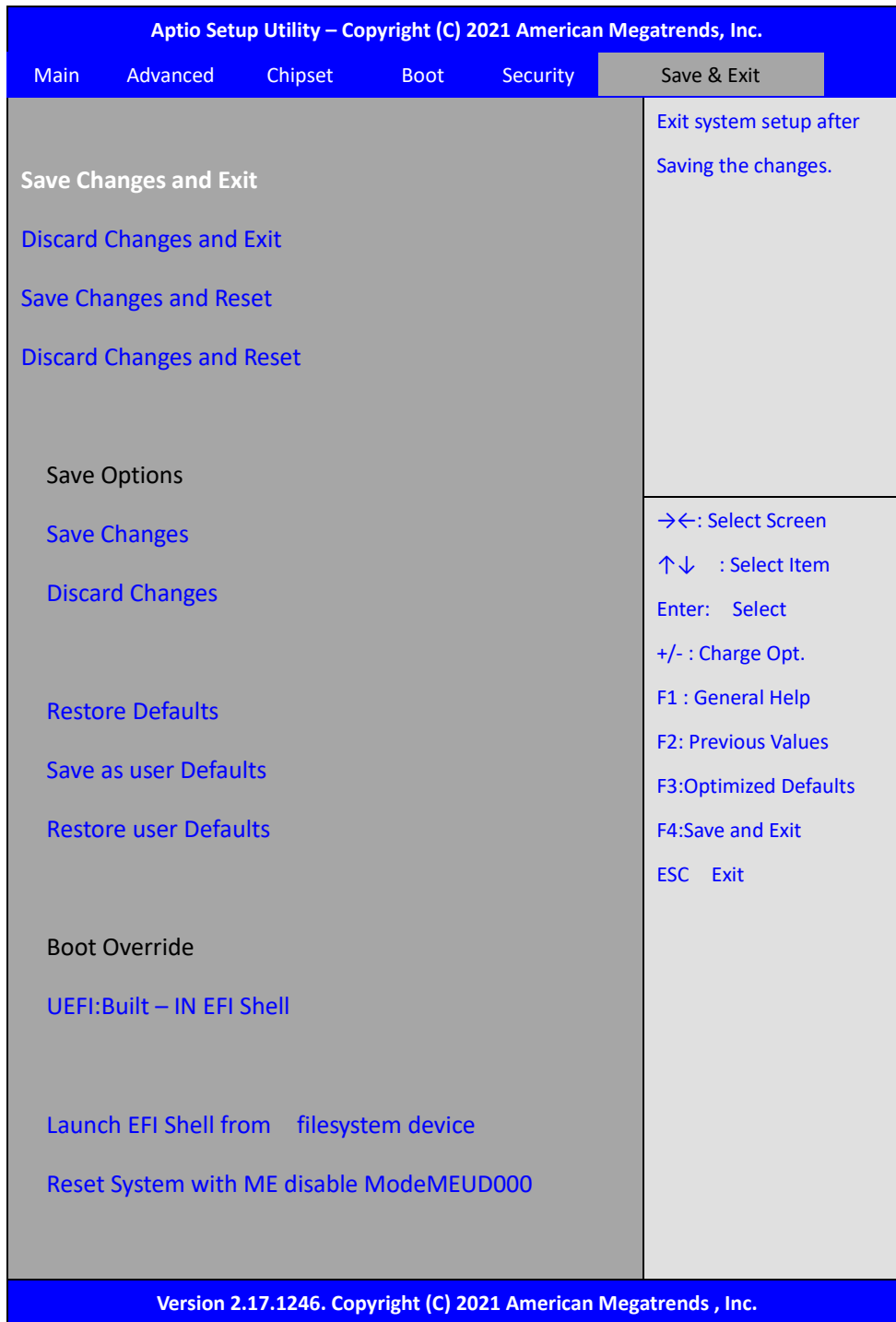


3.7 Boot Settings

Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit
Boot Configuration				Number of seconds to Wait for Setup Activation key. 65535(0xFFFF)means indefinite waiting.	
Setup Prompt Timeout		1			
Bootup Numlock State		[On]			
Quiet Boot		[Disabled]		→←: Select Screen	
Fast Boot		[Enabled]		↑↓ : Select Item	
Boot Option Priorities				Enter: Select	
Boot Option #1		[UEFI: Built – in EFI ...]		+/- : Change Opt.	
				F1 : General Help	
				F2: Previous Values	
				F3:Optimized Defaults	
				F4:Save and Exit	
				ESC Exit	
Version 2.17.1246. Copyright (C) 2021 American Megatrends , Inc.					

