AVS-300

Industrial Machine Vision Controller

User Manual

Release Date	Revision
Jul. 2021	V1.1

Aplex Technology, Inc.
15F-1, No.186, Jian Yi Road, Zhonghe District, New Taipei City 235,Taiwan
Tel: 886-2-82262881 Fax: 886-2-82262883 E-mail: aplex@aplex.com.tw
URL: www.aplex.com.tw

Revision History

Reversion	Date	Description
1.0	2020/08/10	Official Version
1.1	2021/07/06	Fix Pin definition

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:
☐ Adaptor ☐ Driver & manual CD disc ☐ 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.

Table of Contents

Chapter 1 Getting Started

1.1 Specifications

Model Name	**AVS-300**
System	
CPU	Intel Celeron J1900 Processor
Chipset	SoC
Memory	1 x 204-pin DDR3L SO-DIMM memory, up to 8GB
Outside IO Port	
Serial	1 x RS232 /RS422/RS485, DB9 connector (COM1, default RS232) 1 x RS232, DB9 connector 9Pin (COM2) 1 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	1 x Line out
USB-External	2 x USB 3.0(Type A) 2 x USB 2.0(Type A)
LAN(GT211V controller)	2 x GbE ports by RJ45 with Intel GT211V controller
GPIO/SIM	1 x 8-bit GPIO(4 x DI+4 x DO, COM5/GPIO, option) 1 x SIM slot(option)
Storage Space	
Storage	1 x SATAII Connector(7 pin) 1 x mSATA Connector(52 pin)
Expansion	
Expansion Slot	1 x mPCIE connector(Default)
Display	
Controller	Intel Graphics 688/854 MHz(J1900)
VGA	1 x 1920 x 1200, by DB15
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	Plating Titanium Gray Aluminum Heatsink and Black Steel Chassis
Mounting	Wall Mount
Dimensions(unit: mm)	207 x 130 x 35.5
Net Weight(unit: Kg)	1.05
Environmental	
Operating Temperature	-20~70°C
Storage Temperature	-40~85°C
Storage Humidity	10 to 90% @ 40°C, non-condensing
Certification	CE / FCC Class A
Operating System Support	Microsoft® Win10 IoT, Windows 7 (32/64 bit)

1.2 Dimensions

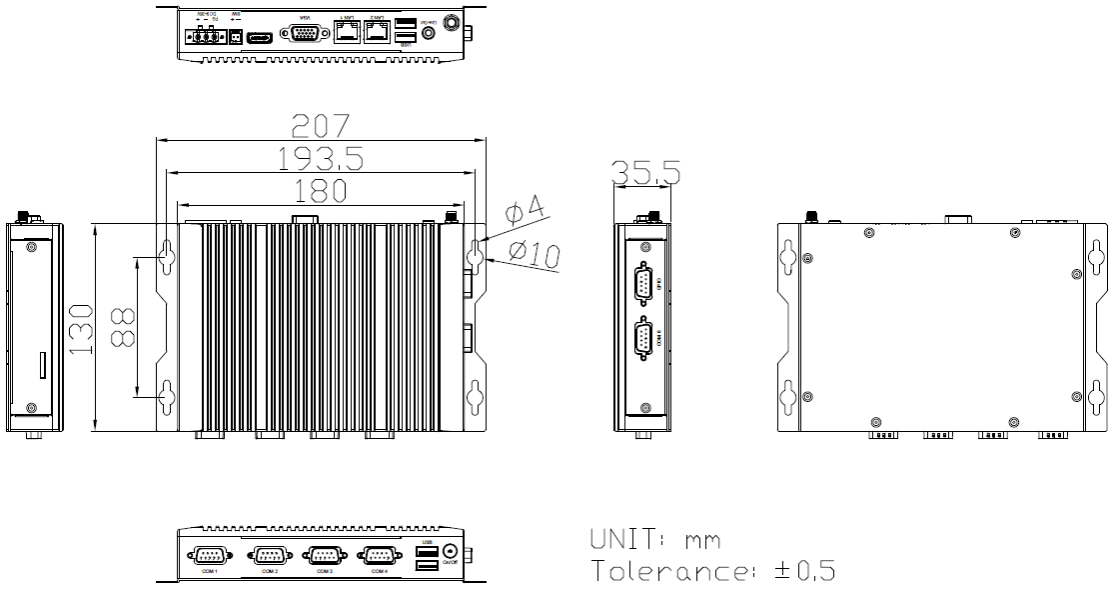


Figure 1.1: Dimension of AVS-300

1.3 Brief Description of AVS-300

AVS-300 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-300. AVS-300 supports SATAII, mSATA connectors and SIM slot for storage use, and 9~36V DC wide-ranging power input. AVS-300 has 1x mPCIE slot for expansion and it is plating titanium gray aluminum heatsink and black steel chassis designed. AVS-300 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-300

Figure 1.3: Rear view of AVS-300

Chapter 2 Hardware

2.1 Motherboard Introduction

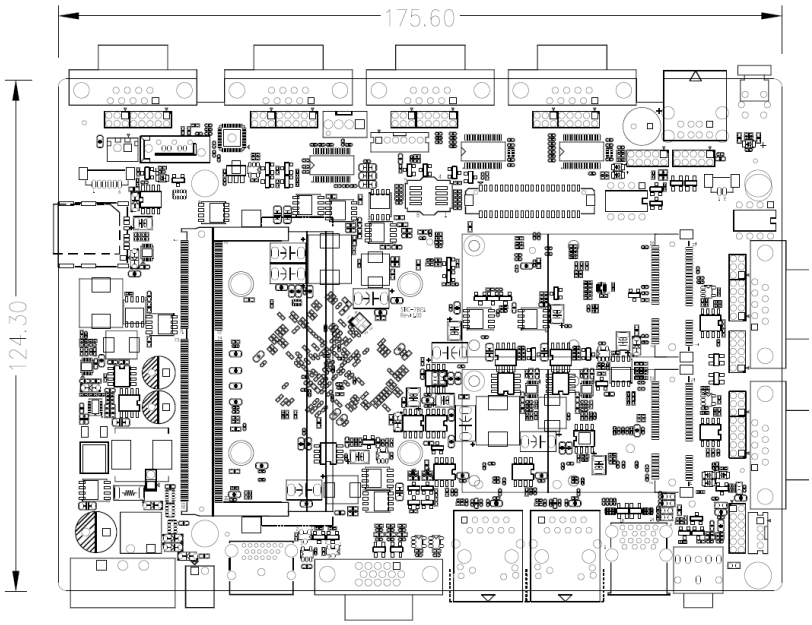
SBC-7821 provides Intel Celeron J1900 processor and works well with AVS-300, which provides abundant peripheral interfaces to meet the needs of different customers. Also, SBC-7821 features various COM ports and GPIO choices. To satisfy the special needs of high-end customers, SBC-7821 is designed with 120-pin PCIe x 16 socket extension interface. The product is widely used in various sectors of industrial control.

