PICO-6260

Industrial PICO-ITX Board

Version 1.1

PICO-6260
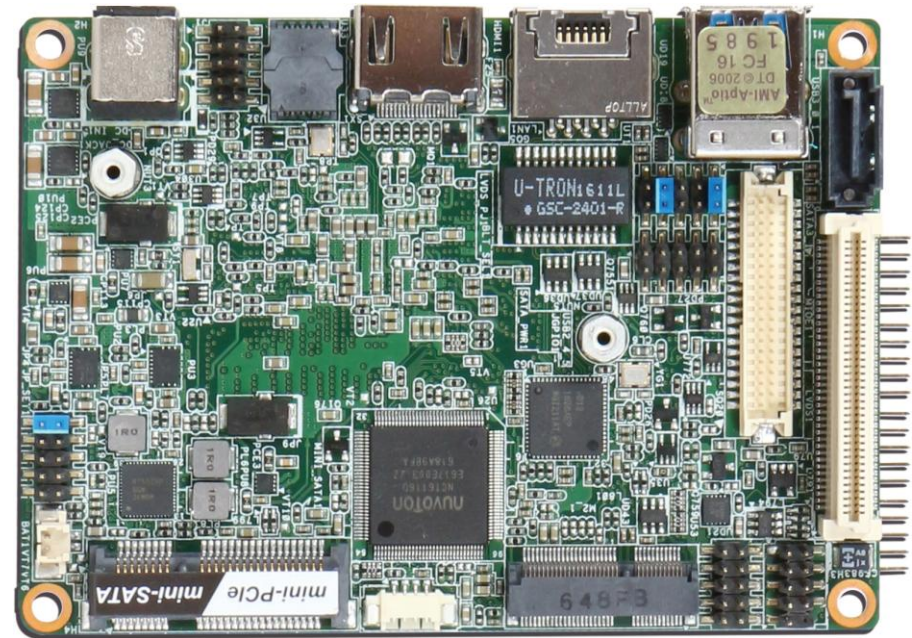
Revision History

R0.1	Preliminary
R1.1	Remove support PBT(Portwell BIOS web Tool) information

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Preface

This user's guide provides information about the components, features, connectors and BIOS Setup menus available on the PICO-6260. This document should be referred to when designing PICO-ITX application. The other reference documents that should be used include the following:

✧ Intel Skylake-S Design Guide
✧ Intel Skylake-S Specification

Please contact Portwell Sales Representative for above documents.

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1 Introduction

The PICO-6260, designed with Apollo Lake Intel Atom processor E3900 series or N3350 / N4200 processor , features one DDR3L 1333/1600/1866 MHz SO-DIMM socket equipped with up to 8GB DDR3L memory.

Atom solution is still popular in the market of DS , KIOSK and PPC which can fulfill most of these applications; therefore, with high performance and high-end specifications, Apollo Lake SoC is our first generation Atom chip architecture on PICO-ITX line.

2   Specifications

Main Processor	◆Intel® Apollo lake SoC Processors
System BIOS	◆AMI UEFI BIOS
Main Memory	◆Up to 8 GB in one slot DDR3L SO-DIMM sockets. Supports dual channel DDR3L 1867 MHz SDRAM
Graphics	◆Controller: Intel® HD Graphics 50X series ◆LVDS: Supports Dual Channel 24bit up to resolution 1920 x 1200 ◆HDMI: Supports HDMI up to resolution 4096x 2160@ 24Hz
Expansion Interface	◆One Mini-PCIe socket support mSATA ◆One M.2 socket(Key E) support WiFi / BT
SATA Interface	◆One SATA ports(SATA 6Gb/s)
Input/Output	◆Serial Ports: 1 x RS-232 & 1 x RS-232/422/485 on board header ◆USB Port: 1 x USB 3.0 on REAR IO & 2 x USB 2.0 on board header ◆Audio Interface: Line-in / Line-Out and Mic-In on board header
Ethernet	◆Supports one 10/100/1000 Mbps Ethernet port (s) via PCI Express x1 bus which provides 500 MB/s data transmission rate
High Drive GPIO	◆One pin-header for GPIO(4bit in & 4bit out)

Mechanical and environmental specifications	◆Operating temperature: 0 ~ 60° C ◆Storage temperature:-40 ~ 85° C ◆Humidity: 5 ~ 90% non-condensing ◆Board size: 100mm x 72 mm

2.1 Supported Operating Systems

The PICO-6260 supports the following operating systems.

- ✧ Windows 10* (64 bit), IoT Core(32/64bit)
- ✧ Wind River* 8.0 Linux Distribution(64 bit)
- ✧ Yocto* Tool-based Embedded Linux Distribution (64 bit)
- ✧ Android* 6.0(64bit)
- ✧ VxWorks*7.0 (RTOS) (64 bit)

2.2 Mechanical Dimensions
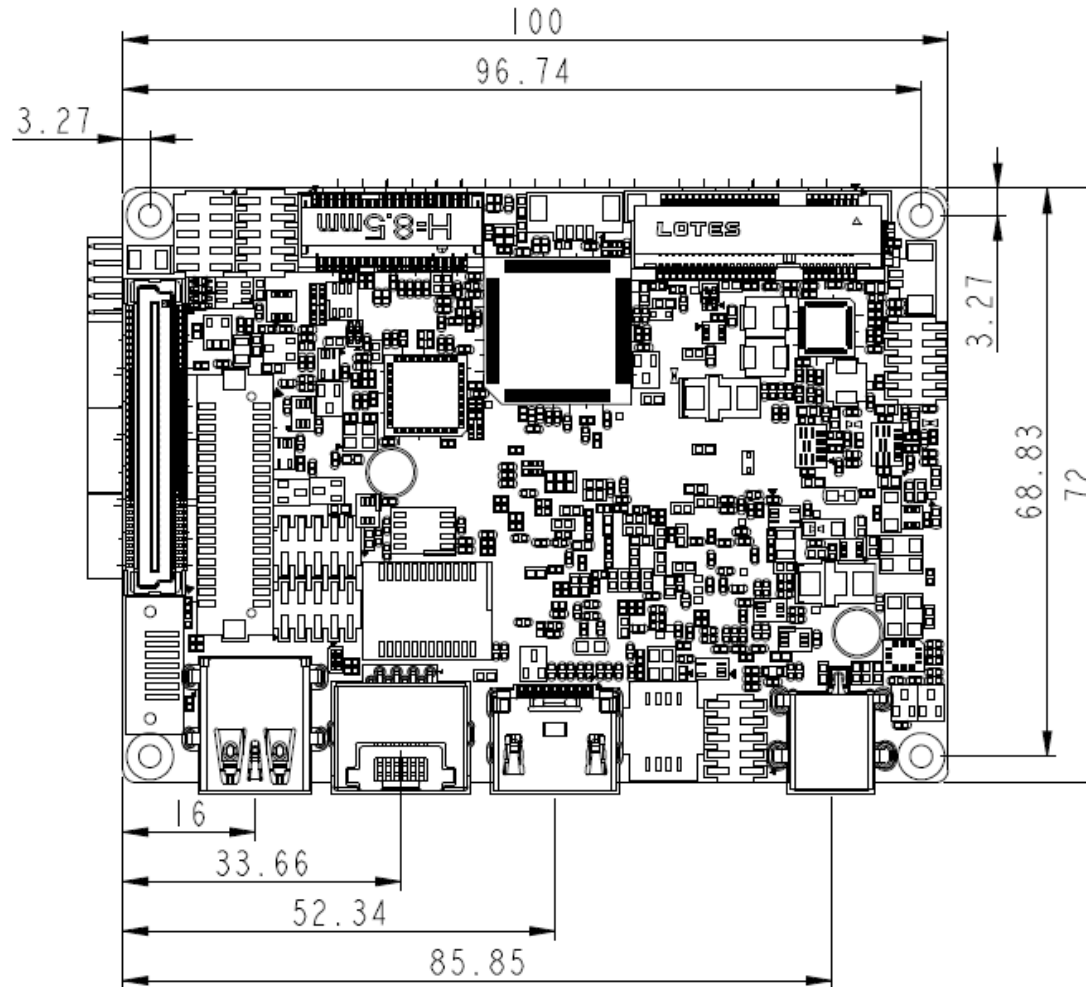
2.3 Power Consumption

Test Configuration	
CPU Type	Intel® Celeron® @ CPU N3350 @ 1.1GHz
SBC BIOS	UEFI L0.10 BIOS Date:04/17/2017 16:19:21
Memory	Transcend DDR3L 1600/8G *1
VGA Card	Onboard Intel® HD Graphic
VGA Driver	Intel® HD Graphic, Version:21.20.16.4494
LAN Card	Onboard Intel® I210 Gigabit Network Connection
LAN Driver	Intel® I210 Gigabit Network Connection, Version:12.12.226.0
Audio Card	Onboard Realtek High Definition Audio
Audio Driver	Realtek High Definition Audio, Version:6.0.1.7514
Chip Driver	Intel® Chipset Device Software, Version:10.1.1
USB 2.0 Driver	Intel® USB 3.0 eXtensible Host Controller-1.0(Microsoft), Ver:10.0.15063.0
USB3.0 Driver	Intel® USB 3.0 eXtensible Host Controller-1.0(Microsoft), Ver:10.0.15063.0
Power Supply	FPS FPS120-AHAN1 (120W)
Boot Mode Select	UEFI

Power consumption			
DC input			
Item	Power ON	Full Loading 10Min	Full Loading 30Min
CPU +12V	0.9A	1.3A	1.3A
Device +12V	0.1A	0.1A	0.1A
Device +5V	0.4A	0.5A	0.4A
CPU+ Device +12V	0.9A	1.0A	1.0A
USB2.0 Loading Test	5.17 V/ 500 mA		
USB2.0 Loading Test	5.17 V/ 500 mA		

