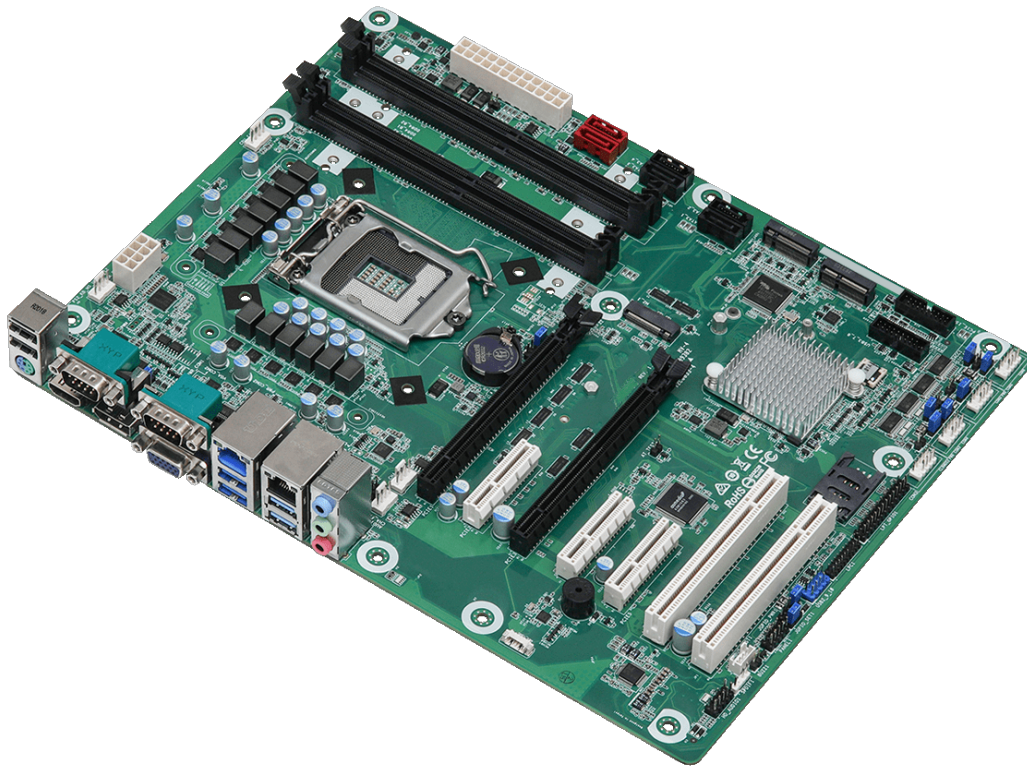


IMB-M46

User's Manual

ATX Motherboard with 10th Gen Intel® Core™ i9/i7/i5/i3 Processors
and Intel® Q470E Chipset



Manual Rev.: 1.0
Revision Date: June 22, 2022
Part Number: 50M-00080-1000

Preface

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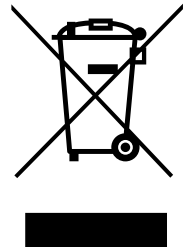
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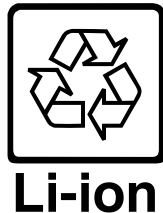
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Revision History

| Revision | Description | Date | By |
|-----------------|--------------------|-------------|-----------|
| 1.0 | Initial release | 2022-06-22 | CC |

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1 Introduction

ADLINK IMB-M46 ATX is an industrial motherboard supporting 10th Generation Intel® Core™ i9/i7/i5/i3 desktop processors, an Intel® Q470E Chipset, and 5 PCIe expansion slots to provide a cost-competitive embedded computing solution. It includes high-speed data transfer interfaces such as PCIe 3.0, USB 3.2 Gen2, and SATA 6 Gb/s (SATA III), and dual-channel DDR4 2400/2666/2933 MHz RAM for industrial automation applications. With industrial-grade I/O port design, the IMB-M46 offers a significant competitive advantage for embedded computing applications in terms of device compatibility, durable connectivity, and extreme environment readiness.

1.1 Packing List

- IMB-M46 ATX motherboard
- Rear I/O shield

1.2 Optional Accessories

- 2-port USB 2.0 cable with bracket (Part Number: 30-25010-3010)
- 4-port USB 3.0 cable with bracket (Part Number: 30-25305-0010-A0)
- 2-port USB 3.0 cable with bracket (Part Number: 30-25046-0100)
- 1-port LPT cable with bracket (Part Number: 30-25019-2000)
- 2-port COM cable with bracket (Part Number: 30-25116-0000-A0)
- Low-profile CPU cooler for $\leq 65W$, 35W CPU (Part Number: 32-20530-0010)
- High-profile CPU cooler for $\geq 65W$ CPU (Part Number: 32-20495-0000)

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2 Specifications

2.1 Core System

- **CPU:**
 - Intel® Core™ i9-10900E, 4.7GHz, 10 Core, 20M Cache, DDR4 2933MHz support, 65W
 - Intel® Core™ i9-10900TE, 4.5GHz, 10 Core, 20M Cache, DDR4 2933MHz support, 35W
 - Intel® Core™ i7-10700E, 4.5GHz, 8 Core, 16M Cache, DDR4 2933MHz support, 65W
 - Intel® Core™ i7-10700TE, 4.4GHz, 8 Core, 16M Cache, DDR4 2933MHz support, 35W
 - Intel® Core™ i5-10500E, 4.2GHz, 6 Core, 12M Cache, DDR4 2666MHz support, 65W
 - Intel® Core™ i5-10500TE, 3.7GHz, 6 Core, 12M Cache, DDR4 2666MHz support, 35W
 - Intel® Core™ i3-10100E, 3.8GHz, 4 Core, 6M Cache, DDR4 2666MHz support, 65W
 - Intel® Core™ i3-10100TE, 3.6GHz, 4 Core, 6M Cache, DDR4 2666MHz support, 35W
 - Intel® Pentium® Gold G6400, 3.2GHz, 2 Core, 4M Cache, DDR4 2400MHz support, 35W
 - Intel® Pentium® Gold G6400, 3.8GHz, 2 Core, 4M Cache, DDR4 2400MHz support, 58W
 - Intel® Celeron® Processor G5900TE, 3.0GHz, 2M Cache, DDR4 2666MHz support, 35W
 - Intel® Celeron® Processor G5900E, 3.2GHz, 2M Cache, DDR4 2666MHz support, 58W
- **Chipset:** Intel® Q470E Express Chipset
- **Memory:** 4x 288-pin DDR4 NON ECC socket, dual-channel DDR4 2400/2666/2933 MHz, up to 128 GB (based on CPU)
- **BIOS:** AMI® UEFI BIOS, 256 Mb SPI Flash Memory
- **Hardware Monitor:** CPU voltage
 - +3.3V voltage
 - +5V voltage
 - +12V voltage
 - CPU temperature
 - System temperature
 - CPU fan speed
 - System fan speed

2.2 I/O Interface

- **Expansion slots:**
 - 1x PCIe x16 Gen3
 - 1x PCIe x8 Gen3
 - 3x PCIe x4 Gen3
 - 2xPCI
- **SATA:** 6x SATA 6.0 Gb/s connectors, Intel® software RAID 0/1/5/10 support
- **USB:** 4x USB 3.2 Gen2 connectors (rear), 2x USB 2.0 connectors (rear), 4x USB 3.2 Gen1 pin headers, 2x USB 2.0 pin headers
- **COM:** 2x RS-232/422/485 (rear), 4x RS-232 pin headers

- **Parallel Port:** 1x LPT pin header
- **PS/2 Combo Port:** 1x PS/2 keyboard/mouse pin header
- **DIO:** 8-bit GPIO (shared with LPT header)
- **TPM:** TPM 2.0
- **M.2 connectors:**
 - 1x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for Wireless
 - 1x M.2 (Key B, 3042/3052) with PCIe x1 / USB 3.2 Gen1 / USB 2.0 and SIM socket for 4G/5G
 - 1x M.2 (Key M, 2242/2260/2280)

2.3 Video

- **Interfaces:** 1x VGA connector (rear), resolution up to 1920 x 1200 at 60 Hz, 1x HDMI 2.0a connector (rear) resolution up to 3840 x 2160 at 30 Hz, 1x DP 1.2 connector (rear), resolution up to 3840 x 2160 at 60 Hz

2.4 Audio

- **Audio Codec:** Realtek® ALC887 or ALC897
- **Interfaces:** 1x Mic-in, 1x Line-in, and 1x Line-out connectors (rear)

2.5 LAN

- **LAN1:** Intel® I219-LM via RJ45 connector
- **LAN2:** Intel® I225-LM via RJ45 connector

2.6 Temperatures

- **Operating Temperature:** 0°C to 60°C
- **Storage Temperature:** -40°C to 85°C

2.7 Humidity

- 60° C at 95% RH, non-condensing

2.8 Certificate (EMC)

- CE/FCC Class B

2.9 Form Factor

- **ATX:** 305 mm x 244 mm (W x L)

2.10 Operating Systems

- Microsoft® Windows® 10, 64-bit

2.11 Functional Block Diagram

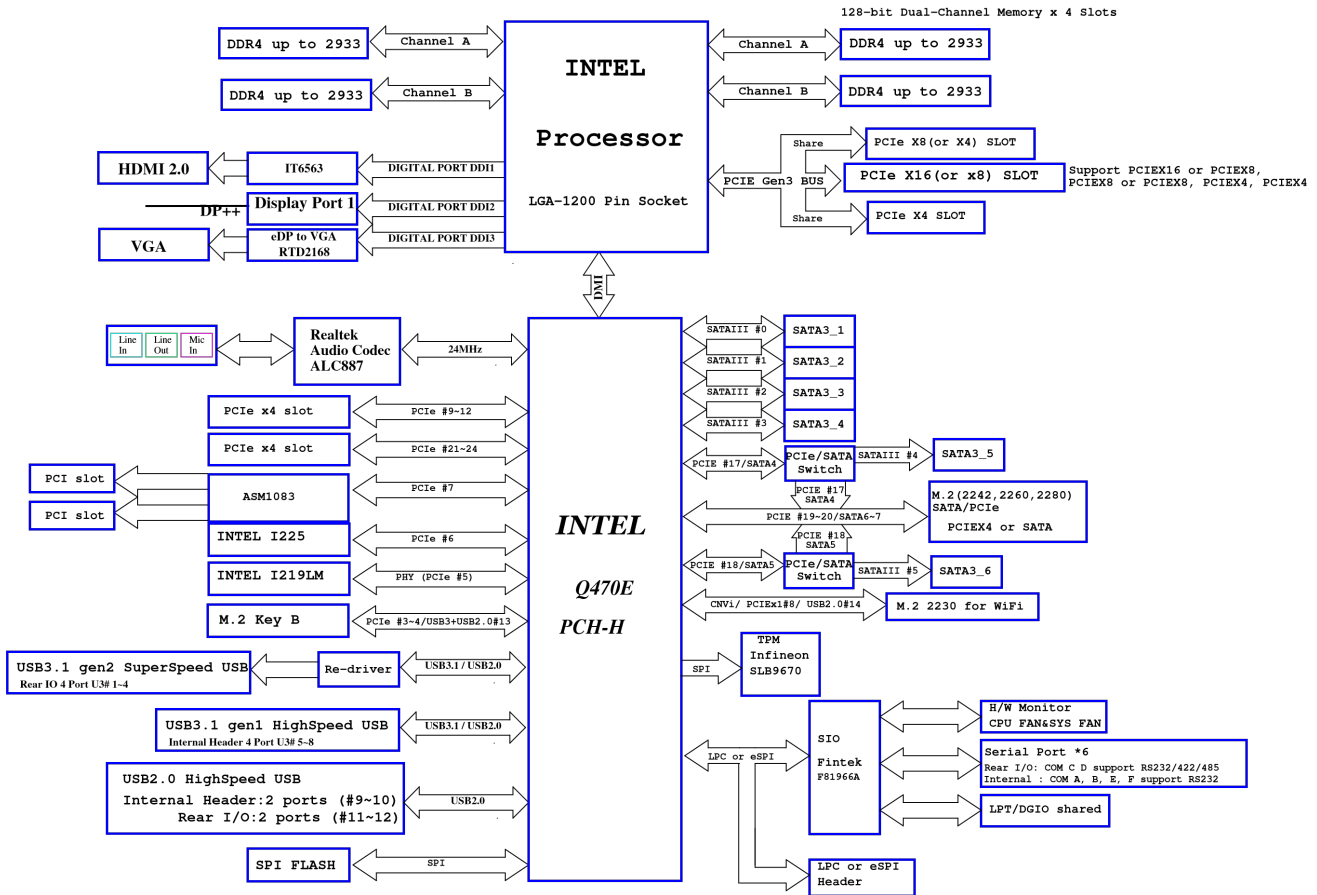


Figure 1: Functional Block Diagram

- M.2 (Key M, 2242 / 2260 / 2280) with PCIe x4 and SATA3 shares the same source with SATA3_5 and SATA3_6 Ports
- When using M.2 PCIe x4 SSD, both SATA3_5 and SATA_6 Ports are disabled.
- When using M.2 SATA SSD, only SATA3_5 Port is disabled, and SATA3_6 Port is available.