2.2 Specifications

Specifications	
Board Size	175mm x 124mm
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 (COM5/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	1 x 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℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
EMI/EMS	Meet CE/FCC Part15 class A RoHS

2.3 Motherboard Dimension (SBC-7821)



(Unit: mm)

Figure 2.1: Motherboard SBC-7821 Dimensions

2.4 Jumpers and Connectors Location

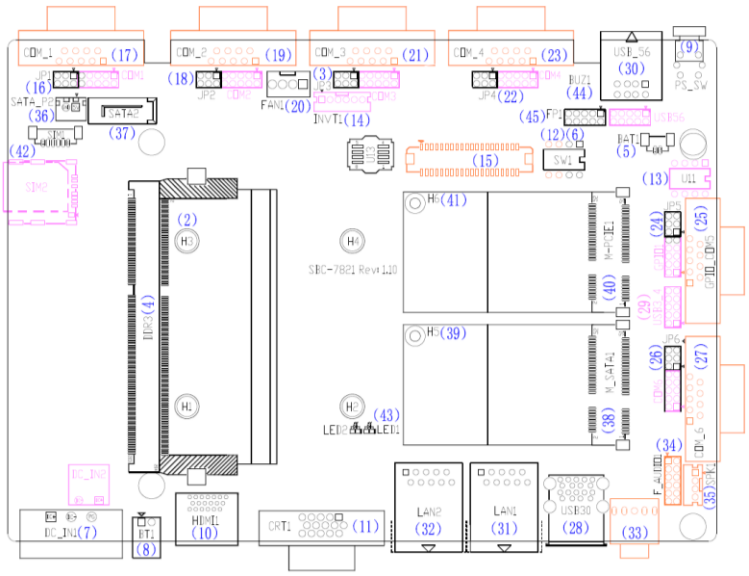


Figure 2.2: Jumpers and Connectors Location- Board Top

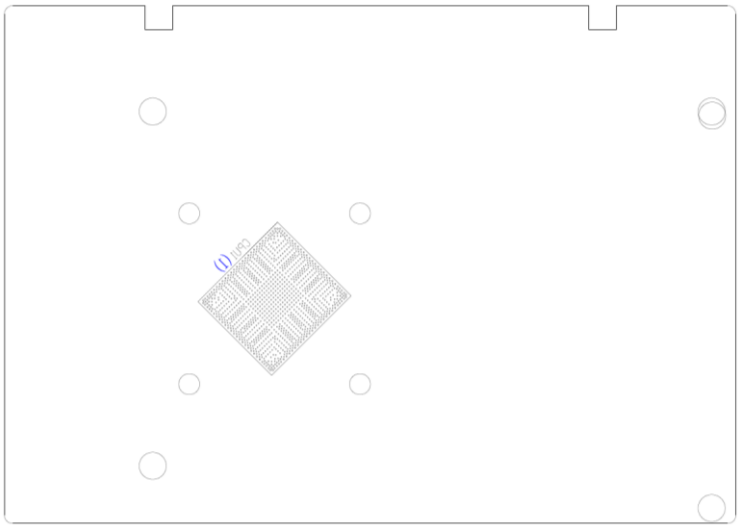


Figure 2.3: Jumpers and Connectors Location- Board Bottom

2.5 Jumpers Setting and Connectors

1. CPU1:

(FCBGA1170), onboard Intel Bay trail-I/M Processors.

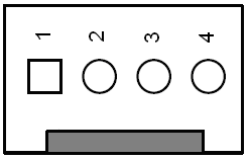
Model	Processor				
	Number	PBF	Cores/ Threads	TDP	Remarks
SBC-7821	J1900	2.00GHz	4 / 4	10W	

2. H1/H2/H3/H4(CPU SCREW HOLES):

CPU FAN SCREW HOLES, four screw holes for fixed CPU Cooler assemble.

3. FAN1(option):

(2.54mm Pitch 1x4 Pin Header),Fan connector, cooling fans can be connected directly for use. You may set the rotation condition of cooling fan in menu of BIOS CMOS Setup.



Pin#	Signal Name
1	Ground
2	VCC(12V_S0)
3	CPU_FANTACH
4	CPU_FANPWM

Note:

Output power of cooling fan must be limited under 5W.

4. DDR3:

(SO-DIMM 204Pin socket), DDR3L memory socket, the socket is located at the top of the board and supports 204Pin 1.35V DDR3L 1333MHz FSB SO-DIMM memory module up to 8GB.

5. BAT1 :

(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

6. SW1-1,SW1-2:

(Switch), PWRBTN-ON and Auto Power on jumper setting.

SW1	Mode
Pin1 on	**Auto Power on (Default)**
Pin1 off	PWRBTN-ON (option)

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

SW1	CMOS
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.

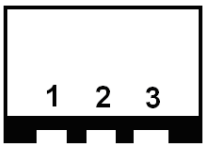
c) Power on the system again.

d) When entering the POST screen, press the <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

7. DC_IN1:

(5.08mm Pitch 1x3 Pin Connector),DC9~36V System power input connector.



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

8. BT1:

(2.0mm Pitch 1x2 Wafer Pin Header),**Power on/off**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

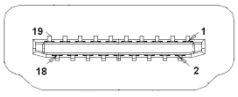
9. PS_SW:

PS_SW: Power on/off Button, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

PWR LED: POWER LED status.

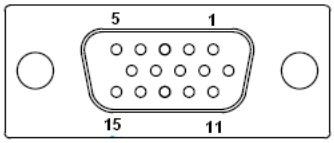
10. HDMI1:

(HDMI 19P Connector), High Definition Multimedia Interface connector.



11. CRT1:

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



12. SW1-3,SW1-4(option):

(Switch),18bit or 24bit LVDS setting.

SW1	Mode
Pin3 on	Single Channel LVDS
Pin3 off	Dual Channel LVDS
Pin4 on	24bit LVDS
Pin4 off	18bit LVDS

13. U11(option):

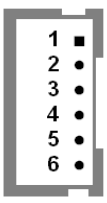
AT24C02-DIP8,The EEPROM IC(U11) is the set of LVDS resolution.

If you need other resolution settings, please upgrade U11 data.

Model	LVDS resolution
SBC-7821F-XXX	1280*1024 (Default)
	800*480（option）
	800*600（option）
	1024*768（option）
	1920*1080（option）
	……

14. INVT1(option):

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS.