Item	S0	S3	S4	S5
+12V	0.7A	0.3A	0.1A	0.0A

2.4 Environmental Specifications

Storage Temperature : -20~80°C

Operation Temperature : 0~60°C

Storage Humidity : 5~90%

Operation Humidity: 10~90%

3   Block Diagram
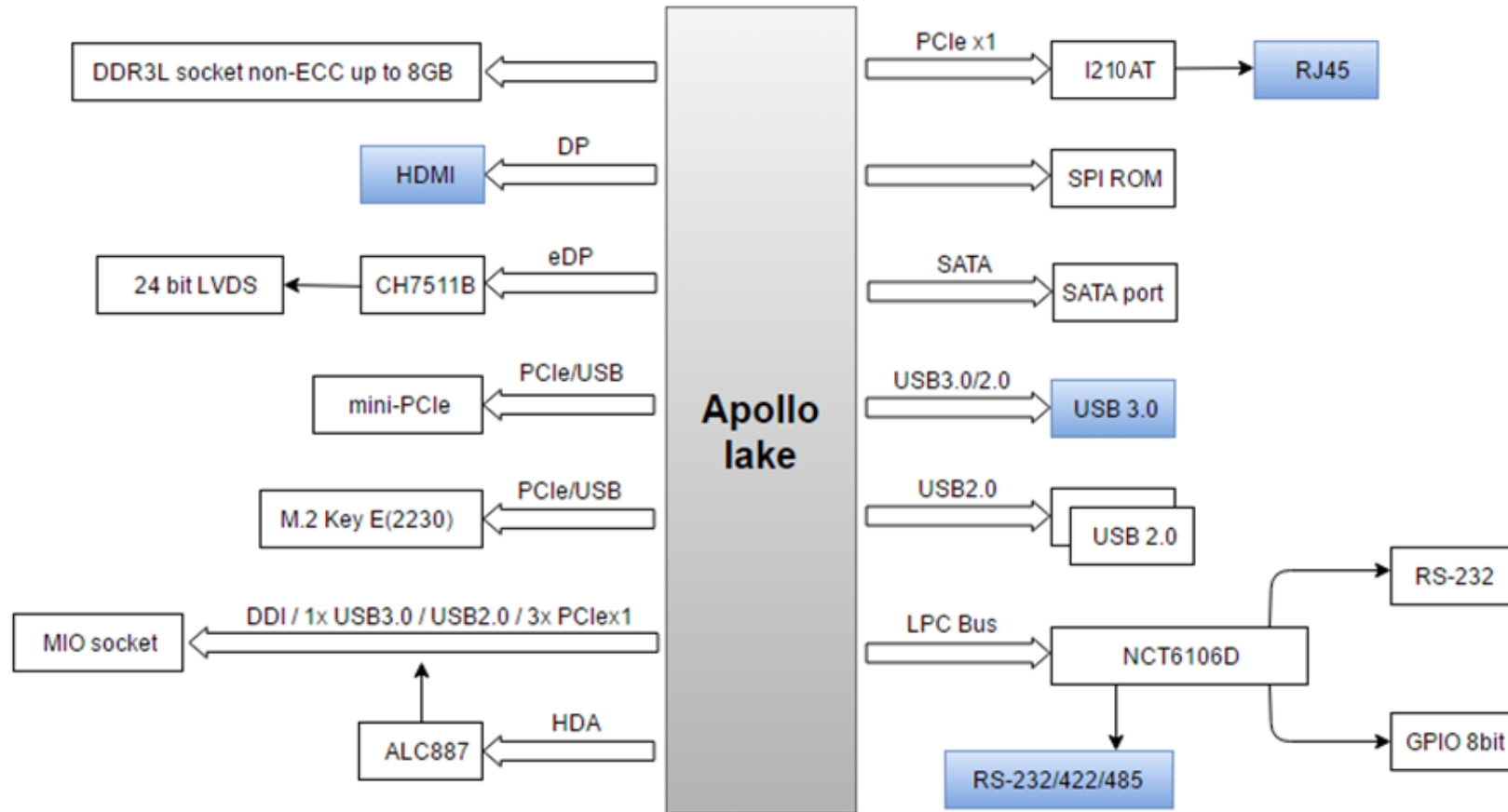
4 Hardware Configuration

4.1 Jumpers and Connector

This chapter indicates jumpers', headers' and connectors' locations. Users may find useful information related to hardware settings in this chapter.
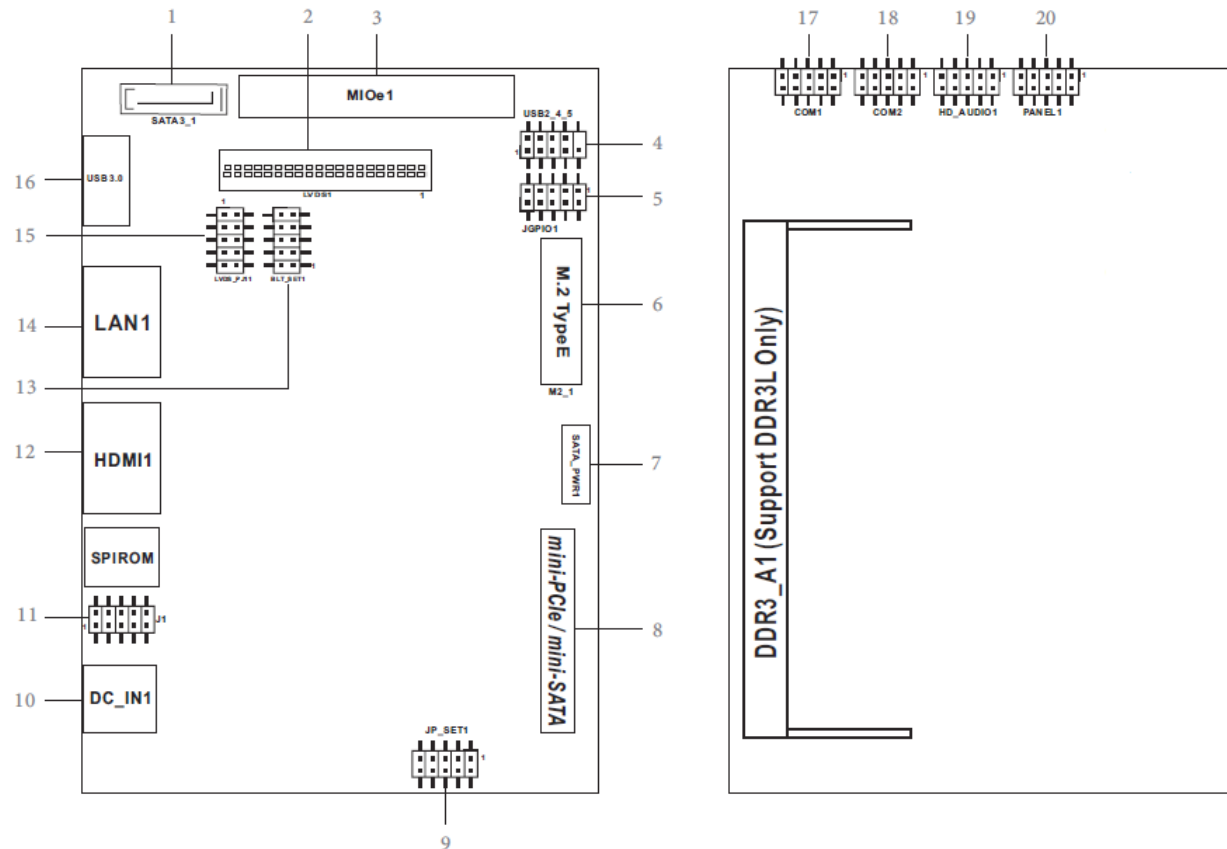
4.2 Jumpers Setting

For users to customize PICO-6260's features. In the following sections, Short means covering a jumper cap over jumperpins; Open or N/C (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 1 for the Jumper allocations.

Jumper Table

The jumper settings are schematically depicted in this manual as follows:

Jumper Function List	
1	SATA3 Connector
2	LVDS Panel Connector
3	MIOe1 Connector
4	USB 2.0 Connector (USB_2_4_5)
5	Digital Input / Output Pin Header (JGPIO1)
6	M.2 Type E with USB Connector
7	SATA Power Output Connector
8	Mini-PCIe / Mini-SATA Connector
9	JP_SET1
10	DC Jack (12V only)
11	J1
12	HDMI Port
13	BLT_SET1

14	LAN Port
15	LVDS_PJ1
16	USB3.0 Port
17	COM Port Header (RS232 / 422 / 485)
18	COM Port Header (RS232)
19	Front Panel Audio Header
20	System Panel Header

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1 : SATA3 Connector

SATA3_1

2 : LVDS Panel Connector

PIN	Signal Name	PIN	Signal Name
2	LCD_VCC	1	LCD_VCC
4	LDDC_CLK	3	+3.3V
6	LVDS_A_DATA0#	5	LDDC_DATA
8	GND	7	LVDS_A_DATA0
10	LVDS_A_DATA1	9	LVDS_A_DATA1#
12	LVDS_A_DATA2#	11	GND
14	GND	13	LVDS_A_DATA2
16	LVDS_A_DATA3	15	LVDS_A_DATA3#
18	LVDS_A_CLK#	17	GND
20	GND	19	LVDS_A_CLK
22	LVDS_B_DATA0	21	LVDS_B_DATA0#
24	LVDS_B_DATA1#	23	GND
26	GND	25	LVDS_B_DATA1
28	LVDS_B_DATA2	27	LVDS_B_DATA2#
30	LVDS_B_DATA3#	29	DPLVDD_EN
32	GND	31	LVDS_B_DATA3
34	LVDS_B_CLK	33	LVDS_B_CLK#
36	CON_LBKLT_EN	35	GND
38	LCD_BLT_VCC	37	CON_LBKLT_CTL
40	LCD_BLT_VCC	39	LCD_BLT_VCC
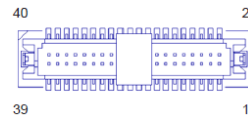
3 : MIOe1 Connector