Setup Prompt Timeout	1
Bootup Numlock State	[On]
Quiet Boot	[Disabled]
Boot Option Priorities	
Fast Boot	[Disabled]
New Boot Option Policy	[Default]

3.8 Save & Exit Settings



Save & Exit Setup save Configuration and exit?

[Yes]

[No]

Exit without Saving Quit without saving?	[Yes] [No]
Reset the system after Saving The changes?	[Yes] [No]
Reset system setup without Saving any changes?	[Yes] [No]
Save Setup done so far to any of the setup options?	[Yes] [No]
Discard Changes done so far to any of the setup options?	[Yes] [No]
Restore /Load Defaults values for all the setup options?	[Yes] [No]
Save the changes done so far as User Defaults?	[Yes] [No]
Restore the User Defaults to all the setup options?	[Yes] [No]
Boot Override	
UEFI:Built – in EFI Shell	
Launch EFI Shell from filesystem device	
WARNING Not Found	[ok]
Reset System with ME disable ModelMEUD000	

Chapter 4 Mounting Suggestions

4.1 Wall Mount

4.1.1 AVS-301 Wall Mount

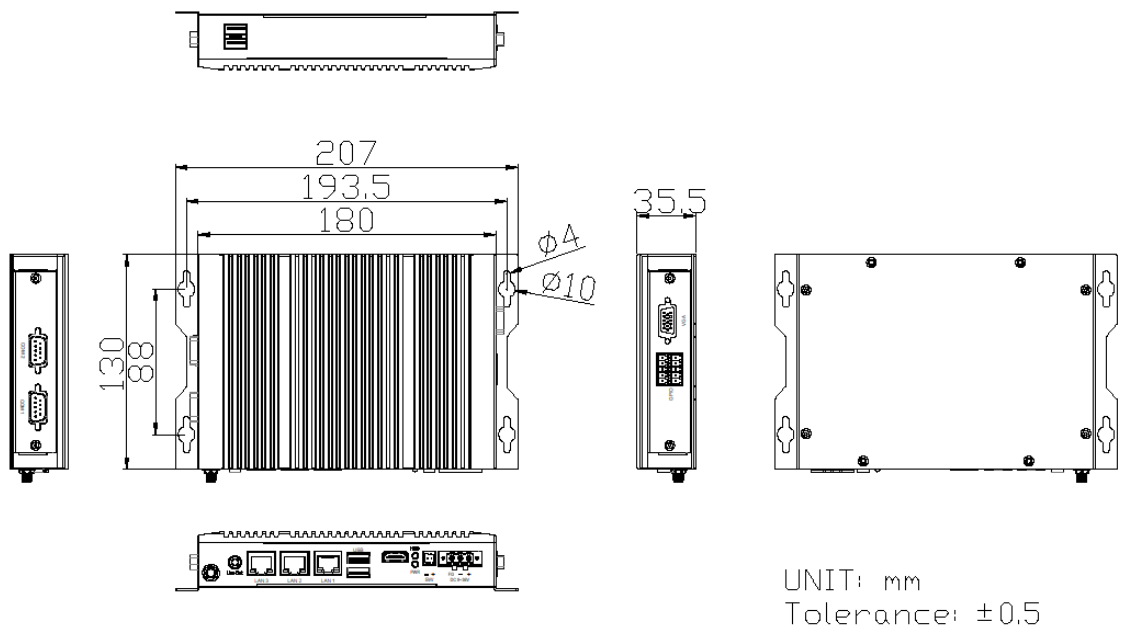


Figure 4.1 Wall Mount of AVS-301