Pin#	Signal Name
1	+DC12V_S0
2	+DC12V_S0
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

15. LVDS1(option):

(1.25mm Pitch 2x20P Connector,DF13-40P),For 18/24-bit LVDS output connector,Fully supported by Parad PS8625(DDI1 to LVDS), the interface features dual channel 24-bit output. Low Voltage Differential Signaling, A high speed, low power data transmission standard used for display connections to LCD panels.

Signal Name	Pin#	Pin#	Signal Name
LVDS_VDD5	2	1	LVDS_VDD5
Ground	4	3	Ground
LVDS_VDD3	6	5	LVDS_VDD3
LB_D0_N	8	7	LA_D0_N
LB_D0_P	10	9	LA_D0_P
Ground	12	11	Ground
LB_D1_N	14	13	LA_D1_N
LA_D1_P	16	15	LA_D1_P
Ground	18	17	Ground
LB_D2_N	20	19	LA_D2_N
LB_D2_P	22	21	LA_D2_P
Ground	24	23	Ground
LB_CLK_N	26	25	LA_CLK_N
LB_CLK_P	28	27	LA_CLK_P
Ground	30	29	Ground
LVDS_DDC_DATA	32	31	LVDS_DDC_CLK
Ground	34	33	Ground
LB_D3_N	36	35	LA_D3_N
LB_D3_P	38	37	LA_D3_P
NC	40	39	NC

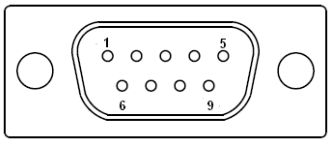
16. JP1(option):

(2.0mm Pitch 2x3 Pin Header),COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 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)

17. COM_1(option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of JP1,select output Signal RI or 5V or 12V, For details, please refer to description of JP1 setting.



COM1: RS232 (option**):**	
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	**JP1 select Setting (RI/5V/12V)**
BIOS Setup： Advanced/NCT6106D Super IO Configuration/Serial Port 1 Configuration 【RS-232】	

COM1: RS422 (option):	
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】	

COM1: RS485 (option):	
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】	

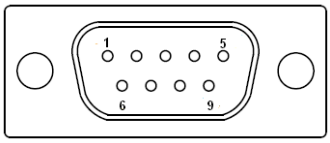
18. JP2(option) :

(2.0mm Pitch 2x3 Pin Header),COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 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)

19. COM_2 (option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM2 port is controlled by pins No.1~6 of JP2,select output Signal RI or 5V or 12V, For details, please refer to description of JP2 setting.



COM2: RS232 (option**):**	
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	**JP2 select Setting (RI/5V/12V)**

COM2: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC

4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

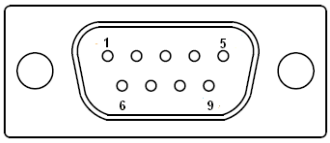
20. JP3(option) :

(2.0mm Pitch 2x3 Pin Header),COM3 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM3 port.

JP3 Pin#	Function
Close 1-2	**COM3 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM3 Pin9 = +5V/1A (option)
Close 5-6	COM3 Pin9 = +12V/1A (option)

21. COM_3 (option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM3 port is controlled by pins No.1~6 of JP3,select output Signal RI or 5V or 12V, For details, please refer to description of JP3 setting.



COM3: RS232 (option**):**	
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	**JP3 select Setting (RI/5V/12V)**

COM3: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

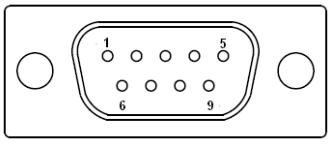
22. JP4(option) :

(2.0mm Pitch 2x3 Pin Header),COM4 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM4 port.

JP4 Pin#	Function
Close 1-2	**COM4 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM4 Pin9 = +5V/1A (option)
Close 5-6	COM4 Pin9 = +12V/1A (option)

23. COM_4 (option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM4 port is controlled by pins No.1~6 of JP4,select output Signal RI or 5V or 12V, For details, please refer to description of JP4 setting.



COM4: RS232 (option**):**	
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	**JP4 select Setting (RI/5V/12V)**

COM4: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

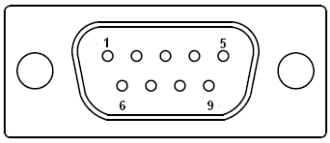
24. JP5(option) :

(2.0mm Pitch 2x3 Pin Header),COM5 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM5 port.

JP5 Pin#	Function
Close 1-2	**COM5 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM5 Pin9 = +5V/1A (option)
Close 5-6	COM5 Pin9 = +12V/1A (option)

25. GPIO_COM5 (option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM5 port is controlled by pins No.1~6 of JP5,select output Signal RI or 5V or 12V, For details, please refer to description of JP5 setting.



COM5: RS232 (option):	
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	**JP5 select Setting (RI/5V/12V)**

COM5: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

COM5: GPIO*8 (option):	
Pin#	Signal Name
1	SIO_GP21
2	SIO_GP23
3	SIO_GP22
4	SIO_GP24
5	Ground
6	SIO_GP26
7	SIO_GP25
8	SIO_GP20
9	SIO_GP27 **(JP5 open)**

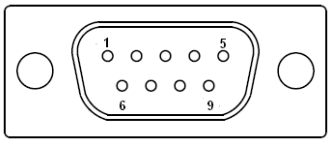
26. JP6(option) :

(2.0mm Pitch 2x3 Pin Header),COM6 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP6 Pin#	Function
Close 1-2	**COM6 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM6 Pin9 = +5V/1A (option)
Close 5-6	COM6 Pin9 = +12V/1A (option)

27. COM_6 (option) :

(Type DB9M), Serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM6 port is controlled by pins No.1~6 of JP6,select output Signal RI or 5V or 12V, For details, please refer to description of JP6 setting.



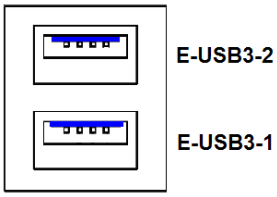
COM6: RS232 (option):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP6 select Setting (RI/5V/12V)**

COM6: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

COM6: RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

28. USB30:

E-USB3-1/E-USB3-2 ： (Double stack USB typeA),Rear USB 3.0 connector, it provides up to 2 USB3.0 ports,USB 3.0 allows data transfers up to 5.0Gb/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 Receptacle.

29. USB3_4(option):

(2.0mm Pitch 2x5 Pin Header), USB2.0 connector, it provides two USB ports via a dedicated USB cable, speed up to 480Mb/s.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
USB3 (co-lay, Option)	5V_USB0304	1	2	5V_USB0304	USB4
	USB3_N	3	4	USB4_N	
	USB3_P	5	6	USB4_P	
	Ground	7	8	Ground	
	NC	9	10	Ground	

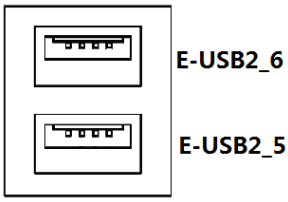
Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

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 Receptacle.