4 : USB 2.0 Connector (USB_2_4_5)
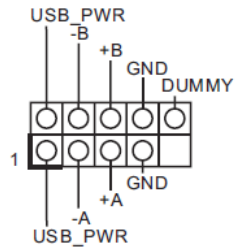
5 : Digital Input / Output Pin Header (JGPIO1)
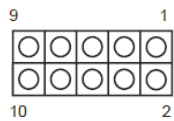
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
9	JGPIO_PWR	7	SIO_GP23	5	SIO_GP22	3	SIO_GP21	1	SIO_GP20
10	GND	8	SIO_GP27	6	SIO_GP26	4	SIO_GP25	2	SIO_GP24

6 : M.2 Type E with USB Connector

7 : SATA Power Output Connector
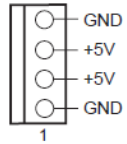
8 : Mini-PCIe / Mini-SATA Connector

9 : JP_SET1
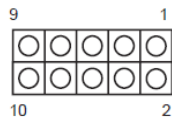
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
9	JGPIO_VSET	7	JGPIO_VSET	5	RTC RST#	3	RTCRST2#	1	AT/ATX mode
10	+3V	8	GND	6	GND	4	GND	2	SIO_PSIN#

10 : DC Jack (12V only)

11 : J1
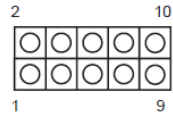
PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
2	CASE OPEN#	4	GPIO_TEST#	6	GND	8	MPCIE/ MSATA SEL	10	SOC SPKR
1	GND	3	MIPI_SDA	5	MIPI_SCL	7	GND	9	+5V

12 : HDMI Port

13 : BLT_SET1
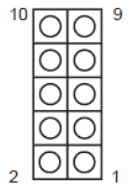
PIN	Signal Name	PIN	Signal Name
10	GND	9	GND
8	X	7	BLT_CTL
6	PWRDN	5	BLT_EN
4	BLUP	3	BLT_VCC
2	BUDN	1	

14 : LAN Port

15 : LVDS_PJ1

PIN	Signal Name	PIN	Signal Name
1	+3V	2	PLVDD
3	+5V	4	
5	+5V	6	BLTVCC
7	+12V	8	
9	+12V	10	

16 : USB3.0 Port

17 : COM Port Header (RS232 / 422 / 485)

	RS232	RS422	RS485
PIN-1	DCD#_1	TX-	DATA-
PIN-2	RXD_1	TX+	DATA+
PIN-3	TXD_1	RX+	X
PIN-4	DTR#_1	RX-	X

18 : COM Port Header (RS232)

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19 : Front Panel Audio Header

20 : System Panel Header

5　Signal Descriptions

5.1 Watch Dog Signal

WatchDog program sample

O 2E 87

O 2E 87

O 2E 07

O 2F 08 　　Select Logical Device 8.

O 2E 30

O 2F (BIT0) 　　(0):WDT is inactive.(1):WDT is active.

O 2E F1

O 2F (XX) 　　(XX):Watchdog Timer Counter Register(0x00~0xFF)

O 2E AA

5.2 GPIO Signal

GPI program sample

O 2E 87

O 2E 87

O 2E 07

O 2F 07   Select Logical Device 7

O 2E 30

O 2F 08   Active GPIO3(BIT3)

O 2E EC

O 2F FF   GPIO3 pins are programmed as input pins

O 2E ED   GPIO status 1:high, 0: low

I   2F yy   yy = GPIO status 1:high, 0: low

O 2E AA

           GPO program sample

O 2E 87

O 2E 87

O 2E 07

O 2F 07   Select Logical Device 7

O 2E 30

O 2F 10   Active GPIO4 (BIT4)

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O 2E F0   GP4x pins are programmed as output pins

O 2F 00   GP4x pins are programmed as output pins

O 2E F1   GPIO status 1:high, 0: low

O 2F yy   xx = GPIO status 1:high, 0: low

O 2E AA

6 System Resources

6.1 Intel® Apollo Lake SoC

Intel® Atom™ x7-E3950 Processor(2M Cache, up to 2.00 GHz)

Intel® Atom™ x5-E3940 Processor(2M Cache, up to 1.80 GHz)

Intel® Atom™ x5-E3930 Processor(2M Cache, up to 1.80 GHz)

Intel® Atom™ Pentium® N4200 Processor(2M Cache, up to 2.5 GHz)

Intel® Atom™ Celeron® N3350 Processor(2M Cache, up to 2.4 GHz)

6.2 Main Memory

PICO-6260 provide 1 x 204-pin SO-DIMM sockets which supports DDR3L non-ECC memory. The maximum memory can be up to 8GB. Memory clock and related settings can be detected by BIOS via SPD interface.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

6.3 Installing the Single Board Computer

To install your PICO-6260 into standard chassis or proprietary environment, please perform the following:

Step 1 : Check all jumpers setting on proper position

Step 2 : Install and configure memory module on right position

Step 3 : Place PICO-6260 into the dedicated position in the system

Step 4 : Attach cables to existing peripheral devices and secure it

WARNING

Please ensure that motherboard is properly inserted and fixed by mechanism.

6.3.1 Chipset Component Driver

The PICO-6260 build with Intel® Atom™ processor E3900 series including E3950 / E3940 / E3939 sku or Pentium® N4200 / Celeron® N3350 Processor. It's a new chipset that some old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows 10, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in PICO-6260 CD-title

6.3.2 Intel® HD Graphics 50X

PICO-6260 has integrated Intel® HD Graphics 50X(E3950 / N4200_ Intel® HD Graphics 505, E3940 / E3930 / N3350_ Intel® HD Graphics 500)
Processor Graphics indicates graphics processing circuitry integrated into the processor, providing the graphics, compute, media, and display capabilities. Intel® HD Graphics, Iris™ Graphics, Iris Plus Graphics, and Iris Pro Graphics deliver enhanced media conversion, fast frame rates, and 4K Ultra HD (UHD) video
PICO-6260 supports LVDS, HDMI display output. This combination makes PICO-6260 an excellent performance hardware.

Drivers Support
Please find the Graphic driver in the PICO-6260 CD-title. The driver supports Windows 10.

6.3.3 Intel I210AT Gigabit Ethernet Controller

- Intel I210AT Gigabit Ethernet controller and 1x RJ45 connectors on rear I/O

Drivers Support
Please find Intel I210AT LAN driver in Ethernet directory of PICO-6260 CD/DVD-title. The driver supports Windows 10.

7 BIOS Setup Items

7.1 Introduction

The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

7.2 BIOS Setup

Power on the computer and the system will start POST (Power on Self Test) process. When the message below appears on the screen, press <Delete> or <ESC> key will enter BIOS setup screen.

Press<Delete> or <ESC> to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

Press <F1> to Run General Help or Resume

The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help Screen.

```
┌──────────────── General Help ────────────────┐
│                                               │
│ ↑↓→←        : Move                            │
│ Enter       : Select                          │
│ +/-         : Value                           │
│ ESC         : Exit                            │
│ F1          : General Help                    │
│ F2          : Previous Values                 │
│ F3          : Optimized Defaults              │
│ F4          : Save & Exit Setup               │
│ F12         : Capture Screen                  │
│ <K>         : Scroll help area upwards        │
│ <M>         : Scroll help area downwards      │
│                                               │
│                    Ok                         │
│                                               │
└───────────────────────────────────────────────┘
```
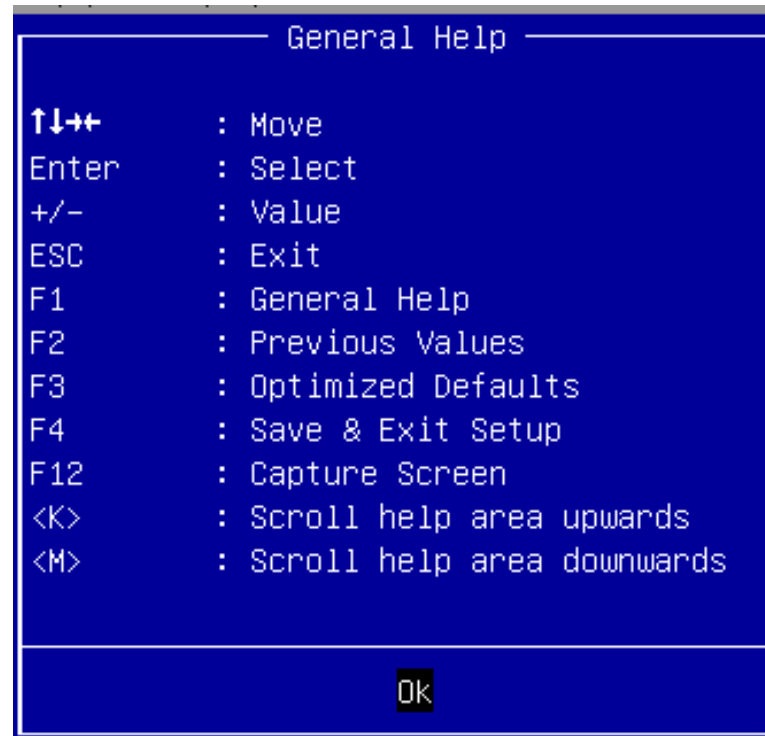
7.2.1 Main

Use this menu for basic system configurations, such as time, date etc.

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
   Main  Advanced  H/W Monitor  Security  Boot  Exit

   System Date                    [Fri 05/12/2017]        Set the Date. Use Tab to
   System Time                    [01:15:07]              switch between Date elements.
                                                          Default Ranges:
   UEFI Version: SOM-P101 L0.10                           Year: 2005-2099
   Processor Type: Intel(R) Celeron(R) CPU N3350 @ 1.10GHz  Months: 1-12
   Processor Speed: 1100MHz                               Days: dependent on month
   Cache Size: 1MB

   Total Memory: 8GB with 256MB Shared Memory
     Single-Channel Memory Mode

   DDR3_A1: 8GB (DDR3-1600)

                                                          ←→: Select Screen
   LVDS Rom Version : Default                             ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Option
                                                          F1: General Help
                                                          F7: Discard Changes
                                                          F9: Load UEFI Defaults
                                                          F10: Save and Exit
                                                          ESC: Exit



              Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

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Feature	Description	Options
System Date	The date format is <Day>, <Month> <Date> <Year>. Use [＋] or [－] to configure system Date.	
System Time	The time format is <Hour> <Minute> <Second>. Use [＋] or [－] to configure system Time.	