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3 Mechanical Layout

3.1 Connector Locations

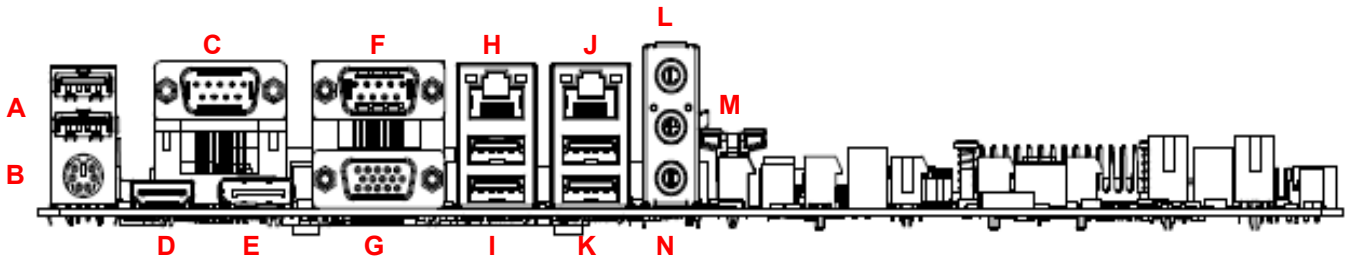


Figure 2: IO Panel Connector Locations

Table 1: IO Panel Connector Definitions

| IO Panel Connectors | |
|---------------------|--------------------------|
| Item | Description |
| A | 2x USB2.0 port |
| B | PS/2 Keyboard/Mouse port |
| C | COM1 RS-232/422/485 |
| D | HDMI port |
| E | DisplayPort |
| F | COM2 RS-232/422/485 |
| G | VGA port |
| H | LAN1 |
| I | 2x USB 3.2 Gen 2 |
| J | LAN2 |
| K | 2x USB 3.2 Gen 2 |
| L | Line in (light blue) |
| M | Line out (lime) |
| N | Mic in (pink) |

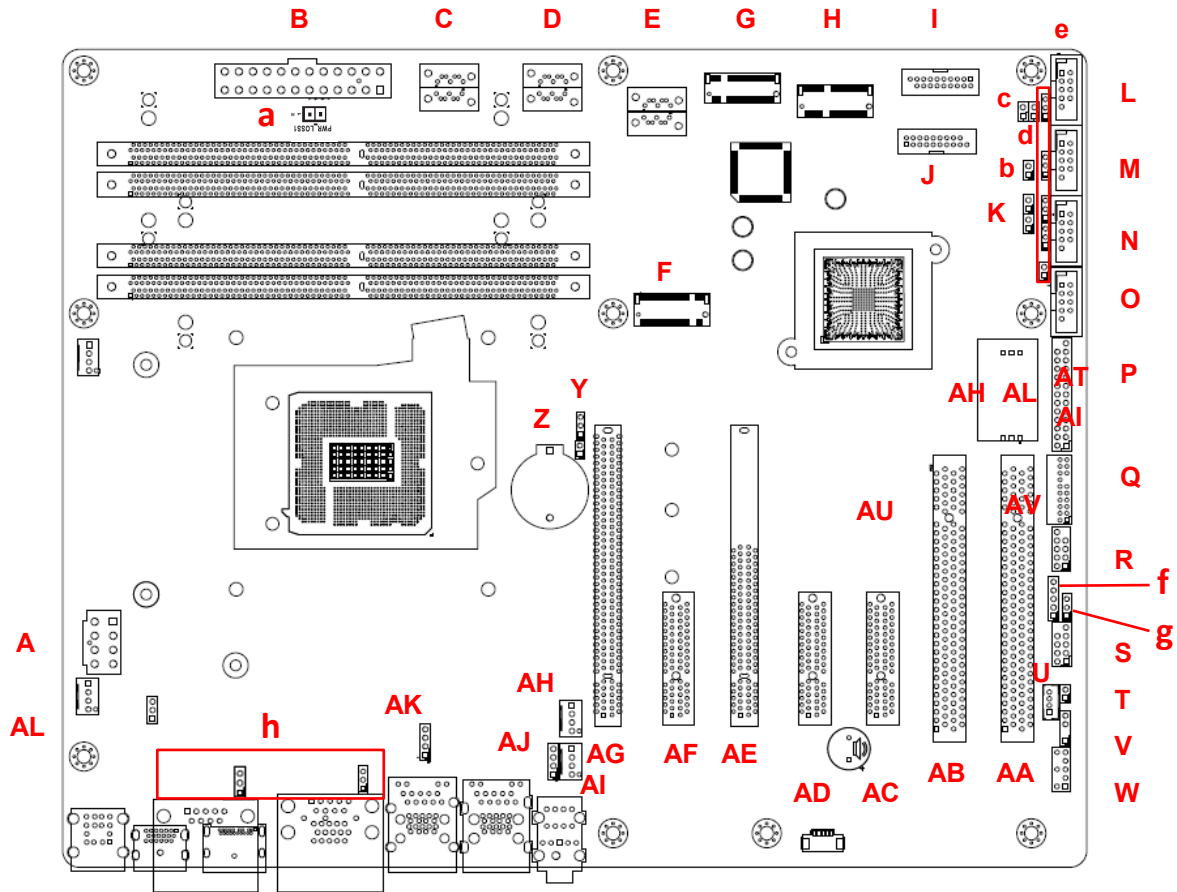


Figure 3: Onboard Connector Locations

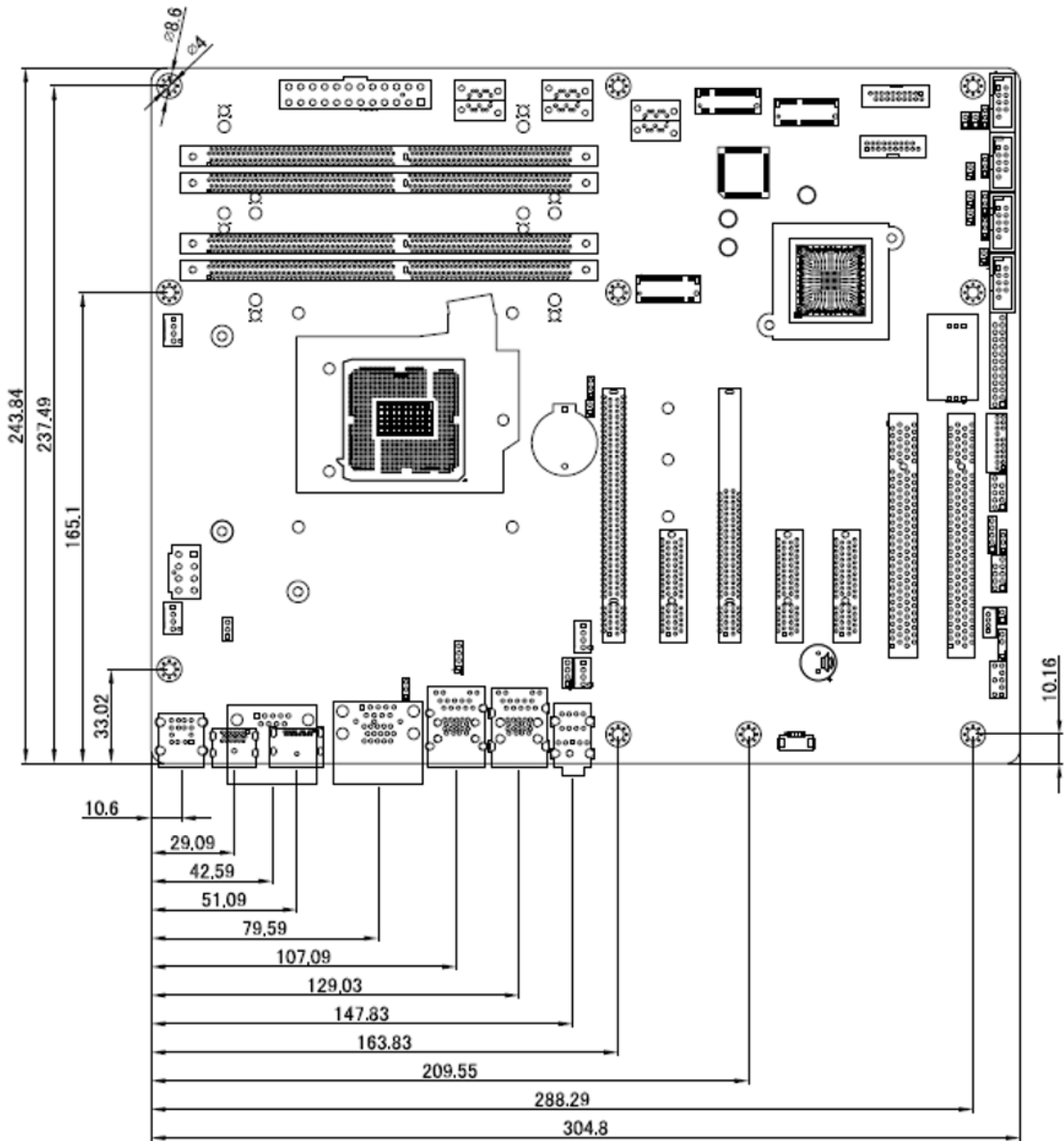
Table 2: Onboard Connector Definitions

| Onboard Connectors | | |
|--------------------|---------------------------|------------------|
| Item | Description | Remarks |
| A | ATX 12V Power connector | ATX12V1 |
| B | ATX Power 24-pin | |
| C | SATA3 connectors | SATA3_5, SATA3_6 |
| D | SATA3 connectors | SATA3_3, SATA3_4 |
| E | SATA3 connectors | SATA3_1, SATA3_2 |
| F | M.2 Key-M socket | M2_1 |
| G | M.2 Key-B socket | M2_B1 |
| H | M.2 Key-E socket | M2_2 |
| I | USB 3.2 Gen1 headers | USB3_5, USB3_6 |
| J | USB 32 Gen1 headers | USB3_7, USB3_8 |
| K | Chassis Intrusion headers | CI1, CI2 |
| L | COM port headers | COM6 |
| M | COM port headers | COM5 |
| N | COM port headers | COM4 |
| O | COM port headers | COM3 |