30. USB_56(option):

E-USB2_5/E-USB2_6： (Double stack USB typeA),Rear USB 2.0 connector, it provides up to 2 USB2.0 ports,USB 2.0 allows data transfers up to 480 Mb/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 Receptacle.

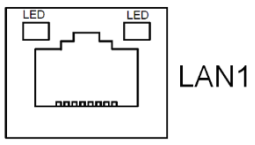
Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

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 Receptacle.

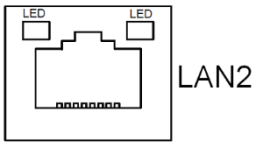
31. LAN1:

(RJ45 Connector), Rear LAN port, one standard 10/100/1000M RJ-45 Ethernet port are provided. Used Intel I210AT chipset.



32. LAN2:

(RJ45 Connector), Rear LAN port, one standard 10/100/1000M RJ-45 Ethernet port are provided. Used Intel I210AT chipset.



33. LINE_OUT1:

(Diameter 3.5mm Jack), High Definition Audio port, An onboard Realtek ALC269Q-VC3 codec is used to provide high quality audio I/O ports.

34. F_AUDIO1(option):

(2.0mm Pitch 2x6 Pin Header), Front Audio, An onboard Realtek ALC269Q-VC3 codec is used to provide high-quality audio I/O ports. 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_AUD	1	2	GND_AUD
LINE-OUT-L	3	4	LINE-OUT-R
HPOUT_JD	5	6	LINE_IN-JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

35. SPK1(option):

(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

36. SATA_P2:

(2.5mm Pitch 1x2 Wafer Pin Header), One onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V_S0
2	Ground

Note:

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

37. SATA2:

(SATA 7Pin), SATA Connector, one SATA connectors are provided, SATA2 transfer speed up to 3.0Gb/s.

38. M_SATA1:

(50.95mmx30mm Socket 52Pin), mSATA socket, it is located at the top, it supports mini PCIe devices with LPCbus and SMbus and mSATA signal.**B2 mSATA bus** for flash disk signal.

Function	Support
Mini SATA	●
LPC bus	●
SMbus	●
USB2.0(USB3)	○ (co-lay, Option)

39. H5:

M_SATA1 SCREW HOLES.

H5 for mini MSATA card (50.95mmx30mm Socket 52 Pin) assemble.

40. M-PCIE1:

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

Function	Support
Mini PCie4 Signal	●
SIM Signal	●
SMbus	●
USB2.0 (USB2)	●

41. H6:

M-PCIE1 SCREW HOLES, H6 for mini PCIE card (30mmx50.95mm) assemble.

42. SIM1(option):

(1.25mm Pitch 1x6 Pin Wafer Header), Support SIM Card devices.

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

SIM2(option):

(MICRO SIM card slot),support SIM Card devices.

43. LED1/LED2:

LED1 STATUS. Green LED for Motherboard Power status.

LED2 STATUS. Green LED for Motherboard Standby Power Good status.

44. BUZZER1:

Onboard buzzer.

45. FP1:

(2.0mm Pitch 2x5 Pin Header), Front panel connector.

Signal Name	Pin#	Pin#	Signal Name
HDD_LED+	1	2	POWER LED+
HDD LED-	3	4	Ground
Ground	5	6	SW+
RESET+	7	8	Ground
BUZZER+	9	10	BUZZER-

Pin1-3: **HDD LED**, They are used to connect hard disk activity LED. The LED blinks when the hard disk is reading or writing data.

Pin2-4: **POWER LED**, They are used to connect power LED. When the system is powered on or under S0/S1 state, the LED is normally on; when the system is under S4/S5 state, the LED is off.

Pin5-6: **POWER on/off Button**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

Pin7-8: **RESET Button**, They are used to connect reset button. The two pins are dis-connected under normal condition. You may short them temporarily to realize system reset.

Pin9-10: **BUZZER**, They are used to connect buzzer.

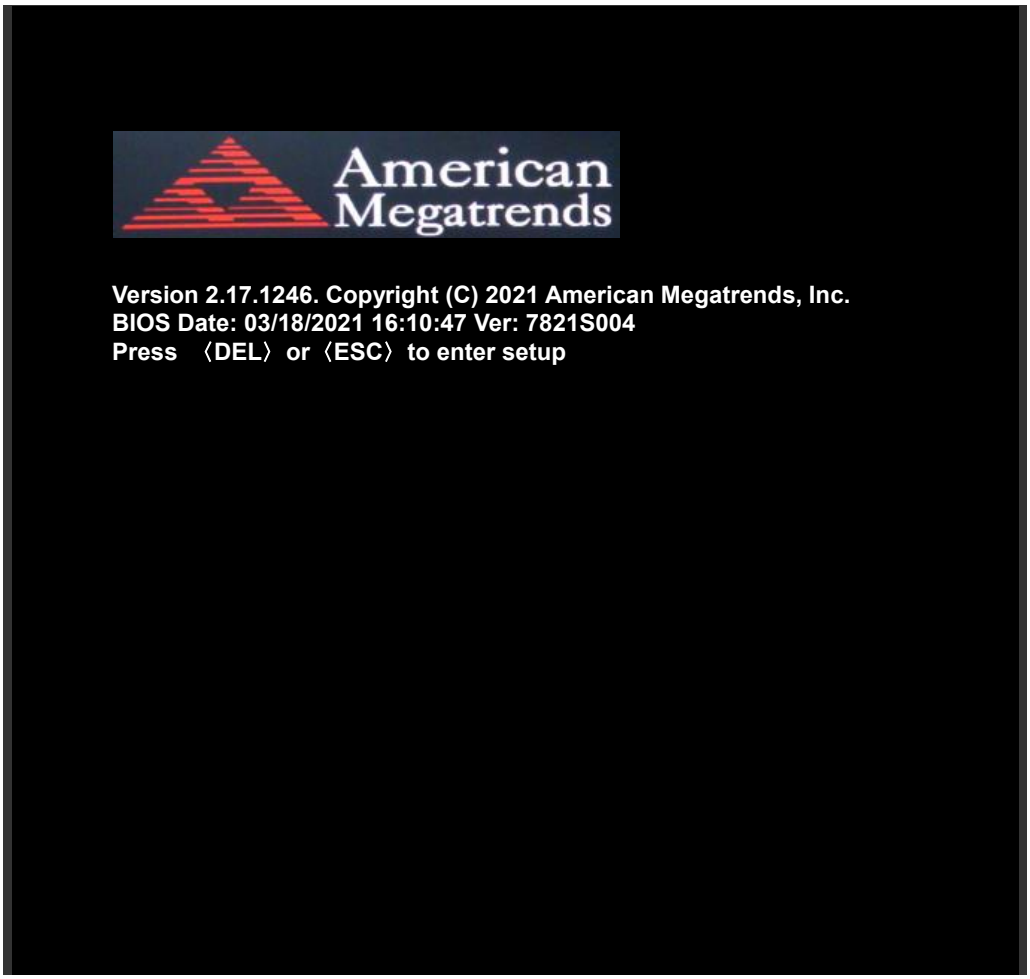
Note:

When connecting LEDs and buzzer, pay special attention to the signal polarity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

Chapter 3 BIOS Setup

3.1 Operations after POST Screen

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

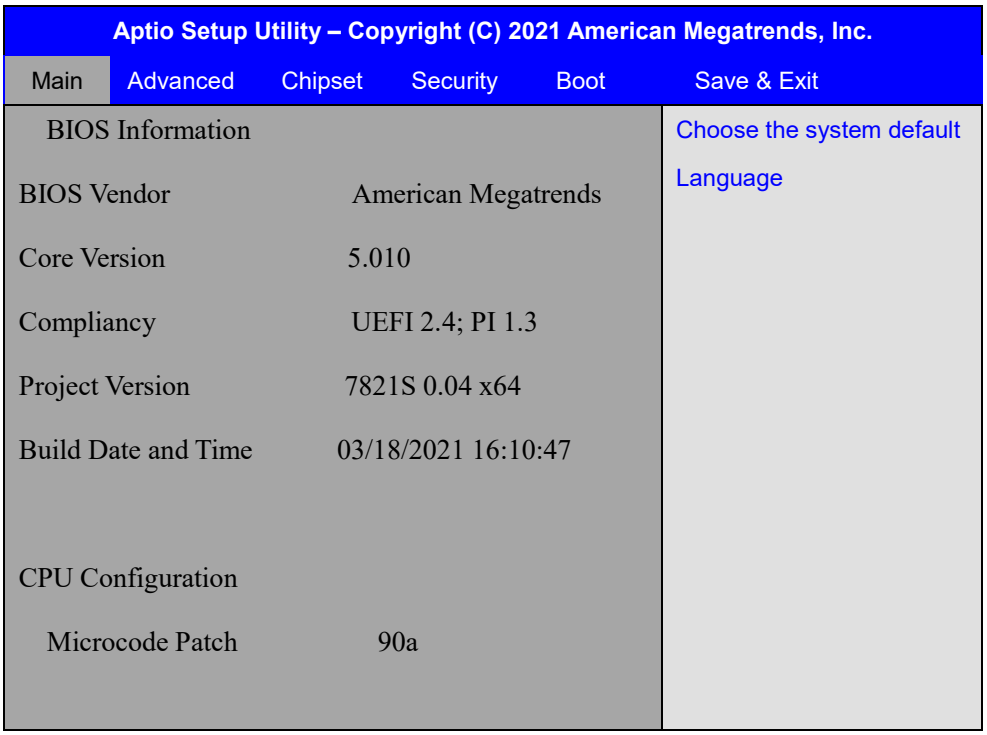


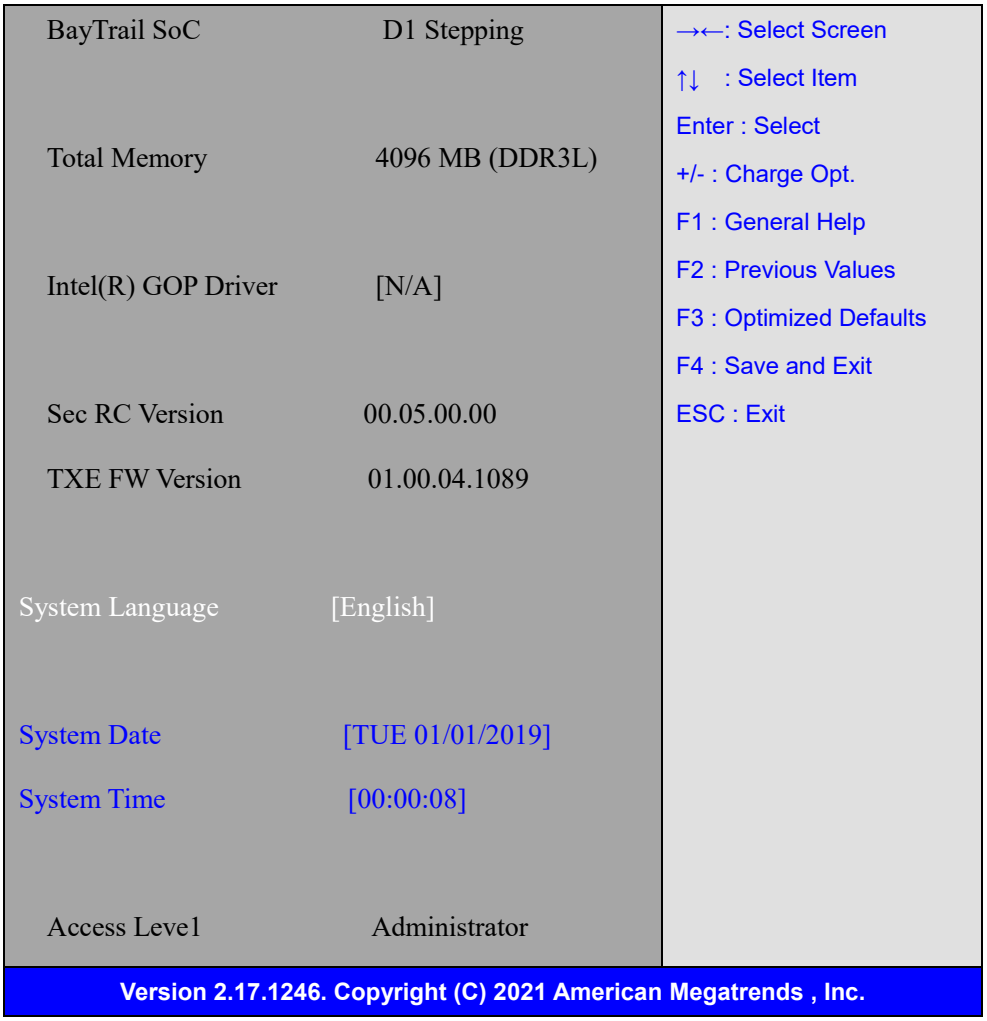
After optimizing and exiting CMOS Setup

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





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:

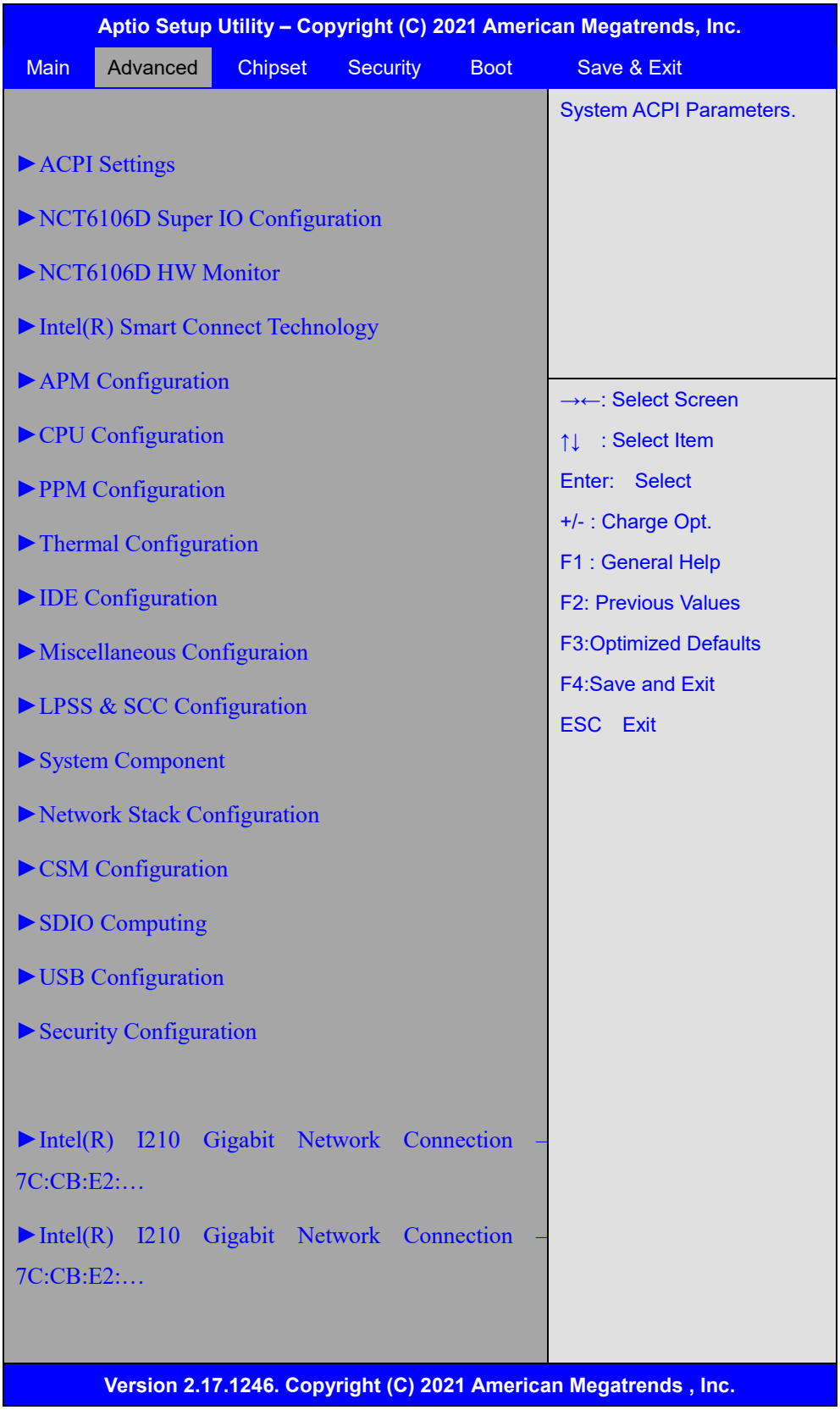
Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

3.4 Advanced Settings



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 ;]

Serial Port 3 Configuration

Serial port

[Enabled]

[Disabled]

Device Settings IO=3E8h;IRQ=5;

Change Settings

[Auto]

[IO=2F8h ;IRQ=3]

[IO=3F8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=3F8h ;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 ;]

Serial Port 4 Configuration

Serial port

[Enabled]

[Disabled]

Device Settings IO=2E8h;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 ;]

WatchDog Controller Settings

WatchDog Mode Select

[Disabled]

[Second Mode]

[Minute Mode]

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(R) Smart Connect Technology

ISCT Support

[Enabled]

[Disabled]

3.4.5 APM Configuration

RTC Power On Function

[Disabled]

[Enabled]

3.4.6 CPU Configuration

Socket 0 CPU Information

Intel(R) Celeron(R) CPU J1900 @ 1.99GHz	
CPU Signature	30678
Microcode Patch	90a
Max CPU Speed	1990MHz
Min CPU Speed	1334MHz
Processor Cores	4
Intel HT Technology	Not Supported
Intel VT-x Technology	Supported
L1 Data Cache	24KB x 4
L1 Code Cache	32KB x 4
L2 Cache	1024KB x 2
L3 Cache	Not Present

CPU Thermal Configuration

DTS

[Enabled]

[Disabled]

CPU Speed	2001 MHz
64-bit	Supported

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:

1 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 Security Configuration

Intel(R) TXE Configuration

Intel(R) Anti-Theft Technology Configuration

Intel(R) AT

[Disabled]

[Enabled]

Intel(R) AT Platform PBA

[Disabled]

[Enabled]

Intel(R) AT Suspend Mode [Disabled]

3.4.18 Intel(R) I210 Gigabit Network Connection – 7C:CB:E2:…

3.4.19 Intel(R) I210 Gigabit Network Connection – 7C:CB:E2:…

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

[Off]

[On]

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]

3.5.2 South Bridge

►Azalia HD Audio

Audio Configuration

LPE Audio Support

[Enabled]

[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 [Enabled]

USB2 Link Power Management

[Enabled]

[Disabled]

USB 2.0(ENCI) Support [Disabled]

USB Per Port Control

[Enabled]

[Disabled]

USB Port 0

[Enabled]

[Disabled]

USB Port 1

[Enabled]

[Disabled]

USB Port 2

[Enabled]

[Disabled]

USB Port 3

[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

High precision Timer

[Enabled]
[Disabled]

Restore AC Power Loss

[Power On]
[Power Off]
[Last State]

LCD PWM DC Mode

[PWM]
[DC]

GPIO1 Mode	[Output]
GPIO1	[High]
GPIO2 Mode	[Output]
GPIO2	[High]
GPIO3 Mode	[Output]
GPIO3	[High]
GPIO4 Mode	[Output]
GPIO4	[High]
GPIO5 Mode	[Output]
GPIO5	[High]
GPIO6 Mode	[Output]
GPIO6	[High]
GPIO7 Mode	[Output]
GPIO7	[High]
GPIO8 Mode	[Output]
GPIO8	[High]