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7.2.2 Advanced

Use this menu to set up the items of special enhanced features

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
      Main  Advanced  H/W Monitor  Security  Boot  Exit

  ▶ CPU Configuration                          CPU Configuration Parameters
  ▶ Chipset Configuration
  ▶ Storage Configuration
  ▶ Super IO Configuration
  ▶ ACPI Configuration
  ▶ USB Configuration


    UEFI Update Utility
  ▶ Instant Flash


                                               ↔: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Option
                                               F1: General Help
                                               F7: Discard Changes
                                               F9: Load UEFI Defaults
                                               F10: Save and Exit
                                               ESC: Exit




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```

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CPU Configuration

CPU Configuration Parameters

```
              Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
     Advanced

 Intel(R) Celeron(R) CPU N3350 @ 1.10GHz             Intel SpeedStep technology
 Microcode Revision                20               allows processors to switch
 Max CPU Speed                     1100 MHz         between multiple frequencies
 Min CPU Speed                     800 MHz          and voltage points for better
 Processor Cores                   2                power saving and heat
 Intel VT-x Technology             Supported        dissipation.
 64-bit                            Supported


 Intel SpeedStep Technology        [Enabled]
 CPU C States Support              [C10]
 Enhanced Halt State(C1E)          [Enabled]


 Intel Virtualization Technology   [Enabled]
                                                    ──────────────────────────────

                                                    ←→: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Option
                                                    F1: General Help
                                                    F7: Discard Changes
                                                    F9: Load UEFI Defaults
                                                    F10: Save and Exit
                                                    ESC: Exit




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```

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Feature	Description	Options
Intel Speedstep Technology	Intel Speedstep Technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation.	★Disabled, Enabled
CPU C states Support	Enable CPU C States Support for power saving. It is recommended to keep C1, C6, C7, C8 , C9 and C10 all enabled for better power saving .	★C10, C9,C8,C7,C6, C1,Disabled
Enhanced Halt State(C1E)	Enable Enhanced Halt State(C1E) for lower power consumption	★Enabled, Disabled
Intel Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.	★Enabled, Disabled

Chipset Configuration

Configuration Chipset feature

```
                Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
      Advanced

    TXE FW Version                   3.0.11.1131              DRAM Frequency

    DRAM Frequency                   [Auto]
    Primary Graphics Adapter         [PCI Express]
    Share Memory                     [Auto]

    Active LFP                       [eDP]
    Primary IGFX Boot Display        [VBIOS Default]

    Onboard HD Audio                 [Auto]

    Onboard LAN1                     [Enabled]
    PCIE1 Link Speed                 [Auto]
                                                             ←→: Select Screen
    Restore on AC/Power Loss         [Power Off]             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Option
                                                             F1: General Help
                                                             F7: Discard Changes
                                                             F9: Load UEFI Defaults
                                                             F10: Save and Exit
                                                             ESC: Exit




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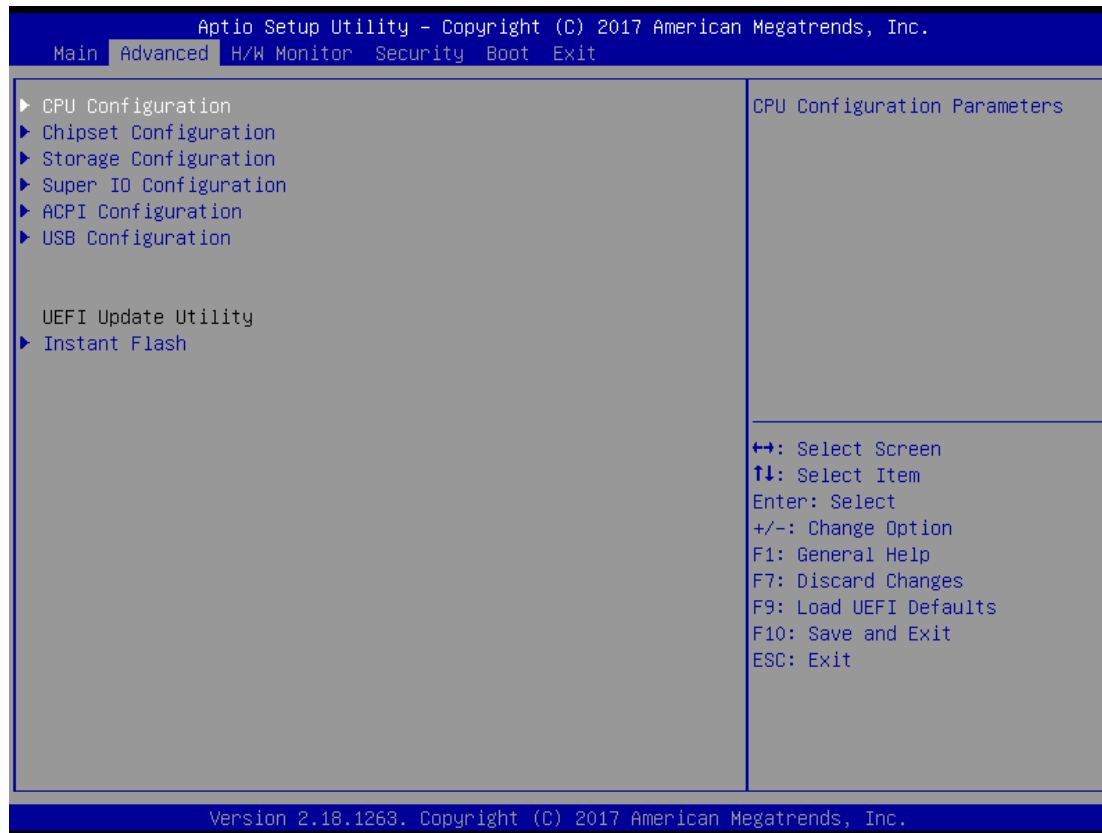
Feature	Description	Options
DRAM Frequency	DRAM Frequency	★Auto, DDR3-1333 , DDR3-1600, DDR3-1866
Primary Graphics Adapter	Select a primary VGA	★Onboard,PCI Express
Share Memory	Select DVMT 5.0 Pre-Allocated(Fixed) Graphics Memory size used by the Internal Graphics Device	★Auto, 64M,128M, 256M,512M
Active LFP		★eDP , LVDS
Panel Type Selection(Select LVDS)	Select eDP or LVDS to Display	★1440x900/24-bit/2-ch/LED 1366x768/18-bit/1-ch/LED 800x600/18-bit/1-ch/CCFL 1024x768/24-bit/1-ch/CCFL 1280x1024/24-bit/2-ch/CCFL 1366x768/24-bit/1-ch/CCFL 1440x900/24-bit/2-ch/CCFL 1024x600/18-bit/1-ch/LED 1280x1024/24-bit/2-ch/LED 1024x768/24-bit/1-ch/LED 1600x900/18-bit/2-ch/LED 1366x768/24-bit/1-ch/LED 1920x1080/24-bit/2-ch/LED 800x600/24-bit/1-ch/LED

		640x480/24-bit/1-ch/LED 1024x768/18-bit/1-ch/LED
Primary IGFX Boot Display	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.	★VBIOS Default, HDMI,LFP,CRT
Onboard HD Audio	Auto/enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.	★Auto ,Enabled, Disabled
Front Panel	Select Front Panel Type.	★HD , AC 97
Onboard Lan1	Enable or disable the onboard Lan1 network interface controller	★Enabled, Disabled
PCIE1 Link Speed	Configure PCIE1 Slot Link Speed.	★Auto, Gen1 , Gen2
Restore on AC/Power Loss	Selet the power state after a power failure. If (power off) is selected, the power will remain off when the power recovers. If (power on) is selected, the system well start to boot up when the power recovers.	★Power Off, Power On