| Onboard Connectors | | |
|--------------------|--|--|
| P | Printer port / GPIO header | LPT_GPIO1 |
| Q | LPC header | LPT1 |
| R | USB 2.0 header | USB2_9, USB2_10 |
| S | System Panel header | PANEL1 |
| T | Buzzer | BUZZ1 |
| U | SMBUS | SMBUS_TEST1 |
| V | SPDIF header | |
| W | Front Panel Audio header | HDAUDIO_1 |
| X | MCU connector | MCU_CON1 |
| Y | Clear CMOS header | CLRMOS1 |
| Z | PWR_BAT1 | PCIEx4_3 |
| AA | PCI2 | PCI2 |
| AB | PCI1 | PCI1 |
| AC | PCI Express x4 | PCIE5 |
| AD | PCI Express x4 | PCIE4 |
| AE | PCI Express x8 | PCIE3 |
| AF | PCI Express x4 | PCIE2 |
| AG | PCI Express x16 | PCIE1 |
| AH | Chassis Fan connectors (+12V) | CHA_FAN3 |
| AI | Chassis Fan connectors (+12V) | CHA_FAN2 |
| AJ | LAN LED headers | LAN_LED2 (for LAN2 Port) |
| AK | LAN LED headers | LAN_LED1 (for LAN1 Port) |
| AL | Chassis Fan connectors (+12V) | CHA_FAN1 |
| Jumpers | | |
| Item | Description | Remarks |
| a | PWR Loss jumper | PWR_LOSS1 |
| b | PCIe Isolation jumper | PCIE_ISOLATION |
| c | DACC1 | |
| d | ATX/AT Mode jumper | SIO_AT1 |
| e | COM Port Pin9 PWR Setting jumpers | PWR_COM3 (for COM Port3) PWR_COM4 (for COM Port4) PWR_COM5 (for COM Port5) PWR_COM6 (for COM Port6) |
| f | Digital Input / Output Power Select | JGPIO_PWR1 |
| g | Digital Input / Output Default Value Setting | JGPIO_SET1 |
| h | COM Port Pin9 PWR Setting jumpers | PWR_COM1 (for COM Port1) PWR_COM2 (for COM Port2) |

3.2 Mechanical Dimensions

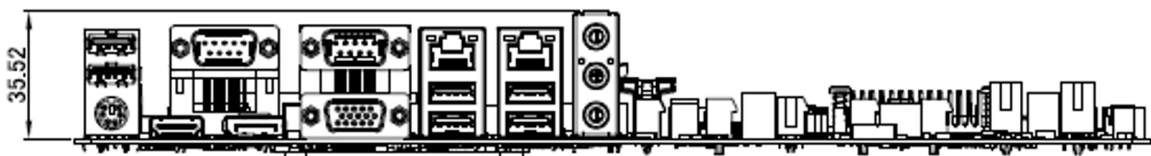
Top View



Dimensions: mm

Figure 4: Mechanical Dimensions

Side View



Dimensions: mm

Figure 5: Mechanical Dimensions - IO Panel

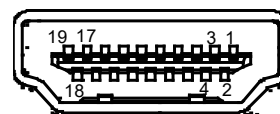
4 Connector Pinouts

See 3.1 Connector Locations on page 7 for connector locations.

4.1 Rear IO Connectors

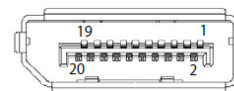
4.1.1 HDMI

| Pin | Signal | Pin | Signal |
|-----|---------------|-----|----------------|
| 1 | HDMI1_CON_DP2 | 2 | GND |
| 3 | HDMI1_CON_DN2 | 4 | HDMI1_CON_DP1 |
| 5 | GND | 6 | HDMI1_CON_DN1 |
| 7 | HDMI1_CON_DP0 | 8 | GND |
| 9 | HDMI1_CON_DN0 | 10 | HDMI1_CON_CKP |
| 11 | GND | 12 | HDMI1_CON_CKN |
| 13 | NC | 14 | NC |
| 15 | HDMI1_DDC_CLK | 16 | HDMI1_DDC_DATA |
| 17 | GND | 18 | +5V_HDMI |
| 19 | HDMI1_CON_HPD | | |



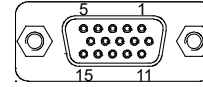
4.1.2 DisplayPort

| Pin | Signal | Pin | Signal |
|-----|-----------------|-----|-------------------|
| 1 | CN_DDPx0+ | 2 | GND |
| 3 | CN_DDPx0- | 4 | CN_DDPx1+ |
| 5 | GND | 6 | CN_DDPx1- |
| 7 | CN_DDPx2+ | 8 | GND |
| 9 | CN_DDPx2- | 10 | CN_DDPx3+ |
| 11 | GND | 12 | CN_DDPx3- |
| 13 | CN_DDPx_AUX_SEL | 14 | CN_DDPx_CONFIG2 |
| 15 | CN_DDPx_AUX+ | 16 | GND |
| 17 | CN_DDPx_AUX- | 18 | CN_DDPx_HPD |
| 19 | GND | 20 | +V3.3_DDPx_PWR_CN |



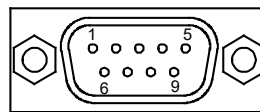
4.1.3 VGA Connector

| Pin | Signal | Pin | Signal |
|-----|--------------|-----|---------------|
| 1 | VGA_CON_RED | 2 | VGA_CON_GREEN |
| 3 | VGA_CON_BLUE | 4 | NC |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | +5V_HDMI | 10 | GND |
| 11 | NC | 12 | VGA_DDCDAT |
| 13 | VGA_CON_HS | 14 | VGA_CON_VS |
| 15 | VGA_DDCCLK | | |



4.1.4 COM 1-2 Connector Stack (Top connector COM1, Bottom connector COM2)

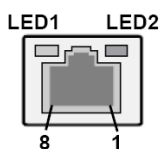
| Pin | Signal | | |
|-----|---------------------|--------|--------|
| | RS-232 | RS-422 | RS-485 |
| 1 | DCD# | Tx- | Tx/Rx- |
| 2 | RxD | Tx+ | Tx/Rx+ |
| 3 | TxD | Rx+ | N/A |
| 4 | DTR# | Rx- | N/A |
| 5 | GND | GND | GND |
| 6 | DSR# | N/A | N/A |
| 7 | RTS# | N/A | N/A |
| 8 | CTS# | N/A | N/A |
| 9 | No Power/ 5V/12V | N/A | N/A |



4.1.5 Ethernet Connectors (LAN1, LAN2)

Dual 10/100/1000Mbit/s LAN Ethernet controllers based on Intel® i219LM/i225LM, support PXE and WOL over both LANs. In BIOS menu only LAN 1 have wake on LAN option

| Pin | 10BASE-T/100BASE-TX | 1000BASE-T |
|-----|---------------------|------------|
| 1 | TX+ | LAN_MDI0+ |
| 2 | TX- | LAN_MDI0- |
| 3 | RX+ | LAN_MDI1+ |
| 4 | -- | LAN_MDI2+ |
| 5 | -- | LAN_MDI2- |
| 6 | RX- | LAN_MDI1- |
| 7 | -- | LAN_MDI3+ |
| 8 | -- | LAN_MDI3- |



| LED1 (Speed) | | LED2 (Link/Activity) | |
|--------------|-------------------|----------------------|---------------|
| Status | Description | Status | Description |
| Off | 10 Mb connection | Off | No Link |
| Orange | 100 Mb connection | Green | Linked |
| Green | 1 Gb connection | Blinking | Data Activity |

4.2 Onboard Headers / Connectors

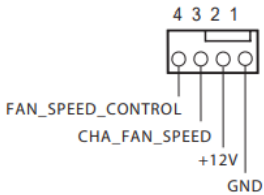
4.2.1 CPU_FAN1, SYS_FAN1, SYS_FAN2

| Pin | Signal | Description |
|-----|--------|----------------|
| 1 | GND | Ground |
| 2 | +12 V | FAN Power |
| 3 | Tach | FAN Tachometer |
| 4 | PWM | FAN PWM |

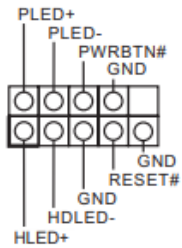


The fan header supports +12 V at 1 A maximum

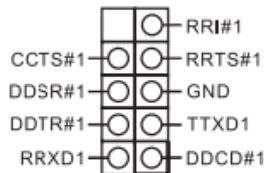
4.2.2 Chassis Fan Connectors (+12V)



4.2.3 System Panel Header

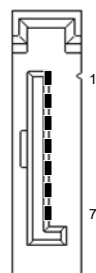


4.2.4 COM3, COM4, COM5, COM6



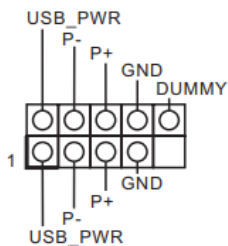
4.2.5 SATA1, SATA2, SATA3, SATA4, SATA5, SATA6

| Pin | Signal | Description | | | |
|-----|--------|-------------------------------|---|-----|------------------------------|
| 1 | GND | Ground | 5 | RXN | Receive diff data – negative |
| 2 | TXP | Transmit diff data – positive | 6 | RXP | Receive diff data – positive |
| 3 | TXN | Transmit diff data – negative | 7 | GND | Ground |
| 4 | GND | Ground | | | |

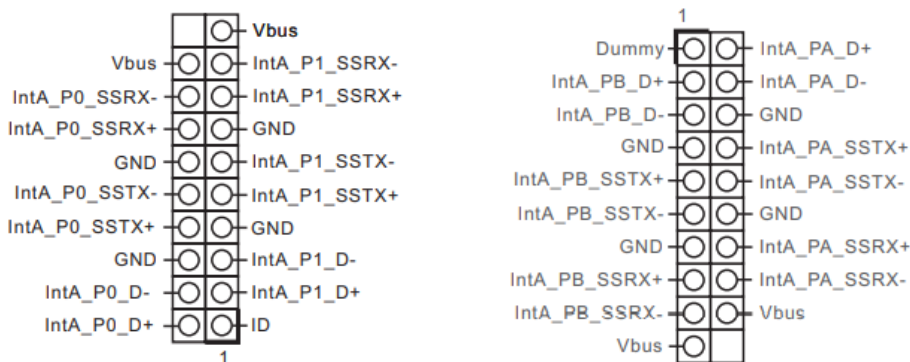


4.2.6 USB Connectors

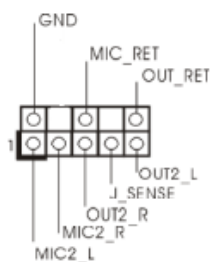
USB 2.0 Header



USB 3.2 Gen 1 Headers

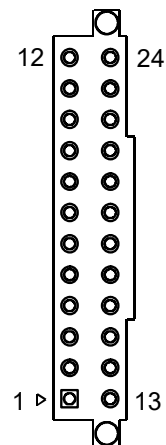


4.2.7 Front Panel Audio Header



4.2.8 ATXPWR1

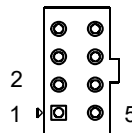
| Pin | Signal | Pin | Signal |
|-----|--------------------|-----|-------------------------------------|
| 1 | +3.3 V | 13 | +3.3 V |
| 2 | +3.3 V | 14 | -12 V |
| 3 | Ground | 15 | Ground |
| 4 | +5 V | 16 | PS-ON# (power supply remote on/off) |
| 5 | Ground | 17 | Ground |
| 6 | +5 V | 18 | Ground |
| 7 | Ground | 19 | Ground |
| 8 | PWRGD (Power Good) | 20 | No connect |
| 9 | +5 V (Standby) | 21 | +5 V |