Serial IRQ Mode

[Quiet]
[Continuous]

Global SMI Lock

[Enabled]

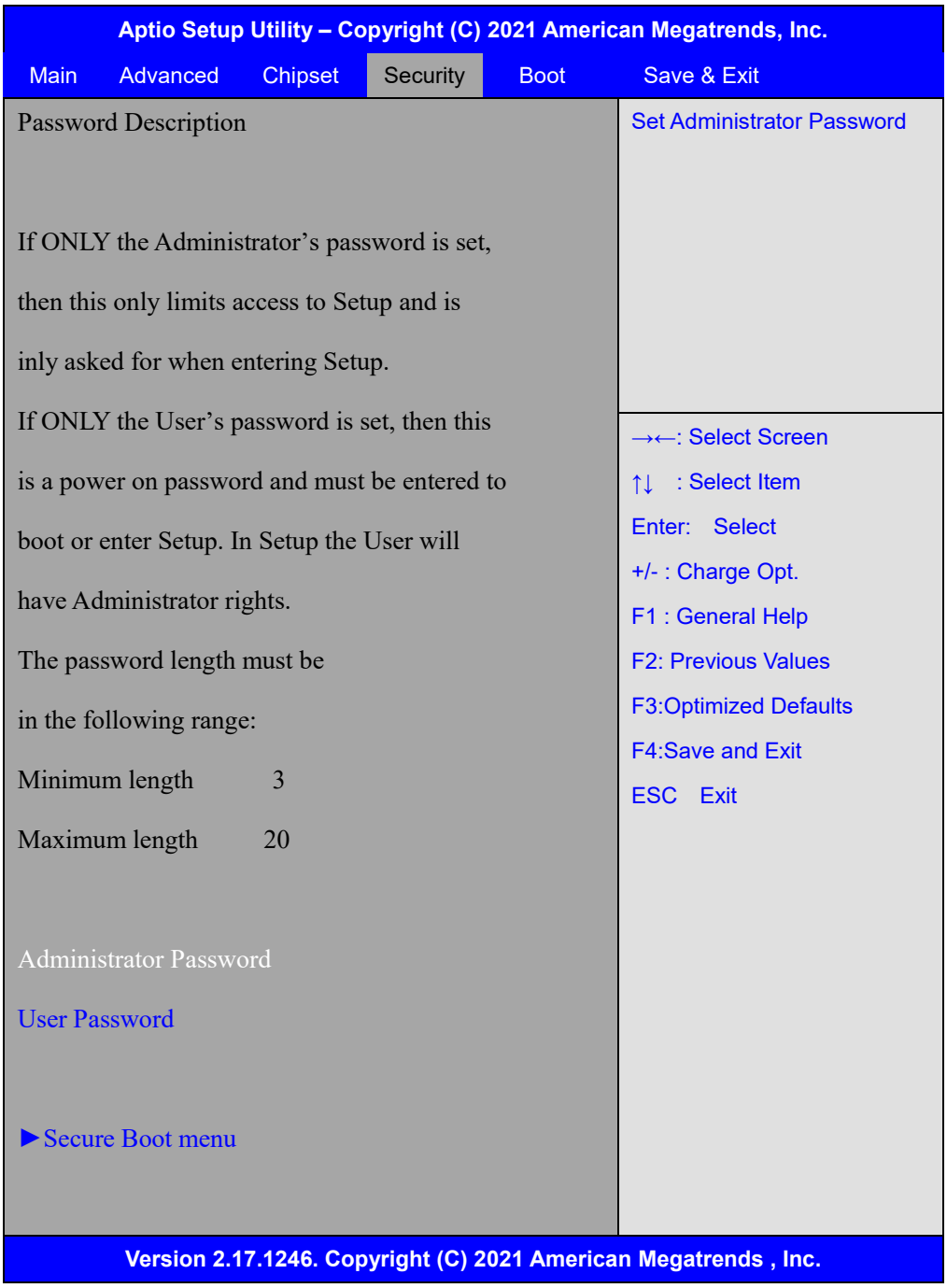
[Disabled]

BIOS Read/Write Protection

[Enabled]

[Disabled]