Storage Configuration

SATA Settings

```
                 Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
      Advanced

    SATA Controller(s)              [Enabled]            Enables or Disables the
    SATA Mode Selection             [AHCI]               Chipset SATA Controller.  The
    SATA Aggressive Link Power      [Disabled]           Chipset SATA controller
    Management                                           supports the 2 black internal
    Hard Disk S.M.A.R.T             [Enabled]            SATA ports (up to 3Gb/s
                                                         supported per port).
  ▶ SATA3_1 : Not Detected
  ▶ M.2 : Not Detected




                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Option
                                                         F1: General Help
                                                         F7: Discard Changes
                                                         F9: Load UEFI Defaults
                                                         F10: Save and Exit
                                                         ESC: Exit




                 Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```
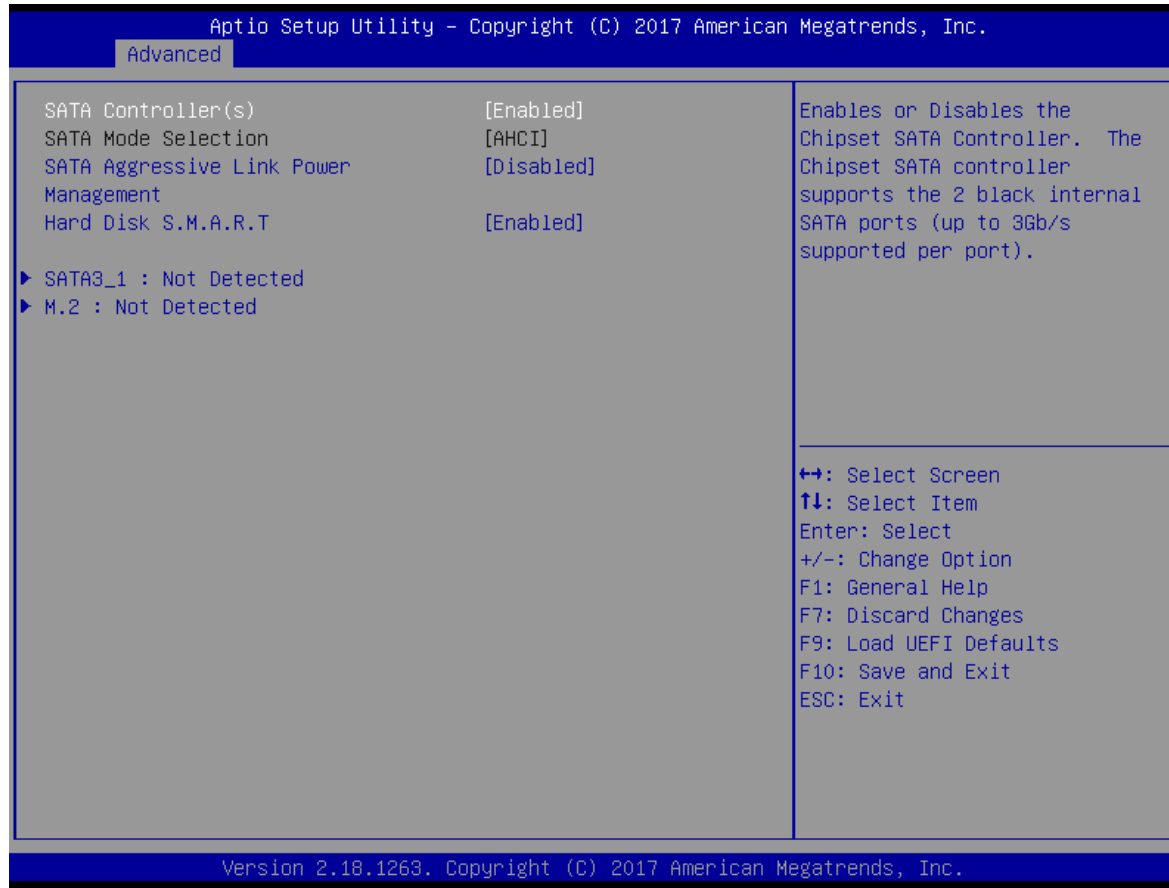
Feature	Description	Options
SATA Controller(s)	Enable or disable the chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port)	★Enabled, Disabled
SATA Aggressive Link Power Management	SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode	★Disabled, Enabled
Hard Disk S.M.A.R.T	S.M.A.R.T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators of reliability.	★Enabled, Disabled

SATA3_1 : Not Detected

Feature	Description	Options
External SATA	Enable SATA safe removal notifications. Please note that the SATA device will be downgraded to SATA2.	★Disabled, Enabled
Hot Plug	Enable or disable Hot Plug for this port.	★Disabled, Enabled

M2_1 : Not Detected

Feature	Description	Options
External SATA	Enable SATA safe removal notifications. Please note that the SATA device will be downgraded to SATA2.	★Disabled, Enabled
Hot Plug	Enable or disable Hot Plug for this port.	★Disabled, Enabled

Super IO Configuration

COM Port Configuration

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
   Advanced

  Serial Port1                      [Enabled]              Enable or Disable COM1
      Type Select                   [RS232]                IO=3F8h; IRQ=4;
  Serial Port2                      [Enabled]


  WDT Timeout Reset                 [Disabled]




                                                          _____

                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Option
                                                          F1: General Help
                                                          F7: Discard Changes
                                                          F9: Load UEFI Defaults
                                                          F10: Save and Exit
                                                          ESC: Exit




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```

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Feature	Description	Options
Serial Port 1	Enable or Disable COM1 IO=3F8h; IRQ=4;	★Enabled, Disabled
Type Select	Set COM Type	★RS232,RS422,RS485
Serial Port 2	Enable or Disable COM2 IO=2F8h; IRQ=3;	★Enabled, Disabled
WDT Timeout Reset	Enable/Disable Watch Dog Timer timeout to reset system.	★Disabled, Enabled

ACPI Configuration

```
              Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
    Advanced

  Suspend to RAM                        [Auto]                    Allow the system to be waked
  ACPI HPET Table                       [Enabled]                 up by the real time clock
                                                                  alarm. Set it to By OS to let
  PS/2 Keyboard Power On                [Disabled]                it be handled by your
  PCIE Devices Power On                 [Disabled]                operating system.
  RTC Alarm Power On                    [Enabled]
    RTC Alarm Date                      [Every Day]
    RTC Alarm Hour                      [0]
    RTC Alarm Minute                    [0]
    RTC Alarm Second                    [0]


                                                                  ──────────────────────────
                                                                  ←→: Select Screen
                                                                  ↑↓: Select Item
                                                                  Enter: Select
                                                                  +/-: Change Option
                                                                  F1: General Help
                                                                  F7: Discard Changes
                                                                  F9: Load UEFI Defaults
                                                                  F10: Save and Exit
                                                                  ESC: Exit




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```

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Feature	Description	Options
Suspend to RAM	It is recommended to select auto for ACPI S3 power saving.	★Auto, Disabled
ACPI HPET Table	Enable the High Precision Event Timer for better performance.	★Enable, Disabled
PCIE Devices Power On	Allow the system to be waked up by a PCIE device and enable wake on LAN	★Disabled, Enabled
Ring-In Power On		★Disabled, Enabled
RTC Alarm Power On	Allow the system to be waked up by the real time clock alarm.Set it to By OS to let It be handled by your operating system.	★By OS,Disabled,Enabled
USB Keyboard/Remode Power On	Allow the system to be waked up by an USB Keyboard or remote controller	★Disabled, Enabled
USB Mouse Power On	Allow the system to be waked up by mouse.	★Disabled, Enabled

USB Configuration

USB Configuration Parameters.

```
           Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Advanced

  Legacy USB Support                    [Enabled]           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.



                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Option
                                                            F1: General Help
                                                            F7: Discard Changes
                                                            F9: Load UEFI Defaults
                                                            F10: Save and Exit
                                                            ESC: Exit




           Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

Feature	Description	Options
Legacy USB Support	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	★Enabled, Disabled, UEFI Setup Only

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Instant Flash

Save UEFI files in your USB storage device and run Instant Flash to update your UEFI. Please note that your USB storage device must be FAT32 / 16 / 12 file system.

```
                Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
       Main  Advanced  H/W Monitor  Security  Boot  Exit

   ▶ CPU Configuration                          Save UEFI files in your USB
   ▶ Chipset Configuration                      storage device and run Instant
   ▶ Storage Configuration                      Flash to update your UEFI.
   ▶ Super IO Configuration                     Please note that your USB
   ▶ ACPI Configuration                         storage device must be
   ▶ USB Configuration                          FAT32/16/12 file system.


     UEFI Update Utility
   ▶ Instant Flash



                                                ↔: Select Screen
                                                ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Option
                                                F1: General Help
                                                F7: Discard Changes
                                                F9: Load UEFI Defaults
                                                F10: Save and Exit
                                                ESC: Exit




                Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```
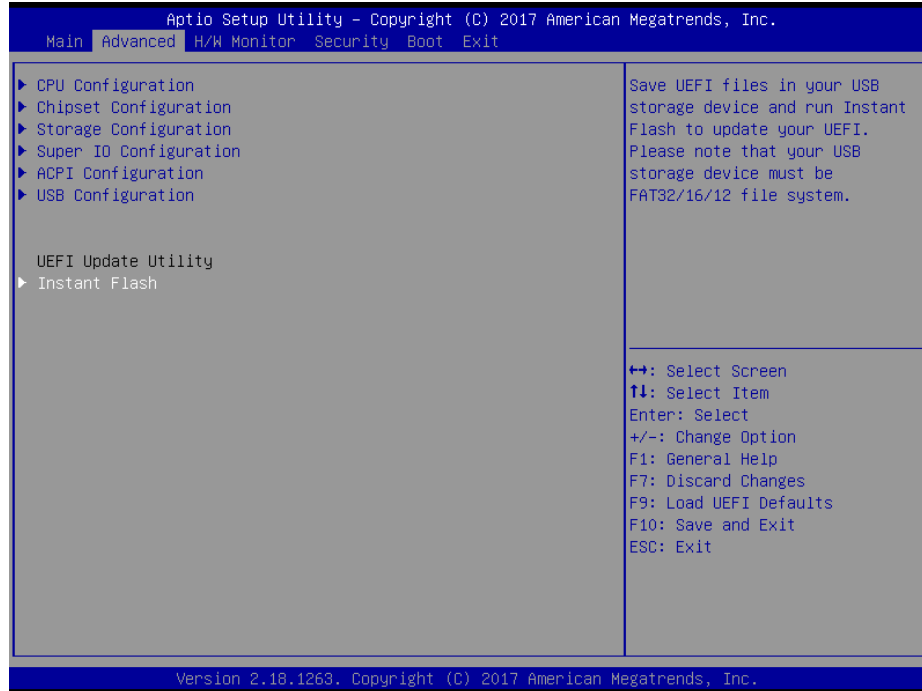
PICO-6260

7.2.3 H / W Monitor

Monitor hardware status

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
        Main   Advanced   H/W Monitor   Security   Boot   Exit

     Hardware Health Event Monitoring                       Enable or disable the feature
                                                            of Case Open.
     CPU Temperature                : +55.5 °C
     M/B Temperature                : +51.0 °C


     VCORE                          : +0.728 V
     + 3.30V                        : +3.312 V
     + 5.00V                        : +5.304 V
     + VIN                          : +12.160 V

     Case Open Feature              [Disabled]

                                                            ↔: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Option
                                                            F1: General Help
                                                            F7: Discard Changes
                                                            F9: Load UEFI Defaults
                                                            F10: Save and Exit
                                                            ESC: Exit




              Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```
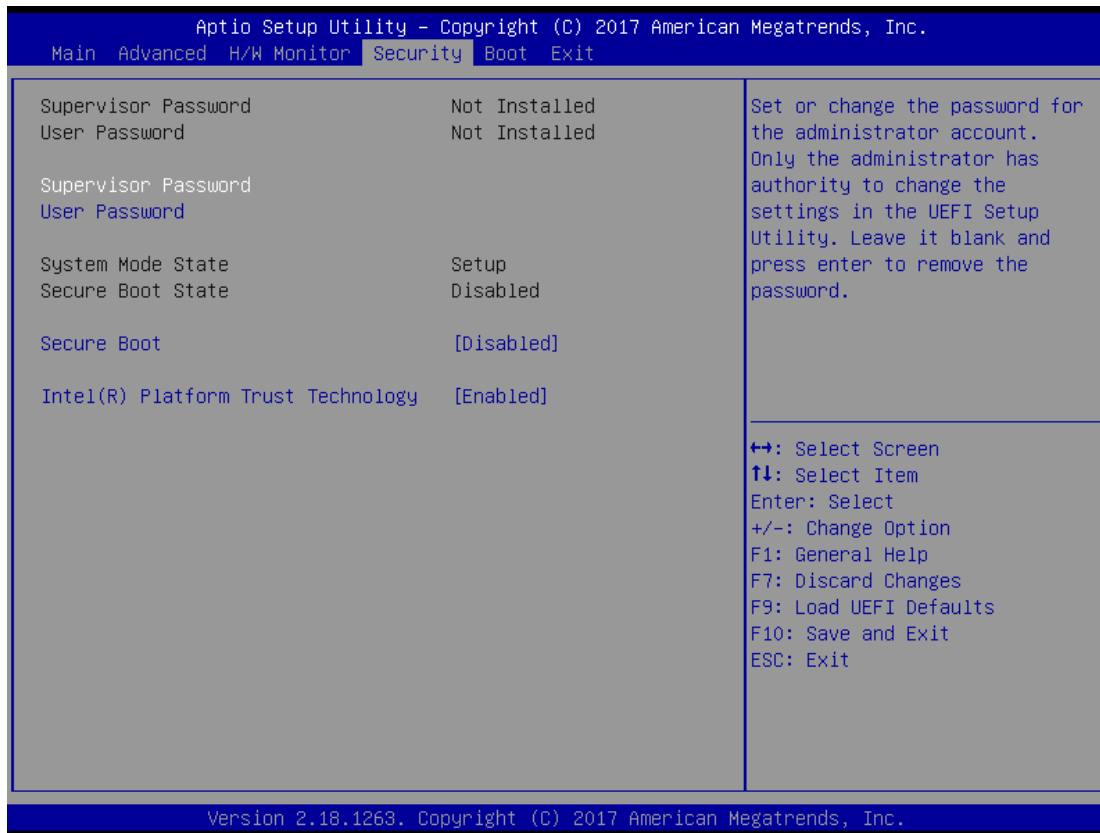
PICO-6260

Feature	Description	Options
Case Open Feature	Enable or disable the feature of Case Open	★Disabled, Enabled

7.2.4 Security

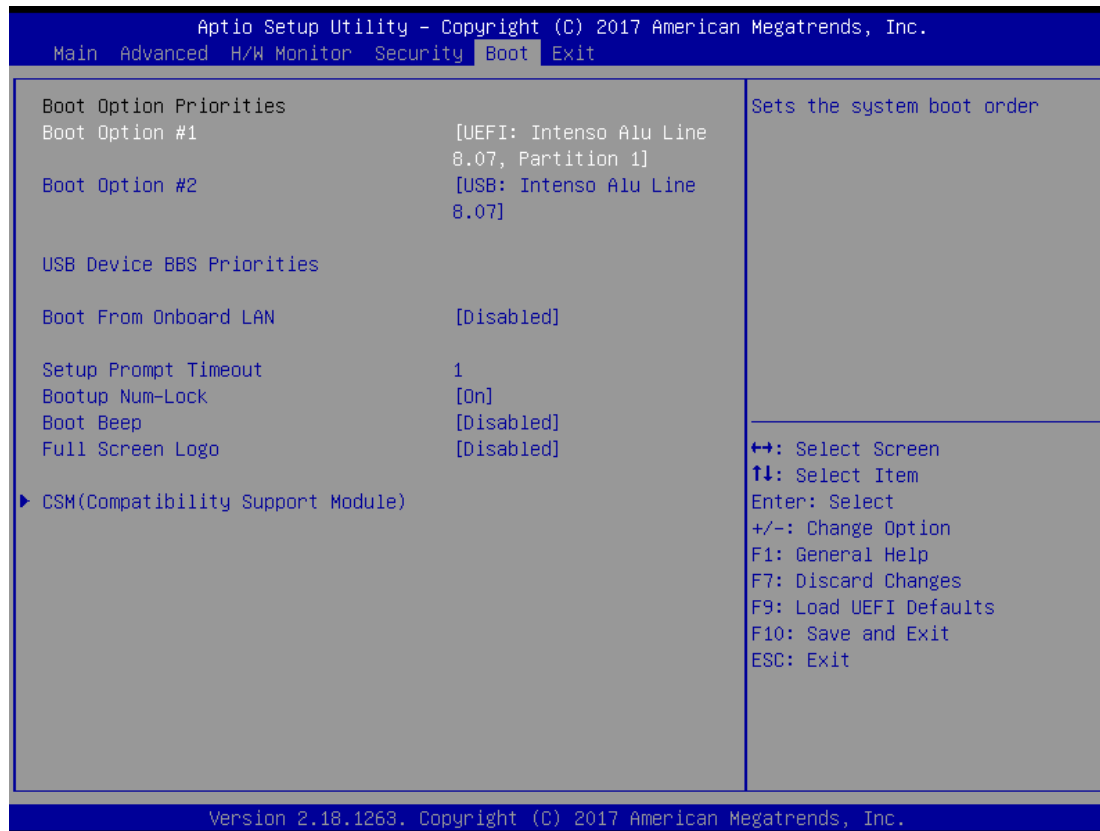This section lets you set security passwords to control access to the system at boot time and/or when entering the BIOS setup program.
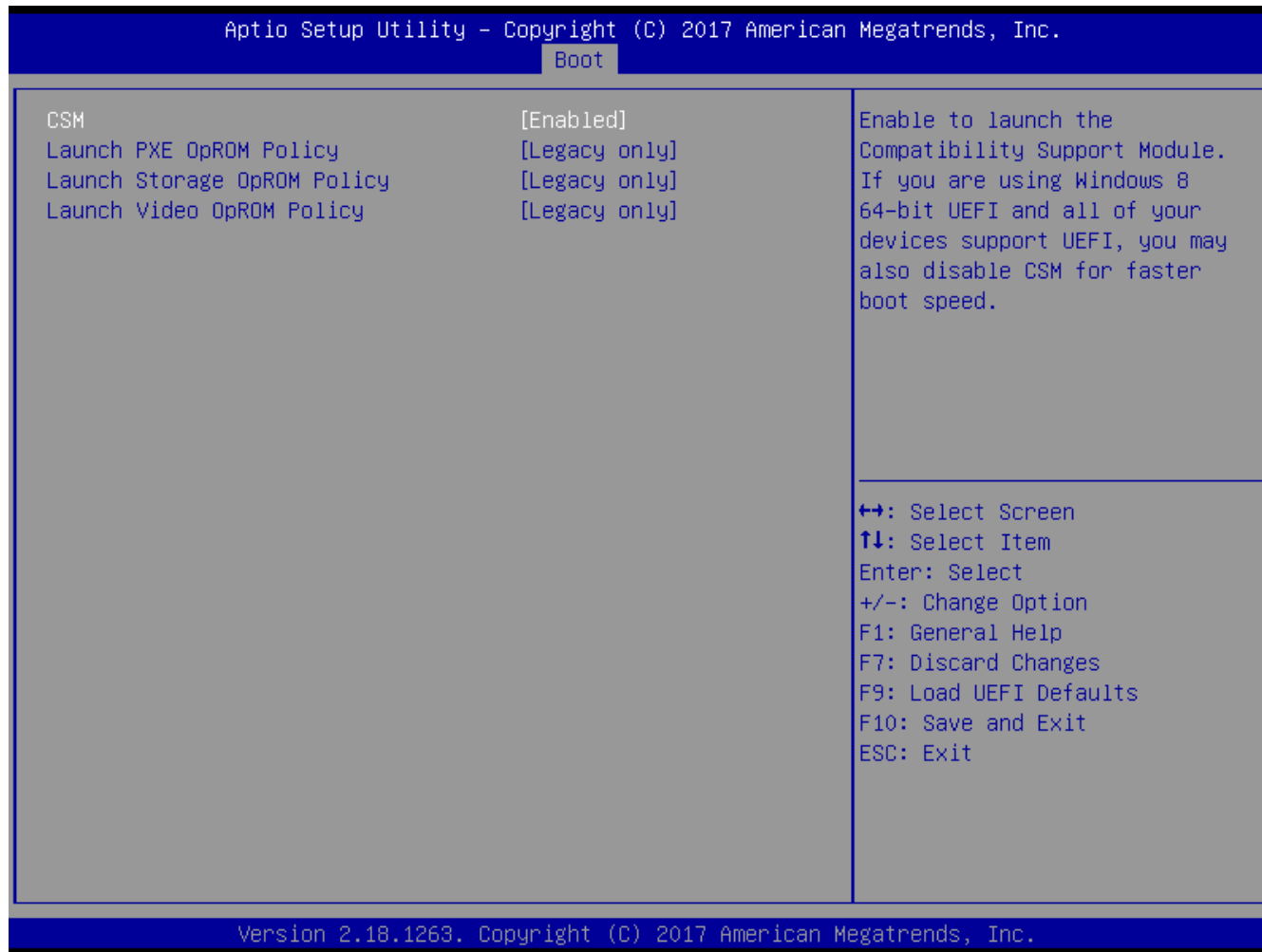
```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Main  Advanced  H/W Monitor  Security  Boot  Exit

 Supervisor Password              Not Installed          Set or change the password for
 User Password                    Not Installed          the administrator account.
                                                         Only the administrator has
 Supervisor Password                                     authority to change the
 User Password                                           settings in the UEFI Setup
                                                         Utility. Leave it blank and
 System Mode State                Setup                  press enter to remove the
 Secure Boot State               Disabled                password.

 Secure Boot                      [Disabled]

 Intel(R) Platform Trust Technology   [Enabled]

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Option
                                                         F1: General Help
                                                         F7: Discard Changes
                                                         F9: Load UEFI Defaults
                                                         F10: Save and Exit
                                                         ESC: Exit



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```

Feature	Description	Options
Supervisor Password	Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.	Create New Password
User Password	Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.	Create New Password
Secure Boot	Enable to support Windows 8 Secure Boot.	★Disabled, Enabled
Intel(R) Platform Trust Technology	Enabled/Disabled Intel PTT function, Enabled:Enable Intel PTT in ME, Disabled: Disable Intel PTT in ME, Use discrete TPM Module.	★Enabled, Disabled

7.2.5 Boot

Use this menu to specify the priority of boot devices.

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
     Main  Advanced  H/W Monitor  Security  Boot  Exit

      Boot Option Priorities                               Sets the system boot order
      Boot Option #1                    [UEFI: Intenso Alu Line
                                        8.07, Partition 1]
      Boot Option #2                    [USB: Intenso Alu Line
                                        8.07]

      USB Device BBS Priorities

      Boot From Onboard LAN             [Disabled]

      Setup Prompt Timeout              1
      Bootup Num-Lock                   [On]
      Boot Beep                         [Disabled]
      Full Screen Logo                  [Disabled]             ↔: Select Screen
    ▶ CSM(Compatibility Support Module)                        ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Option
                                                               F1: General Help
                                                               F7: Discard Changes
                                                               F9: Load UEFI Defaults
                                                               F10: Save and Exit
                                                               ESC: Exit




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```

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```
          Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
                                      Boot

 CSM                              [Enabled]           Enable to launch the
 Launch PXE OpROM Policy          [Legacy only]       Compatibility Support Module.
 Launch Storage OpROM Policy      [Legacy only]       If you are using Windows 8
 Launch Video OpROM Policy        [Legacy only]       64-bit UEFI and all of your
                                                      devices support UEFI, you may
                                                      also disable CSM for faster
                                                      boot speed.




                                                      ←→: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Option
                                                      F1: General Help
                                                      F7: Discard Changes
                                                      F9: Load UEFI Defaults
                                                      F10: Save and Exit
                                                      ESC: Exit




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```

Feature	Description	Options
Boot Option #1 (with storage device)	Sets the system boot order	★Disabled, storage device
Hard Drive BBS Priorities	Set the order of the legacy devices in this group	Select storage Device
Boot From Onboard LAN	Boot From Onboard LAN	★Disabled, Enabled
Setup Prompt Timeout	Configure the number of seconds to wait for the UEFI setup utility.	★1
Bootup Num-Lock	Select whether Num Lock should be turned on or off when the system boots up.	★On, Off
Boot Beep	Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.	★Disabled, Enabled
Full Screen Logo (Enabled)	Enable to display the boot logo or disable to show normal POST messages.	★Disabled, Enabled
AddOn ROM Display	Enable to display the boot logo or display to show normal POST messages.	★Enabled, Enabled

CSM(Compatibility Support Module)

Feature	Description	Options
CSM (Enabled)	Enable to launch the Compatibility Support Module. If you are using Windows 8 64-bit UEFI and all of your devices support UEFI , you may also disable CSM for faster boot speed.	★Disabled,Enabled
Launch PXE OpROM Policy	Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.	★Legacy only, Do not launch, UEFI only
Launch Storage OpROM Policy	Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.	★Legacy only, Do not launch, UEFI only
Launch Video OpROM Policy	Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.	★Legacy only, Do not launch, UEFI only

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7.2.6 Exit