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 10 | +12 V | 22 | +5 V |
| 11 | +12 V | 23 | +5 V |
| 12 | 3.3V | 24 | Ground |

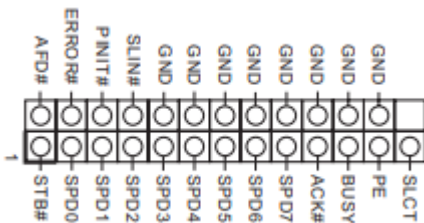
4.2.9 ATX12V1

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | Ground | 5 | +12V |
| 2 | Ground | 6 | +12V |
| 3 | Ground | 7 | +12V |
| 4 | Ground | 8 | +12V |



4.2.10 Printer Port / GPIO Header

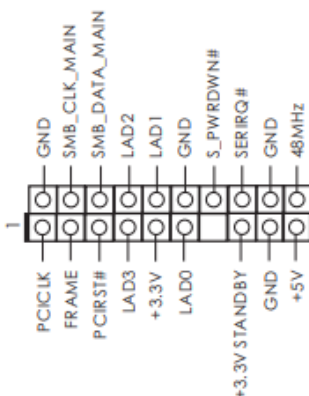
Printer Port



GPIO

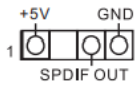
| PIN | Signal Name | PIN | Signal Name |
|-----|-------------|-----|-------------|
| 26 | NC | 25 | NA |
| 24 | GND | 23 | SIO_GP70 |
| 22 | GND | 21 | SIO_GP71 |
| 20 | GND | 19 | SIO_GP72 |
| 18 | GND | 17 | SIO_GP87 |
| 16 | GND | 15 | SIO_GP86 |
| 14 | GND | 13 | SIO_GP85 |
| 12 | JGPIOPWR | 11 | SIO_GP84 |
| 10 | JGPIOPWR | 9 | SIO_GP83 |
| 8 | SIO_GP73 | 7 | SIO_GP82 |
| 6 | SIO_GP74 | 5 | SIO_GP81 |
| 4 | SIO_GP75 | 3 | SIO_GP80 |
| 2 | SIO_GP76 | 1 | SIO_GP77 |

4.2.11 LPC Header



This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system can effectively enhance network security, protect digital identities while ensuring platform integrity.

4.2.12 SPDIF Header



SPDIF header provides SPDIF audio output to HDMI VGA card and allows the system to connect with HDMI Digital TV / projector / LCD devices.

Connect the SPDIF connector of an HDMI VGA card to this header.

4.2.13 LAN LED Header



4.2.14 SMBUS_TEST1



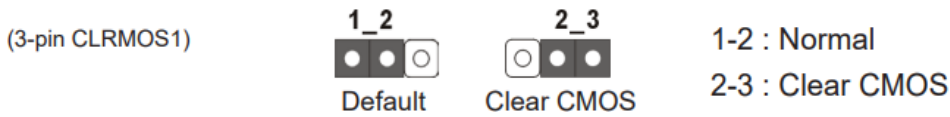
| PIN | Signal Name | PIN | Signal Name | PIN | Signal Name | PIN | Signal Name |
|-----|-------------|-----|-------------|-----|-------------|-----|-------------|
| 1 | +3V | 2 | SMB_CLK | 3 | SMB_DATA | 4 | GND |

4.2.15 Buzzer



4.3 Jumper and Switch Settings

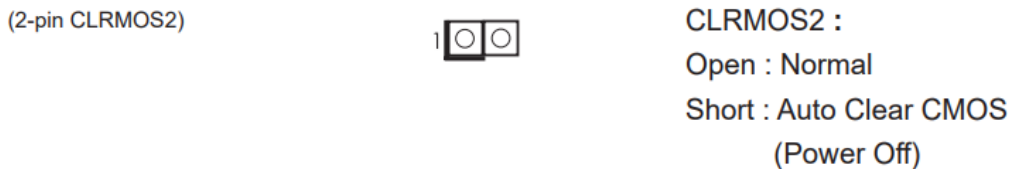
4.3.1 Clear CMOS Jumpers



CLRMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters back to factory default, turn off and unplug your system from power, wait for 15 seconds, and use a jumper cap to short pin2 and pin3 on CLRMOS1 for 5 seconds.

Please be reminded not to clear the CMOS right after a BIOS update. If you need to clear the CMOS after updating the BIOS, you must boot up and then shut down the system before proceeding with clearing CMOS.

Note: The date, time, and user default profile will only be cleared if the CMOS battery is removed.



CLRMOS2 allows you to clear the data in CMOS automatically upon AC startup. The data in CMOS includes system setup information, such as system password, date, time, and other system parameters.

To clear and reset the system parameters back to factory default, turn off and unplug your system from power, and then use a jumper cap to short the pins on CLRMOS2.

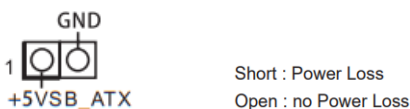
4.3.2 Digital Input / Output Power Select (JGPIOPWR)



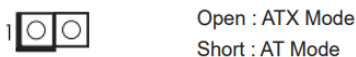
4.3.3 COM Port Pin9 PWR Setting Jumpers



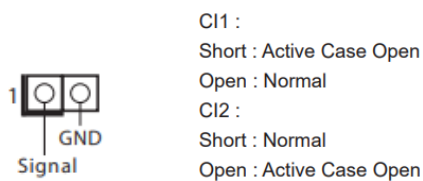
4.3.4 PWR LOSS Header



4.3.5 ATX/AT Mode Jumper



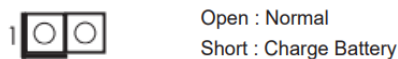
4.3.6 Chassis Intrusion Headers



4.3.7 Digital Input / Output Default Value Setting



4.3.8 PWR_BAT1



4.3.9 PCIe Isolation Jumper



4.3.10 DACC1



Note: ACC function is used to auto clear CMOS when the system boots improperly..

4.4 Expansion Slots

There are 5 PCI Express slots, 2 PCI slots, 3 M.2 sockets and 1 SIM socket on this motherboard.

PCIe and PCI slots:

| | Slot 1 (PCIe1) | Slot 2 (PCIe2) | Slot 3 (PCIe3) | Slot 4 (PCIe4) | Slot 5 (PCIe5) | Slot 6 (PCI1) | Slot 7 (PCI2) |
|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|
| Source | CPU | PCI bridge | CPU | PCH | PCH | PCH | PCI bridge |
| Bandwidth | PCIe 3.0 | PCIe 3.0 | PCIe 3.0 | PCIe 3.0 | PCIe 3.0 | PCI | PCI |
| Lane Config 1 | x16 | N/A | N/A | x4 | x4 | PCI | PCI |
| Lane Config 2 | x8 | N/A | x8 | | | | |
| Lane Config 3 | x8 | x4 | x4 | | | | |

SIM socket: 1 x SIM socket connected to M.2 key B

M.2 sockets:

- M.2 Key-M (M2_1)

| Pin | Signal | Signal | Pin |
|-----|----------------|----------|-----|
| 1 | GND | +3.3V | 2 |
| 3 | GND | +3.3V | 4 |
| 5 | PERn3 | NA | 6 |
| 7 | PERp3 | NA | 8 |
| 9 | GND | SATA_LED | 10 |
| 11 | PETn3 | +3.3V | 12 |
| 13 | PETp3 | +3.3V | 14 |
| 15 | GND | +3.3V | 16 |
| 17 | PERn2 | +3.3V | 18 |
| 19 | PERp2 | NA | 20 |
| 21 | GND | NA | 22 |
| 23 | PETn2 | NA | 24 |
| 25 | PETp2 | NA | 26 |
| 27 | GND | NA | 28 |
| 29 | PERn1 | NA | 30 |
| 31 | PERp1 | NA | 32 |
| 33 | GND | NA | 34 |
| 35 | PETn1 | NA | 36 |
| 37 | PETp1 | DEVSLP | 38 |
| 39 | GND | SMB_CLK | 40 |
| 41 | PERn0/ SATA-B+ | SMB_DATA | 42 |
| 43 | PERp0/ SATA-B- | NA | 44 |
| 45 | GND | NA | 46 |
| 47 | PETn0/ SATA-A- | NA | 48 |
| 49 | PETp0/ SATA-A+ | PERST# | 50 |
| 51 | GND | CLKREQ# | 52 |
| 53 | PEFCLKn | WAKE# | 54 |
| 55 | PEFCLKp | NA | 56 |
| 57 | GND | NA | 58 |
| 67 | NA | NA | 68 |
| 69 | PEDET | +3.3V | 70 |
| 71 | GND | +3.3V | 72 |
| 73 | GND | +3.3V | 74 |
| 75 | GND | | |

- M.2 Key-E (M2_2)

| Pin | Signal | Signal | Pin |
|-----|--------------|----------------|-----|
| 1 | GND | +3.3V | 2 |
| 3 | USB_D+ | +3.3V | 4 |
| 5 | USB_D- | NA | 6 |
| 7 | GND | NA | 8 |
| 9 | CNV_WGR_D1- | CNV_RF_RESET | 10 |
| 11 | CNV_WGR_D1+ | NA | 12 |
| 13 | GND | MODEM_CLKREQ | 14 |
| 15 | CNV_WGR_D0- | NA | 16 |
| 17 | CNV_WGR_D0+ | GND | 18 |
| 19 | GND | NA | 20 |
| 21 | CNV_WGR_CLK- | CNV_BRI_RSP | 22 |
| 23 | CNV_WGR_CLK+ | | |
| 33 | GND | CNV_BGI_DT | 32 |
| 35 | PETp | CNV_RGI_RSP | 34 |
| 37 | PETn | CNV_BRI_DT | 36 |
| 39 | GND | NA | 38 |
| 41 | PERp | NA | 40 |
| 43 | PERn | NA | 42 |
| 45 | GND | NA | 44 |
| 47 | PEFCLKp | NA | 46 |
| 49 | PEFCLKn | NA | 48 |
| 51 | GND | SUSCLK | 50 |
| 53 | CLKREQ# | PERSTO# | 52 |
| 55 | WAKE# | W_DISABLE1# | 54 |
| 57 | GND | W_DISABLE2# | 56 |
| 59 | CNV_WT_D1- | SMB_DATA | 58 |
| 61 | CNV_WT_D1+ | SMB_CLK | 60 |
| 63 | GND | NA | 62 |
| 65 | CNV_WT_D0- | CLKIN_XTAL_LCP | 64 |
| 67 | CNV_WT_D0+ | NA | 66 |
| 69 | GND | NA | 68 |
| 71 | CNV_WT_CLK- | NA | 70 |
| 73 | CNV_WT_CLK+ | +3.3V | 72 |
| 75 | GND | +3.3V | 74 |