3.6 Security Settings



3.6.1 Administrator Password

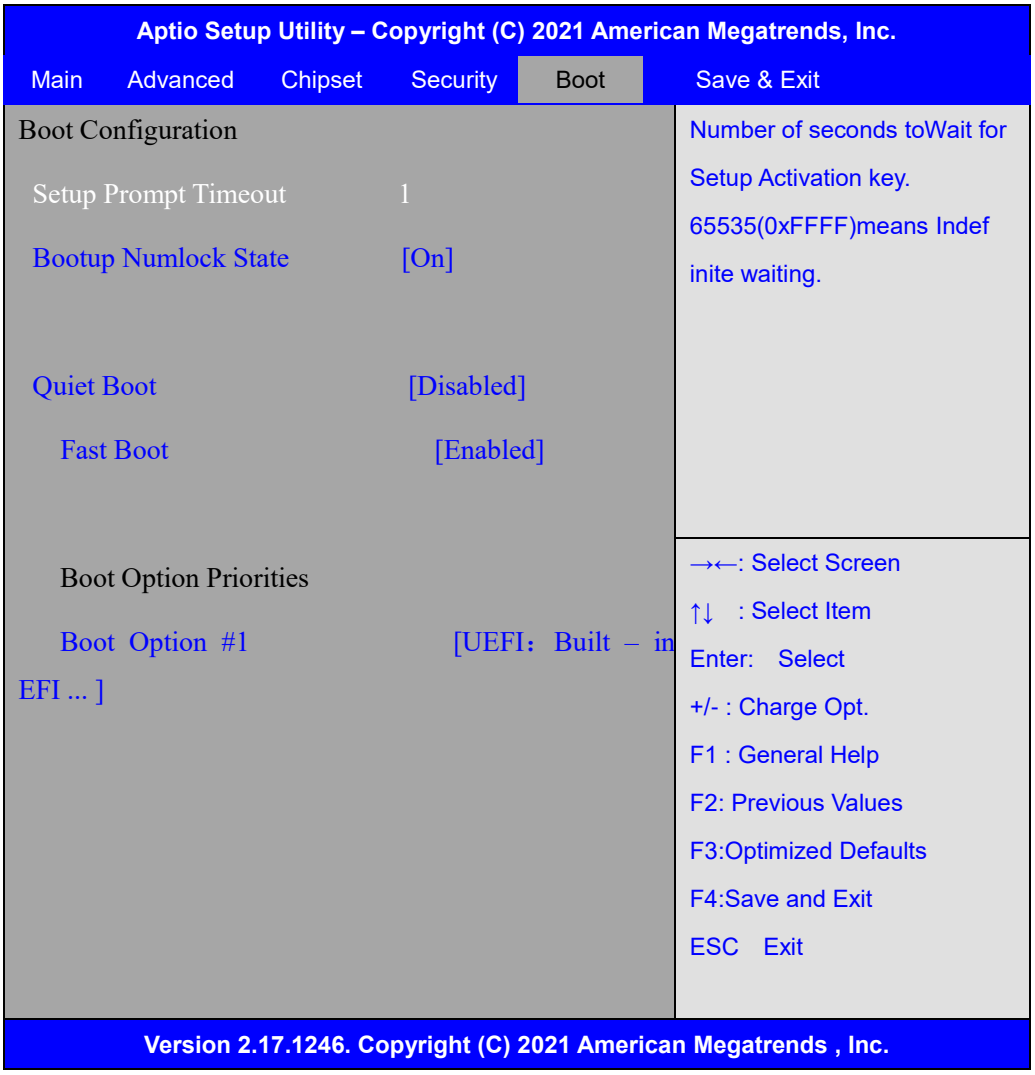
3.6.2 User Password

3.6.3 Secure Boot menu

System Mode	Setup
Secure Boot	Not Active
Secure Boot	**[Disabled]**
	[Enabled]
Secure Boot Mode	**[Custom]**
	[Standard]

Key Management

3.7 Boot Settings



Setup Prompt Timeout [1]

Bootup Numlock State

[On]

[off]

Quiet Boot

[Disabled]

[Enabled]

Fast Boot

[Disabled]

[Enabled]

VGA Support

[Auto]

[EFI Driver]

USB Support

[Disabled]

[Full Initial]

[Partial Initial]

PS2 Devices Support

[Disabled]

[Enabled]

Network Stack Driver Support

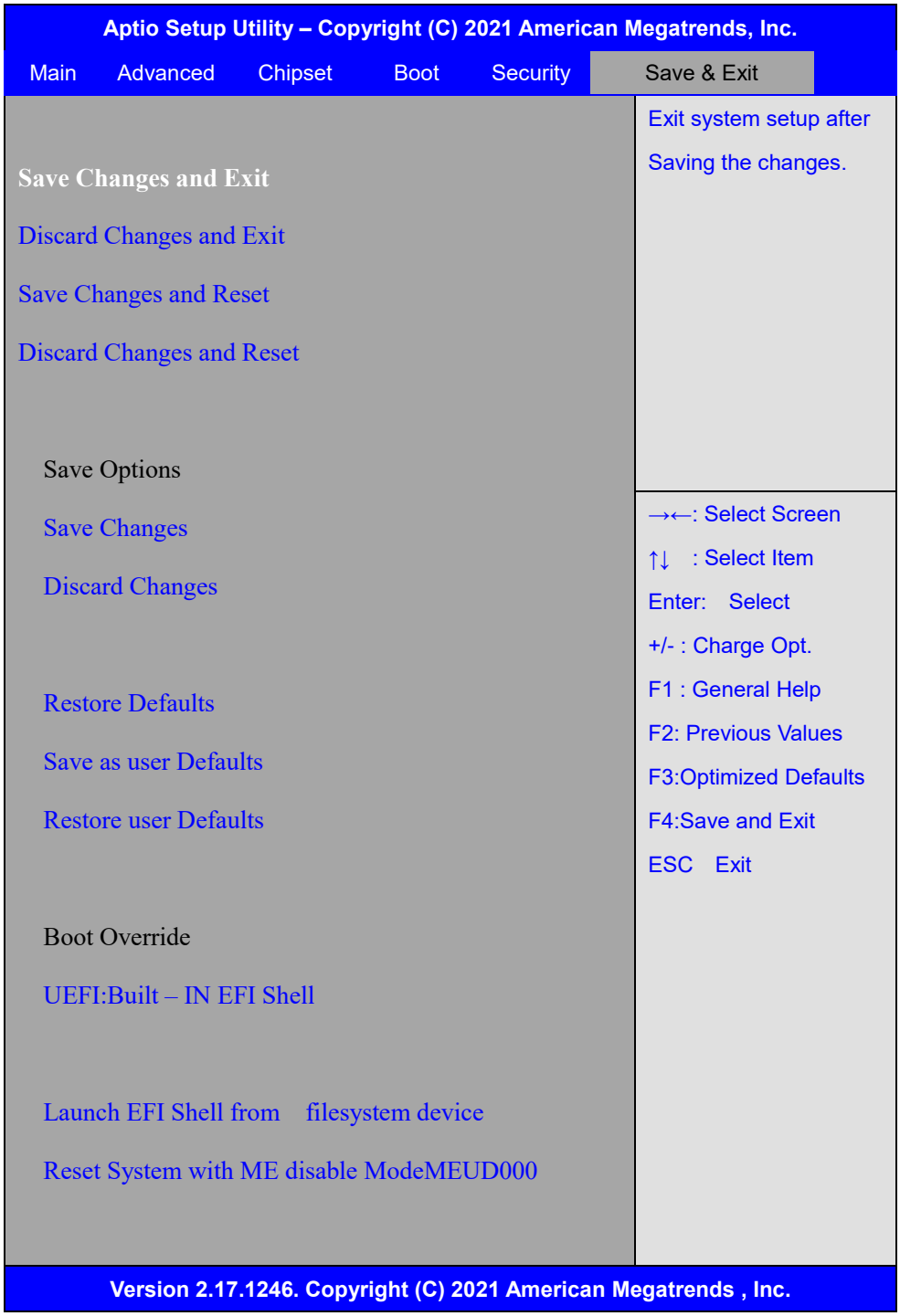
[Disabled]

[Enabled]

Boot Option Priorities

Boot Option #1 [UEFI:Built – in EFI …]

3.8 Save & Exit Settings



Save Changes and Exit

Save & Exit Setup save Configuration and exit ?

[Yes]

[No]

Discard Changes and Ext

Exit Without Saving Quit without saving?

[Yes]

[No]

Save Changes and Reset

Reset the system affer Saving The changes?

[Yes]

[No]

Discard Changes and Reset

Reset system setup without Saving any changes?

[Yes]

[No]

Save Changes

Save Setup done so far to any of the setup options?

[Yes]

[No]

Discard Changes

Discard Changes done so far to any of the setup options?

[Yes]

[No]

Restore Defaults

Restore /Load Defaults values for all the setup options?

[Yes]

[No]

Save as user Defaults

Save the changes done so far as User Defaults?

[Yes]

[No]

Restore user Defaults

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