```
          Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
   Main  Advanced  H/W Monitor  Security  Boot  Exit

  Save Changes and Exit                          Exit system setup after saving
  Discard Changes and Exit                       the changes.
  Discard Changes
  Load UEFI Defaults                             F10 key can be used for this
                                                 operation.
  Launch EFI Shell from filesystem device



                                                 _____
                                                 ←→: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Option
                                                 F1: General Help
                                                 F7: Discard Changes
                                                 F9: Load UEFI Defaults
                                                 F10: Save and Exit
                                                 ESC: Exit




          Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

PICO-6260
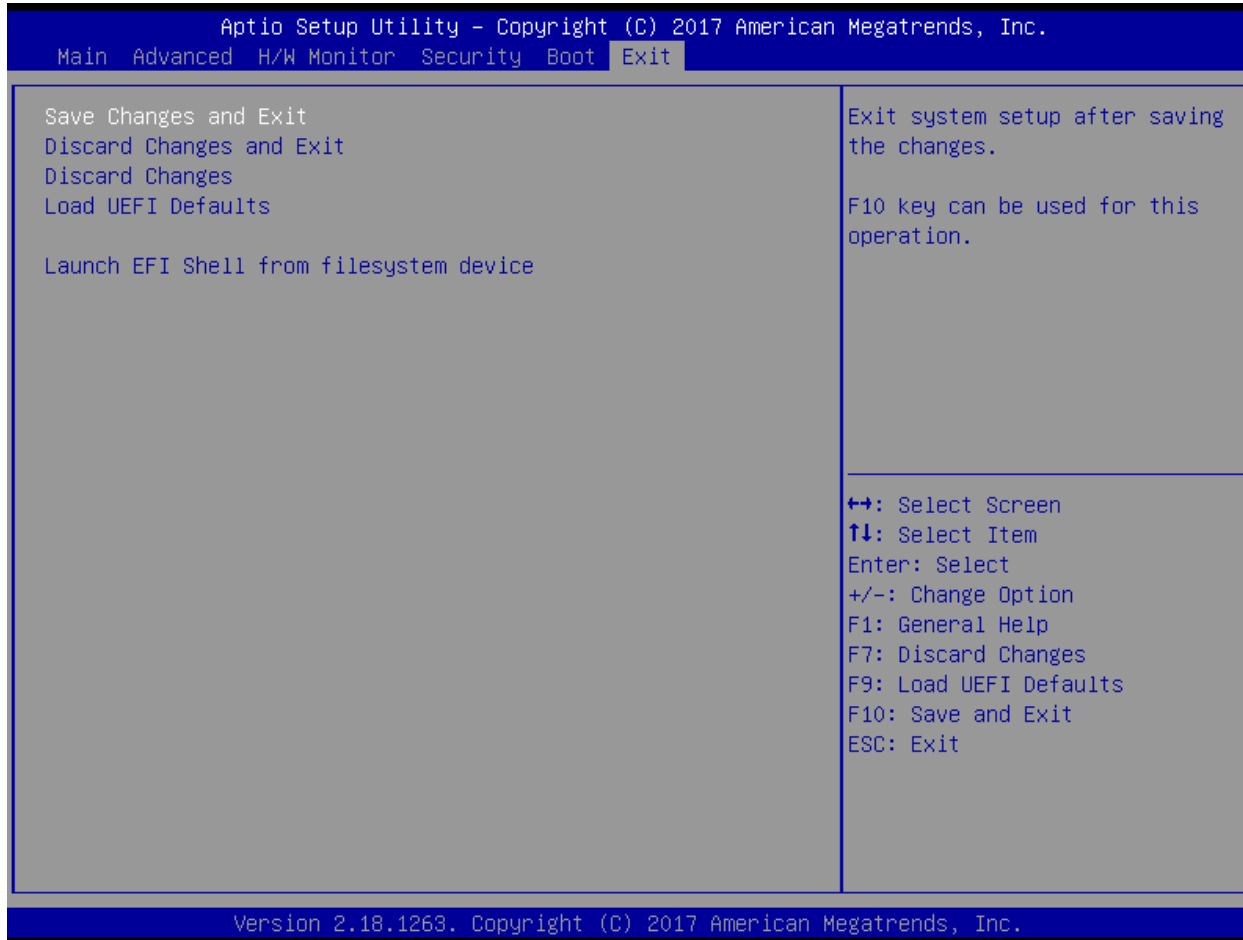
Feature	Description	Options
Save Changes and Exit	Exit system setup after saving the changes. F10 key can be used for this operation.	
Discard Changes and Exit	Exit system setup without saving any changes. Esc key can be used for this operation.	
Discard Changes	Discard Changes done so far to any of the setup options. F7 key can be used for this operation.	
Load UEFI Defaults	Load UEFI Default values for all the setup questions. F9 key can be used for this operation.	
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.	

8   Troubleshooting

This chapter provides a few useful tips to quickly get PICO-6260 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

8.1 Hardware Quick Installation

8.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on ATX .
204-pin DDR3L SO-DIMM Memory, keyboard, mouse, SATA hard disk, VGA connector, device power cables, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with PICO-6260, it is recommended, when going with the boot-up sequence, to hit "Del" key
And enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

<u>Loading the default optimal setting</u>

When prompted with the main setup menu, please scroll down to "**Load UEFI Defaults**", press "**Enter**" and select "**Yes**" to load default optimal BIOS setup. This will force your BIOS setting back to the initial factory configurations. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting at any time when system appears to be unstable in boot up sequence.

8.3 FAQ

Information & Support

Question: How to update the BIOS file of PICO-6260?

Answer:

Solution 1:

1. Please visit web site of **Portwell download center** as below hyperlink

   http://www.portwell.com.tw/support/download_center.php

   Registering an account in advance is a must. **(The E-Mail box should be an existing Company email address that you check regularly.)**

   http://www.portwell.com.tw/member/newmember.php

2. Type in your User name and password and log in the download center.

3. Select **"Search download"** and type the keyword **"PICO-6260"**.

4. Find the **"BIOS "**page and download the ROM file and flash utility.

5. Unzip file to bootable USB flash drive which can boot to dos mode. Then execute the **"update.bat "**. It will start to update BIOS.


6. When you see the "FPT Operation Passed" message, which means the BIOS update processes finished. Please cut the AC

power off and **wait for 10 seconds** before powering on.

7. Press "DEL" key into the BIOS setup menu and switch to "Exit" page then select "Load UEFI Defaults"

Option and press "Yes" then select "Save Changes and Exit" to finish all BIOS update processes.