- M.2 Key-B (M2_B1)

| Pin | Signal | Signal | Pin |
|-----|----------|---------------------|-----|
| 1 | NA | +3.3V | 2 |
| 3 | GND | +3.3V | 4 |
| 5 | GND | FULL Card Power off | 6 |
| 7 | USB_D+ | W_DISABLE | 8 |
| 9 | USB_D- | WWAN_LED# | 10 |
| 11 | GND | | |
| | | | |
| 21 | GND | NA | 20 |
| 23 | NA | NA | 22 |
| 25 | NA | NA | 24 |
| 27 | GND | NA | 26 |
| 29 | USB3_RX- | NA | 28 |
| 31 | USB3_RX+ | UIM_RESET | 30 |
| 33 | GND | UIM_CLK | 32 |
| 35 | USB3_TX- | UIM_DATA | 34 |
| 37 | USB3_TX+ | UIM_PWR | 36 |
| 39 | GND | NA | 38 |
| 41 | PERn0 | NA | 40 |
| 43 | PERp0 | NA | 42 |
| 45 | GND | NA | 44 |
| 47 | PETn0 | NA | 46 |
| 49 | PETp0 | NA | 48 |
| 51 | GND | PERST# | 50 |
| 53 | PEFCLKn | CLKREQ# | 52 |
| 55 | PEFCLKp | WAKE# | 54 |
| 57 | GND | NA | 56 |
| 59 | NA | NA | 58 |
| 61 | NA | NA | 60 |
| 63 | NA | NA | 62 |
| 65 | NA | NA | 64 |
| 67 | NA | NA | 66 |
| 69 | NA | NA | 68 |
| 71 | GND | +3.3V | 70 |
| 73 | GND | +3.3V | 72 |
| 75 | NA | +3.3V | 74 |

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5 Driver Installation

Download the requisite drivers for your system from the IMB-M46 product page at:

https://www.adlinktech.com/Products/Industrial_Motherboards_SBCs/ATXMotherboards/IMB-M46

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6 System Resources

6.1 System Memory Map

Table 3: System Memory Map

| Address Range | Address Range | Size | Description |
|---------------------------|----------------------|------|--------------------------|
| (4GB-2MB) | FFE00000 – FFFFFFFF | 2 MB | High BIOS Area |
| (4GB-18MB) – (4GB-17MB-1) | FEE00000 – FEEFFFFFF | 1 MB | MSI Interrupts |
| (4GB-20MB) – (4GB-19MB-1) | FEC00000 – FECFFFFFF | 1 MB | APIC Configuration Space |
| 15MB – 16MB | F00000 – FFFFFFF | 1 MB | ISA Hole |
| 1MB -15MB | 100000 - EFFFFFF | 14MB | Main Memory |
| 0K –1MB | 00000 – FFFFFFF | 1MB | DOS Compatibility Memory |

6.2 I/O Map

Table 4: IO Map

| Hex Range | Device |
|-----------|-----------------------------------|
| 0000-0CF7 | PCI Express Root Complex |
| 0D00-FFFF | PCI Express Root Complex |
| 0020-0021 | Programmable interrupt controller |
| 0024-0025 | Programmable interrupt controller |
| 0028-0029 | Programmable interrupt controller |
| 002C-002D | Programmable interrupt controller |
| 0030-0031 | Programmable interrupt controller |
| 0034-0035 | Programmable interrupt controller |
| 0038-0039 | Programmable interrupt controller |
| 003C-003D | Programmable interrupt controller |
| 00A0-00A1 | Programmable interrupt controller |
| 00A4-00A5 | Programmable interrupt controller |
| 00A8-00A9 | Programmable interrupt controller |
| 00AC-00AD | Programmable interrupt controller |
| 00B0-00B1 | Programmable interrupt controller |
| 00B4-00B5 | Programmable interrupt controller |
| 00B8-00B9 | Programmable interrupt controller |
| 00BC-00BD | Programmable interrupt controller |
| 04D0-04D1 | Programmable interrupt controller |
| 04D0-04D1 | Programmable interrupt controller |
| 002E-002F | Motherboard resources |
| 004E-004F | Motherboard resources |
| 0061-0061 | Motherboard resources |

| Hex Range | Device |
|-----------|-------------------------------|
| 0063-0063 | Motherboard resources |
| 0065-0065 | Motherboard resources |
| 0067-0067 | Motherboard resources |
| 0070-0070 | Motherboard resources |
| 0080-0080 | Motherboard resources |
| 0092-0092 | Motherboard resources |
| 00B2-00B3 | Motherboard resources |
| 0680-069F | Motherboard resources |
| FFFF-FFFF | Motherboard resources |
| 1800-18FE | Motherboard resources |
| 164E-164F | Motherboard resources |
| 0040-0043 | System timer |
| 0050-0053 | System timer |
| 0070-0077 | System CMOS/real time clock |
| 00F0-00F0 | Numeric data processor |
| 02E0-02E7 | COM5 |
| 02E8-02EF | COM4 |
| 02F8-02FF | COM2 |
| 0378-037F | Printer Port |
| 03E0-03E7 | COM6 |
| 03E8-03EF | COM3 |
| 03F8-03FF | COM1 |
| E000-EFFF | Chipset PCI Express Root Port |
| E000-EFFF | PCI-to-PCI Bridge |
| F000-F03F | Intel HD Graphic 630 |
| F040-F05F | SMBUS |
| F090-F097 | Standard SATA AHCI Controller |
| F080-F083 | Standard SATA AHCI Controller |
| F060-F07F | Standard SATA AHCI Controller |

6.3 Interrupt Request (IRQ) Lines

6.3.1 IRQ Lines PIC Mode

Table 5: IRQ Lines PIC Mode

| IRQ# | Device |
|------|--------------------------------------|
| 0 | System timer |
| 3 | COM2 |
| 4 | COM1 |
| 5 | COM3, COM4 |
| 8 | System CMOS/real time clock |
| 10 | COM5, COM6 |
| 13 | Numeric data processor |
| 14 | Intel Serial IO GPIO Host Controller |
| 15 | Intel Chipset Smbus |
| 16 | HD Audio Controller |

Note: These IRQs can be used for PCI devices when onboard device is disabled.

6.3.2 IRQ Lines APIC Mode

Table 6 IRQ Lines APIC Mode

| IRQ# | Typical Interrupt Resource | Connected to Pin | Available |
|--------|----------------------------------|-------------------------|-----------|
| 0 | System Counter | N/A | No |
| 1 | N/A | N/A | |
| 2 | N/A | N/A | |
| 3 | Serial Port 2 (COM2) | IRQ3 via SERIRQ / PIRQ | Note (1) |
| 4 | Serial Port 1 (COM1) | IRQ4 via SERIRQ / PIRQ | Note (1) |
| 5 | Serial Port3 (COM3) | IRQ5 via SERIRQ / PIRQ | Note (1) |
| 5 | Serial Port4 (COM4) | IRQ5 via SERIRQ / PIRQ | Note (1) |
| 7 | N/A | N/A | |
| 8 | Real-time clock | N/A | No |
| 9 | N/A | N/A | |
| 10 | Serial Port5 (COM5) | IRQ10 via SERIRQ / PIRQ | Note (1) |
| 10 | Serial Port6 (COM6) | IRQ10 via SERIRQ / PIRQ | Note (1) |
| 12 | N/A | N/A | |
| 13 | Math Processor | N/A | Note (1) |
| 14 | Intel IO GPIO Host Controller | N/A | Note (1) |
| 16 | High Definition Audio Controller | N/A | |
| 54-511 | Microsoft ACPI-Compliant System | N/A | Note (1) |

Note: These IRQs can be used for PCI devices when onboard device is disabled.

6.4 PCI Features

6.4.1 PCI Configuration Space Map

Table 7 PCI Configuration Space Map

| Bus Number | Device Number | Function Number | Routing | Description |
|------------|---------------|-----------------|----------|---------------------------------------|
| 00h | 00h | 00h | N/A | Intel Host Bridge |
| 00h | 02h | 00h | Internal | Intel VGA Controller |
| 00h | 14h | 00h | Internal | Intel USB 3.0 XHCI |
| 00h | 14h | 02h | Internal | Intel Data acquisition/signal process |
| 00h | 16h | 00h | Internal | Intel Communication device |
| 00h | 17h | 00h | Internal | Intel AHCI 1.0 controller |
| 00h | 1Ch | 00h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Ch | 01h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Ch | 02h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Ch | 03h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Dh | 00h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Dh | 05h | Internal | Intel PCI-to-PCI bridge PCIe |
| 00h | 1Fh | 00h | Internal | Intel ISA bridge |
| 00h | 1Fh | 03h | Internal | Intel Multimedia |
| 00h | 1Fh | 04h | Internal | Intel SMBU |
| 00h | 1Fh | 05h | Internal | Intel Controller |
| 00h | 1Fh | 06h | Internal | Intel Ethernet Controller |
| 02h | 00h | 00h | Internal | ITE PCI toPCI Bridge |
| 04h | 00h | 00h | Internal | Intel Ethernet Controller PCIe |
| 05h | 00h | 00h | Internal | Intel Ethernet Controller PCIe |
| 07h | 00h | 00h | Internal | Intel Ethernet Controller PCIe |

Note: The bus number change if the PEG/PCIE port has a device.

Table 8 PCI Interrupt Routing Map

| INT Line | LpcBridge | High Definition Audio | SMBus | PCIE Root Port #2 (IT8892) | PCIE Root Port #3 (LAN3) | PCIE Root Port #4 (LAN4) |
|----------|-----------|-----------------------|---------|----------------------------|--------------------------|--------------------------|
| Int0 | INTA:16 | INTA:16 | INTA:16 | INTB:17 | INTC:18 | INTD:19 |
| Int1 | INTB:17 | | | INTC:18 | INTD:19 | INTA:16 |
| Int2 | INTC:18 | | | INTD:19 | INTA:16 | INTB:17 |
| Int3 | INTD:19 | | | INTA:16 | INTB:17 | INTC:18 |

| INT Line | PCI Slot 1 | PCI Slot 2 | PCIE Root Port #5 (PClex4) | PCIE Root Port #9 (PClex4) | PCIE Root Port #13 (LAN1) | PCIE Root Port #14 (LAN2) |
|----------|------------|------------|----------------------------|----------------------------|---------------------------|---------------------------|
| Int0 | INTA:17 | INTA:18 | INTA:16 | INTA:16 | INTA:16 | INTB:17 |
| Int1 | INTB:18 | INTB:19 | INTB:17 | INTB:17 | INTB:17 | INTC:18 |
| Int2 | INTC:19 | INTC:16 | INTC:18 | INTC:18 | INTC:18 | INTD:19 |
| Int3 | INTD:16 | INTD:17 | INTD:19 | INTD:19 | INTD:19 | INTA:16 |

| INT Line | PCIE Root Port #21 (PClex4) |
|----------|-----------------------------|
| Int0 | INTA:16 |
| Int1 | INTB:17 |
| Int2 | INTC:18 |
| Int3 | INTD:19 |

6.5 SMBus Slave Addresses

Table 9 SMBus Slave Addresses

| Device | Address |
|---------|---------|
| DIMM_A1 | A0h |
| DIMM_A2 | A2h |
| DIMM_B1 | A4h |
| DIMM_B2 | A6h |

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7 UEFI Setup

7.1 Menu Structure

This section presents the primary menus of the UEFI Setup Utility. Use the following table as a quick reference for the contents of the UEFI Setup Utility. The subsections describe the submenus and options for each menu item.