Solution 2:

1. Please visit web site of **Portwell download center** as below hyperlink

   http://www.portwell.com.tw/support/download_center.php

   Registering an account in advance is a must. **(The E-Mail box should be an existing Company email address that you check regularly.)**

   http://www.portwell.com.tw/member/newmember.php

2. Type in your User name and password and log in the download center.

3. Select **"Search download"** and type the keyword **"PICO-6260"**.

4. Find the **"BIOS "**page and download the ROM file and unzip file to USB flash drive(FAT 32 / 16 format).

5. Boot into BIOS and switch to "Advanced"page then select"Instant Flash".
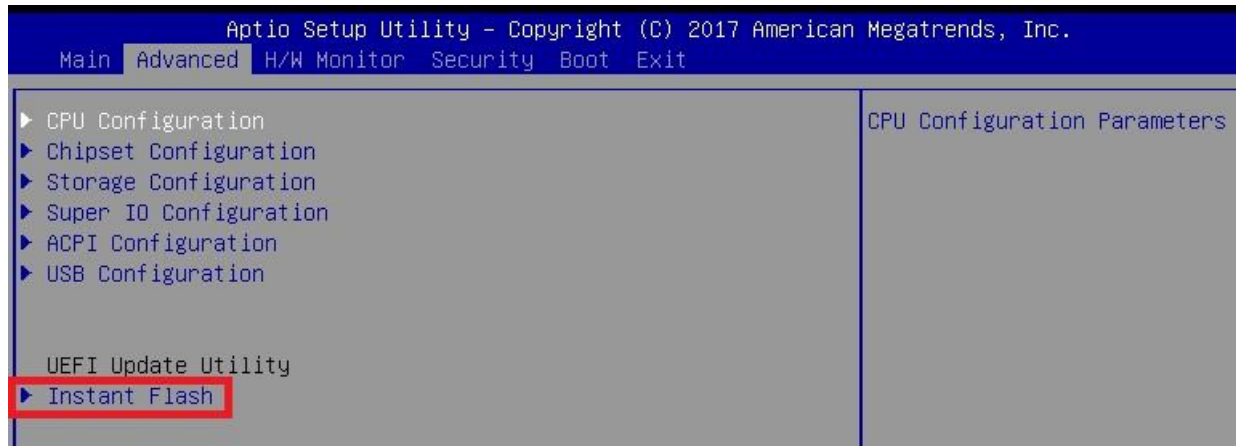
6. Select "xxxx.12A" file then start update BIOS.
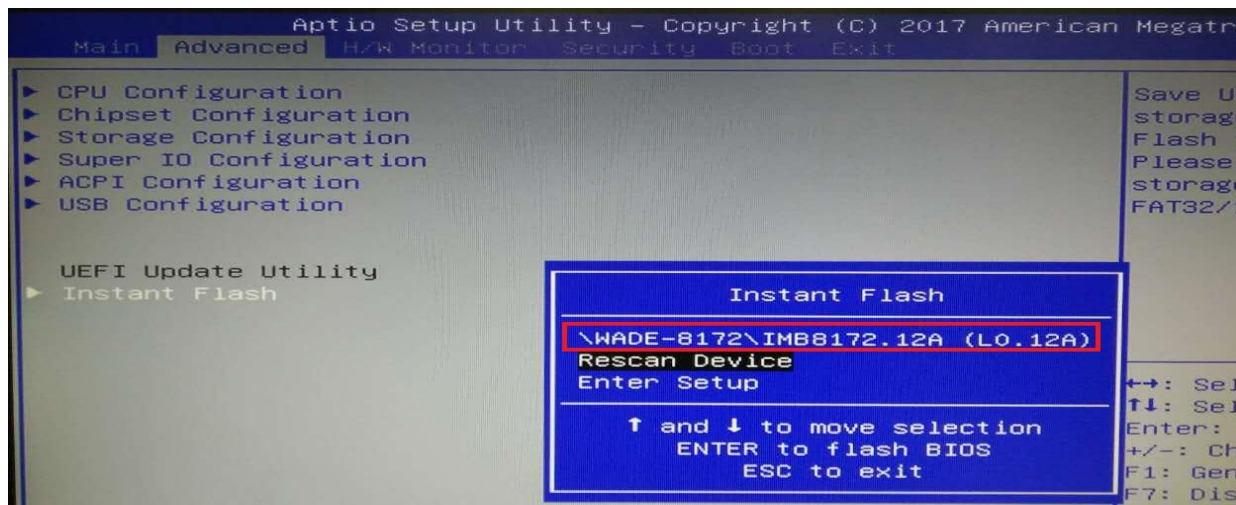
7. When you see the "Programming success" message, which means the BIOS update processes finished. Please cut the AC
    power off and **wait for 10 seconds** before powering on.
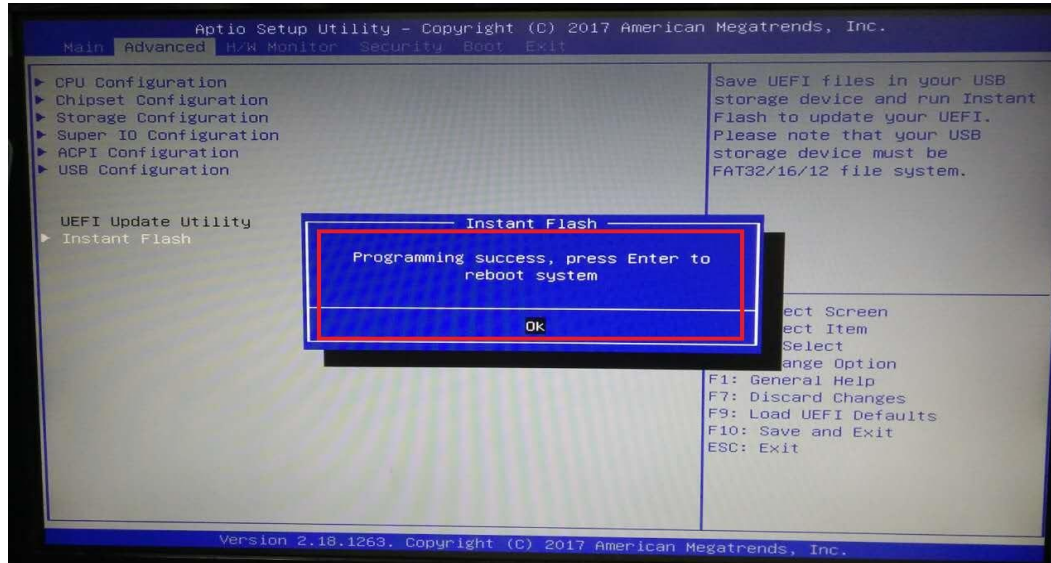
8. Press "DEL" key into the BIOS setup menu and switch to "Exit" page then select "Load UEFI Defaults" Option and press "Yes"

then select "Save Changes and Exit" to finish all BIOS update processes.
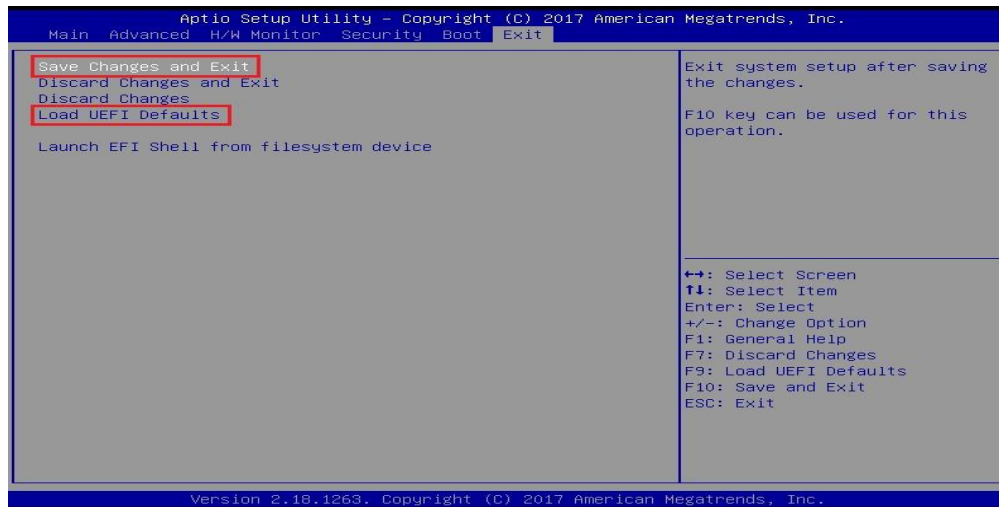
Note:

Please visit our Download Center to get the Catalog , User Manual ,BIOS and driver files.

http://www.portwell.com.tw/support/download_center.php

If you have other additional technical information or request which is not covered in this manual, please fill in the technical request form as below hyperlink.

http://www.portwell.com.tw/support/problem_report.php

We will do our best to provide a suggestion or solution for you.

Thanks

9   Portwell Software Service

Portwell Evaluation Tool (PET)

The Portwell Evaluation Tool (PET) is an API which Portwell's customers can access the GPIO, I2C, SMBus, etc under Windows and Linux OS. For more information please contact Portwell.

Portwell BIOS web Tool (PBT)

The Portwell BIOS web Tool (PBT) is a brand new on-line utility which innovated by Portwell. PBT now is available for Portwell's premiere customers who are able to add customized BIOS logo and change BIOS default settings on American Megatrends (AMI) BIOS. Please contact Portwell for more information.

Portwell EC Auto Test Tool (PECAT)

The Portwell EC Auto Test Tool (PECAT) is a brand new utility which innovated by Portwell. PECAT now is available for Portwell's premiere customers, who are able to Test Embedded Controller Function in UEFI Mode. Please contact Portwell for more information.

10   Industry Specifications

The list below provides links to industry specifications that apply to Portwell modules.

Low Pin Count Interface Specification, Revision 1.0 (LPC) http://www.intel.com/design/chipsets/industry/lpc.htm
Universal Serial Bus (USB) Specification, Revision 2.0 http://www.usb.org/home
PCI Specification, Revision 2.3 https://www.pcisig.com/specifications
Serial ATA Specification, Revision 3.0 http://www.serialata.org/
PCI Express Base Specification, Revision 2.0 https://www.pcisig.com/specifications