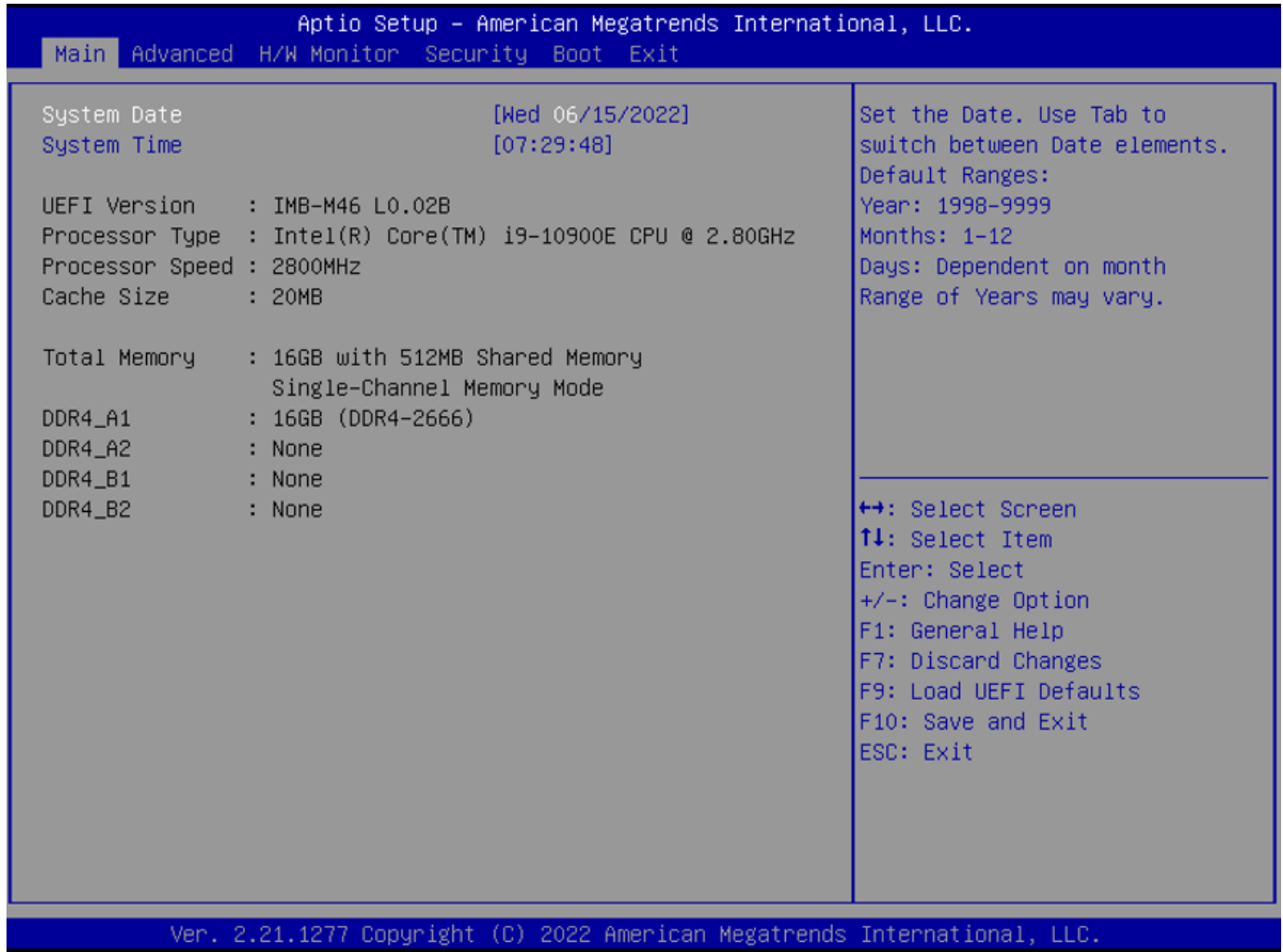
2 Options to enter UEFI Setup Utility:

- Press [F2] or [Del] during POST (Power-On-Self-Test)
- Press [Ctl] + [Alt] + [Del] after POST

| Main | Advanced | H/W Monitor |
|---|--|---|
| <ul style="list-style-type: none"> - Sets up the system time/date and displays the system information: - System Information - System Date - System Time | <ul style="list-style-type: none"> - Contains advanced system configurations, including: - - CPU - Chipset - Storage - Super IO - AMT Technology - ACPI - USB - Trusted Computing - Advanced Screen - H/W Health Monitoring Screen - Security Screen - Boot Screen | <ul style="list-style-type: none"> - Displays Hardware Status info, including: - - CPU Temperature - Motherboard Temperature - CPU Fan Speed - Voltages |
| Security | Boot | Exit |
| <ul style="list-style-type: none"> - Changes or clears the supervisor/user password for the system | <ul style="list-style-type: none"> - Configures the boot settings and boot priority for available devices | <ul style="list-style-type: none"> - Exits the UEFI Setup Utility while saving or discard the changes made - Also allows you to load the UEFI default settings |

7.2 Main Menu

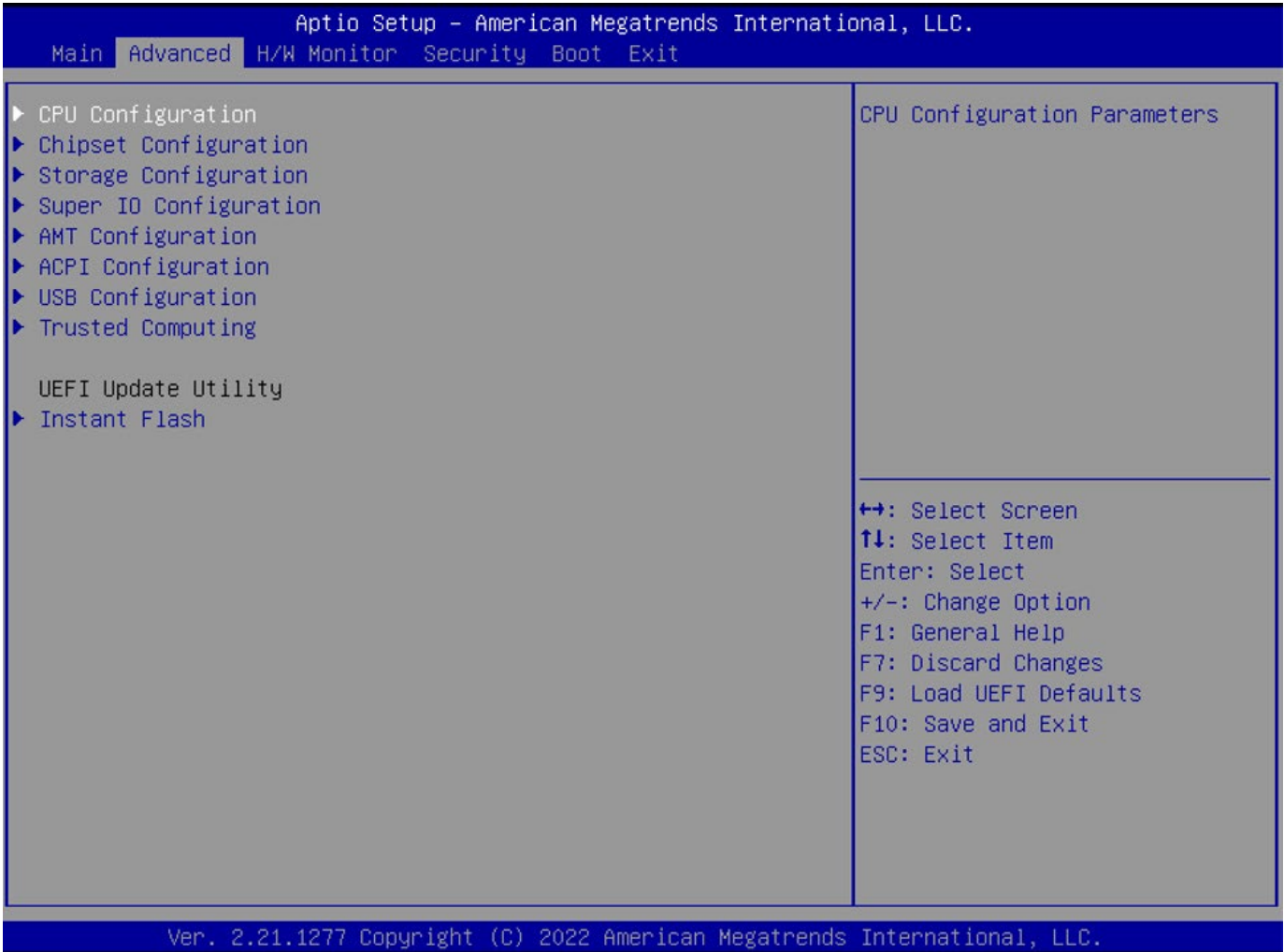
Upon entering the UEFI Setup Utility, the Main Menu is displayed, providing read-only information about your system and also allows you to set the System Date and Time. Refer to the screenshots and tables below for details of the submenus and settings.



| Aptio Setup - American Megatrends International, LLC. | | |
|---|---|---|
| Main Advanced H/W Monitor Security Boot Exit | | |
| System Date | [Wed 06/15/2022] | Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999 Months: 1-12 Days: Dependent on month Range of Years may vary. |
| System Time | [07:29:48] | |
| UEFI Version | : IMB-M46 L0.02B | ←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit |
| Processor Type | : Intel(R) Core(TM) i9-10900E CPU @ 2.80GHZ | |
| Processor Speed | : 2800MHZ | |
| Cache Size | : 20MB | |
| Total Memory | : 16GB with 512MB Shared Memory Single-Channel Memory Mode | |
| DDR4_A1 | : 16GB (DDR4-2666) | |
| DDR4_A2 | : None | |
| DDR4_B1 | : None | |
| DDR4_B2 | : None | |
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7.3 Advanced Menu

Contains the configurations for the following: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, AMT Configuration, ACPI Configuration, USB Configuration, and Trusted Computing.



| Feature | Description |
|---------------|---|
| Instant Flash | Updates system UEFI without requiring to enter operation systems. |

7.3.1 Advanced > CPU Configuration

Aptio Setup - American Megatrends International, LLC.

Advanced

| | |
|---|--|
| <pre> Intel(R) Core(TM) i9-10900E CPU @ 2.80GHz Processor ID A0655 Microcode Revision CA Processor Max Speed 2800 MHz Processor Min Speed 800 MHz Processor Cores 10Core(s) / 20Thread(s) Intel Hyper Threading Technology [Enabled] Active Processor Cores [All] CPU C States Support [Disabled] Intel Virtualization Technology [Enabled] Intel SpeedStep Technology [Enabled] Turbo Mode [Enabled] CPU Thermal Throttling [Enabled] </pre> | <pre> Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved. ----- ←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit </pre> |
|---|--|

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| Feature | Description |
|----------------------------------|---|
| Intel Hyper Threading Technology | Allows multiple threads to run on each core, thereby improving the overall performance on threaded software |
| Active Processor Cores | Selects the number of cores to enable in each processor package |
| CPU C States Support | Optimizes power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving. |
| Intel Virtualization Technology | Enables support for VMM (Virtual Machine Architecture) to utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology. |
| Intel SpeedStep Technology | Intel's new power saving technology, allowing processors to switch between multiple frequencies and voltage points for better power saving. This item will be hidden if the current CPU does not support Intel SpeedStep technology |
| Turbo Mode | Allows processor cores to run faster than marked frequency |
| CPU Thermal Throttling | Enables CPU internal thermal control mechanism to keep the CPU from overheating |

7.3.2 Advanced > Chipset Configuration

Aptio Setup - American Megatrends International, LLC.

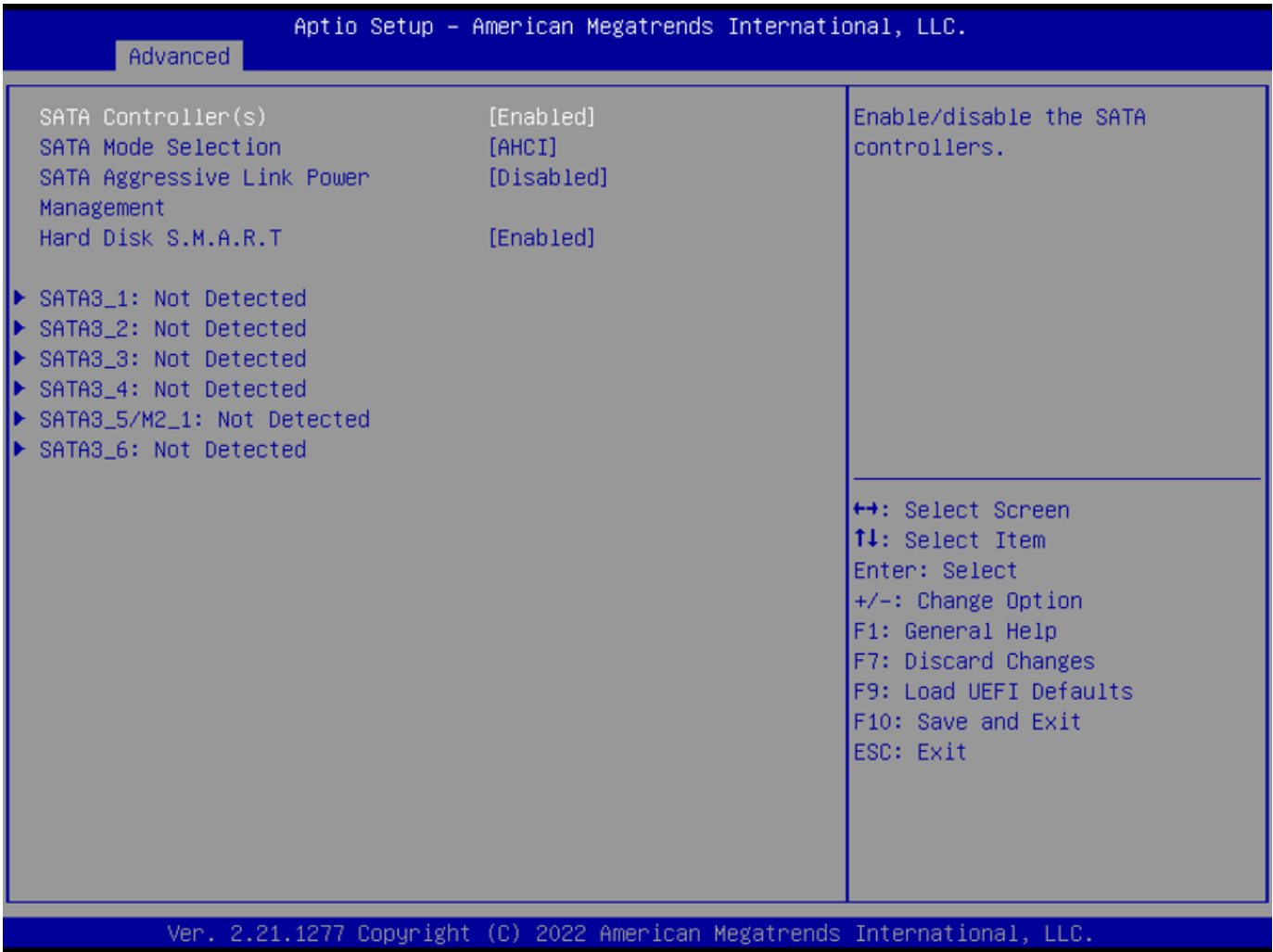
Advanced

| | | |
|--------------------------|---------------|--|
| ME Firmware Version | 14.0.33.1125 | Select a primary VGA. |
| VT-d Capability | Supported | |
| Primary Graphics Adapter | [PCI Express] | |
| Above 4G Decoding | [Disabled] | |
| VT-d | [Enabled] | |
| PCIE1 Link Speed | [Auto] | |
| PCIE2 Link Speed | [Auto] | |
| PCIE3 Link Speed | [Auto] | |
| PCIE4 Link Speed | [Auto] | |
| PCIE5 Link Speed | [Auto] | |
| Share Memory | [Auto] | ↔: Select Screen ↑↓: Select Item Enter: Select +/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit |
| IGPU Multi-Monitor | [Disabled] | |
| Onboard LAN1 | [Enabled] | |
| Onboard LAN2 | [Enabled] | |
| Onboard HD Audio | [Enabled] | |
| Deep Sleep | [Disabled] | |
| Restore on AC/Power Loss | [Power Off] | |

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| Feature | Description |
|--------------------------|---|
| Primary Graphics Adapter | Switches the boot priority of your graphic adapter between PCI Express and Onboard |
| Above 4G Decoding | Enables 64-bit capable devices to be decoded in Above 4G Address Space |
| VT-d | Enables Intel® VT-d technology (virtualization for directed I/O) |
| PCIE Link Speed (1-5) | Selects the link speed for PCIE 1-5 |
| Share Memory | Configures the size of memory that is allocated to the integrated processor upon bootup |
| IGPU Multi-Monitor | Disables the integrated graphics when an external graphics card is installed |
| Onboard LAN (1,2) | Enables the Onboard LAN1,2 features |
| Onboard HD Audio | Enables the Onboard HD Audio feature |
| Deep Sleep | Enables mobile platforms (DC only) or desktop platforms (AC only) to support Deep S4/S5 |
| Restore on AC/Power Loss | Selects the power state after a power failure |

7.3.3 Advanced > Storage Configuration



| Feature | Description |
|---------------------------------------|---|
| SATA Controller(s) | Enables the SATA Controller feature |
| SATA Mode Selection | Selects SATA mode |
| SATA Aggressive Link Power Management | Configures SATA Aggressive Link Power Management |
| Hard Disk S.M.A.R.T. | Enables the Self-Monitoring, Analysis, and Reporting Technology feature |

7.3.4 Advanced > Super IO Configuration

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Advanced

| | | |
|-------------------|------------------------|--|
| COM1 | [Enabled] | Enable or Disable COM1 IO=3F8h; IRQ=4; |
| Type Select | [RS232] | |
| COM2 | [Enabled] | |
| Type Select | [RS232] | |
| COM3 | [Enabled] | |
| COM4 | [Enabled] | |
| COM5 | [Enabled] | |
| COM6 | [Enabled] | |
| Parallel Port | [Enabled] | |
| Device Mode | [ECP and EPP 1.9 Mode] | |
| Change Settings | [Auto] | |
| 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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| Feature | Description |
|-------------------|---|
| COM (1-6) | Sets the parameters of COM 1-6 |
| Type Select | Selects the port type: RS232, RS422, or RS485 (for COM 1,2) |
| Parallel Port | Enables the Parallel port |
| Device Mode | Selects the device mode according to your connected device |
| Change Settings | Selects the address of the Parallel port |
| WDT Timeout Reset | Sets the Watch Dog Timer |

7.3.5 Advanced > AMT Technology

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Advanced

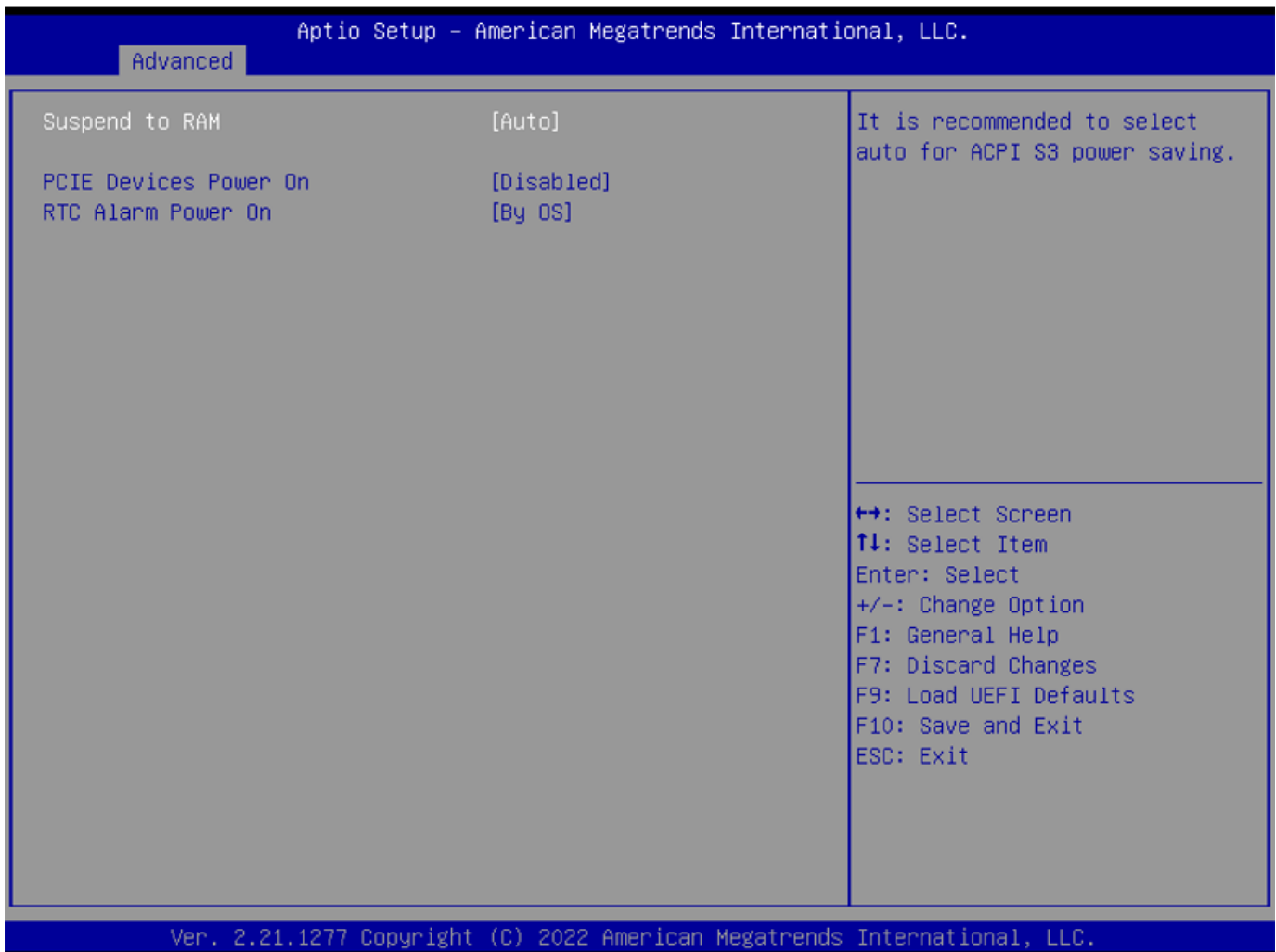
| | |
|--|---|
| <p>AMT BIOS Features [Enabled]</p> <p>USB Provisioning of AMT [Disabled]</p> <ul style="list-style-type: none"> ▶ CIRA Configuration ▶ ASF Configuration ▶ Secure Erase Configuration ▶ OEM Flags Settings ▶ MEBx Resolution Settings | <p>When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup.</p> <p>Note: This option does not disable Manageability Features in FW.</p> <hr/> <p>↔: Select Screen ↑↓: Select Item Enter: Select +/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit</p> |
|--|---|

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| Feature | Description |
|--|--|
| AMT BIOS Features | Enables Intel® Active Management Technology BIOS Extension |
| ASF support | Enables Alert Specification Format |
| USB Provisioning of AMT | Enables AMT USB Provisioning |
| Secure Erase mode | Changes Secure Erase module behavior: as explained below <ul style="list-style-type: none"> ● Simulated: Performs SE flow without erasing SSD ● Real: Erases SSD |
| Force Secure Erase | Enables Force Secure Erase on next boot |
| MEBx hotkey Pressed | Enables MEBx hotkey press |
| MEBx Selection Screen | Enables MEBx Selection Screen |
| Hide Un-configure ME Confirmation Prompt | Enables Hide Un-Configure ME without password confirmation prompt. |
| Un-Configure ME | Enables Un-Configure ME without password |
| WatchDog | Enables AMT WatchDog Timer |
| Activate Remote Assistance Process | Enables CIRA boot trigger |
| PET Progress | Enables PET Events progress to receive PET events |

| Feature | Description |
|--------------------------|--------------------------------------|
| ASF Sensors Table | Enables ASF Sensor Table |
| Non-UI Mode Resolution | Sets resolution for non-UI text mode |
| UI Mode Resolution | Sets resolution for UI text mode |
| Graphics Mode Resolution | Sets resolution for graphics mode |

7.3.6 Advanced > ACPI Configuration



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Advanced

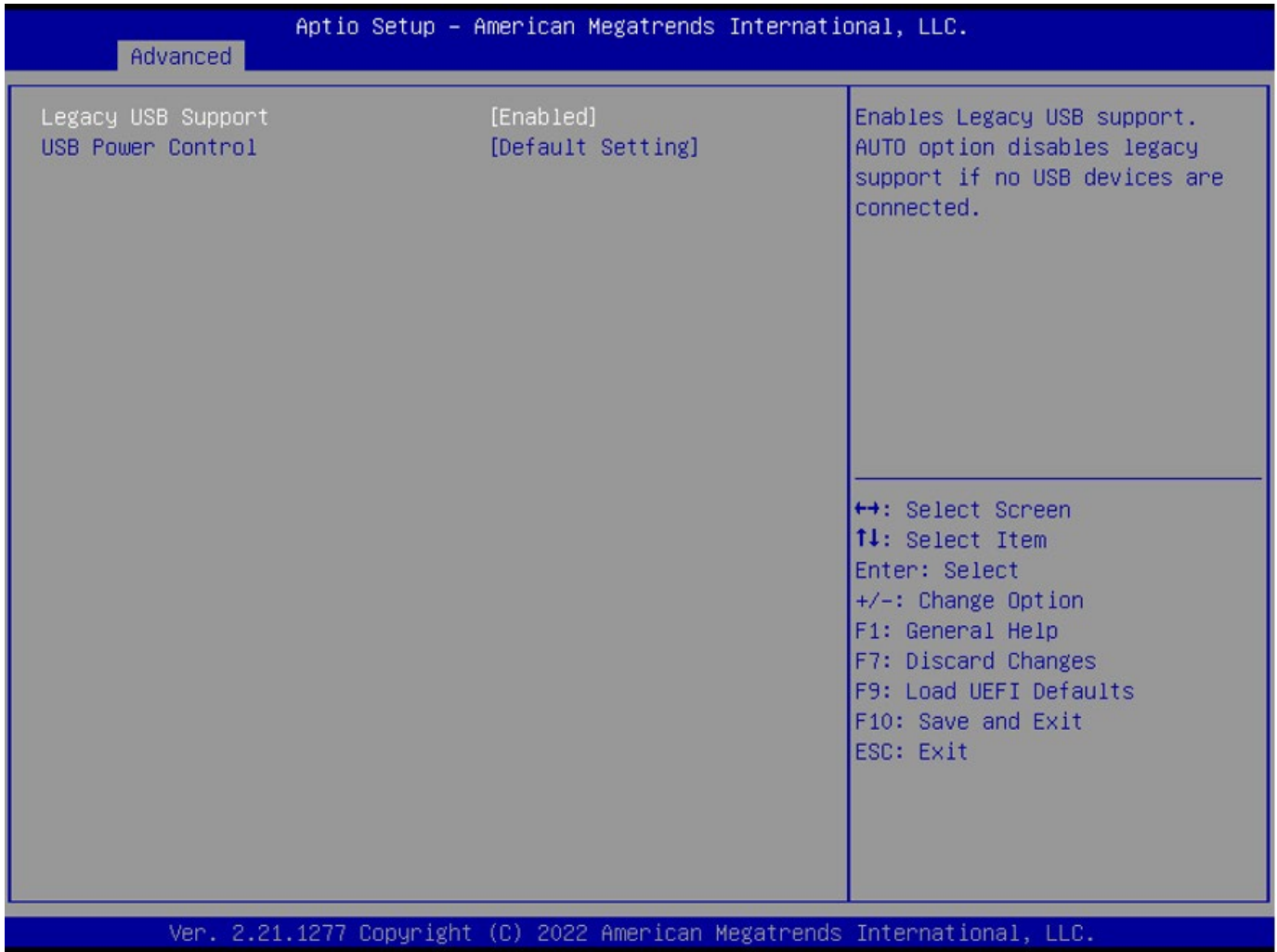
| | | |
|-----------------------|------------|--|
| Suspend to RAM | [Auto] | It is recommended to select auto for ACPI S3 power saving. |
| PCIE Devices Power On | [Disabled] | |
| RTC Alarm Power On | [By OS] | |

←→: 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 |
|-----------------------|---|
| Suspend to RAM | Sets to auto detect or disable the Suspend-to-RAM feature |
| PCIE Devices Power On | Enables PCIE devices to turn on the system from the power-soft-off mode |
| RTC Alarm Power On | Enables RTC (Real Time Lock) to power on the system |

7.3.7 Advanced > USB Configuration



| Feature | Description |
|--------------------|--|
| Legacy USB Support | Enables support for legacy USB devices: <ul style="list-style-type: none"> ● Enabled: Enables support for legacy USB ● UEFI Setup Only: USB devices can only be used under UEFI setup and Windows / Linux OS |
| USB Power Control | Controls USB power |

7.3.8 Advanced > Trusted Computing

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| | | |
|--------------------------------|--------------|---|
| TPM 2.0 Device Found | | Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. |
| Firmware Version: | 7.85 | |
| Vendor: | IFX | |
| Security Device Support | [Enable] | |
| Active PCR banks | SHA256 | |
| Available PCR banks | SHA-1,SHA256 | |
| SHA-1 PCR Bank | [Disabled] | |
| SHA256 PCR Bank | [Enabled] | |
| Pending operation | [None] | |
| Platform Hierarchy | [Enabled] | |
| Storage Hierarchy | [Enabled] | ←→: Select Screen |
| Endorsement Hierarchy | [Enabled] | ↑↓: Select Item |
| TPM 2.0 UEFI Spec Version | [TCG_2] | Enter: Select |
| Physical Presence Spec Version | [1.3] | +/-: Change Option |
| TPM 2.0 InterfaceType | [TIS] | F1: General Help |
| Device Select | [Auto] | F7: Discard Changes |
| Onboard TPM | [Enabled] | F9: Load UEFI Defaults |
| | | F10: Save and Exit |
| | | ESC: Exit |

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| Feature | Description |
|-------------------------|---|
| Security Device Support | Enables BIOS support for security devices |

7.4 Hardware Health Event Monitoring Screen

This screen allows you to monitor the status of your system and installed devices, such as CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.

```

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Main Advanced H/W Monitor Security Boot Exit

Hardware Health Event Monitoring
CPU Temperature           : +35 °C
M/B Temperature          : +32 °C

CPU_FAN1 Speed           : 3370 RPM
CHA_FAN1 Speed           : N/A
CHA_FAN2 Speed           : N/A
CHA_FAN3 Speed           : N/A

+3V                      : +3.312 V
+3VSB                    : +3.456 V
VCORE                    : +0.896 V
VCCM                     : +1.200 V
VBAT                     : +3.008 V
+12V                     : +12.160 V

CPU_FAN1 Setting         [Full On]
CHA_FAN1 Setting         [Full On]
CHA_FAN2 Setting         [Full On]
CHA_FAN3 Setting         [Full On]
Case Open Feature        [Disabled]

Quiet Fan Function Control

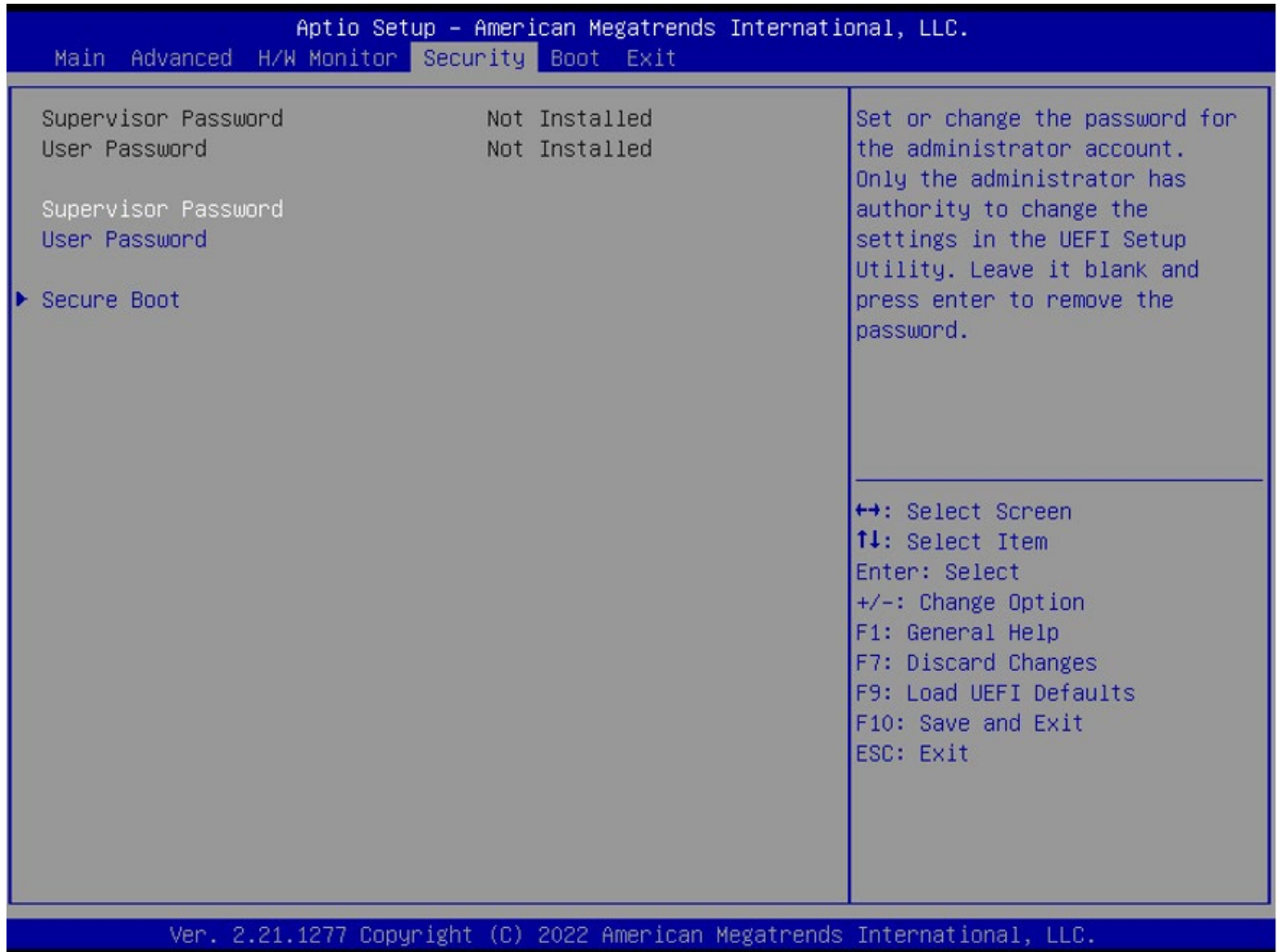
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
ESC: Exit

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```

| Feature | Description |
|-----------------------------|--|
| FAN Setting (CPU, CHA1,2,3) | Sets the speed for CPU Fan1, Chassis Fan1, Chassis Fan2, Chassis Fan 3 |
| Case Open Feature | Enables case open detection feature |
| Clear Status | Clears case open logs (only appears when the case open feature is enabled and triggered) |

7.5 Security Screen

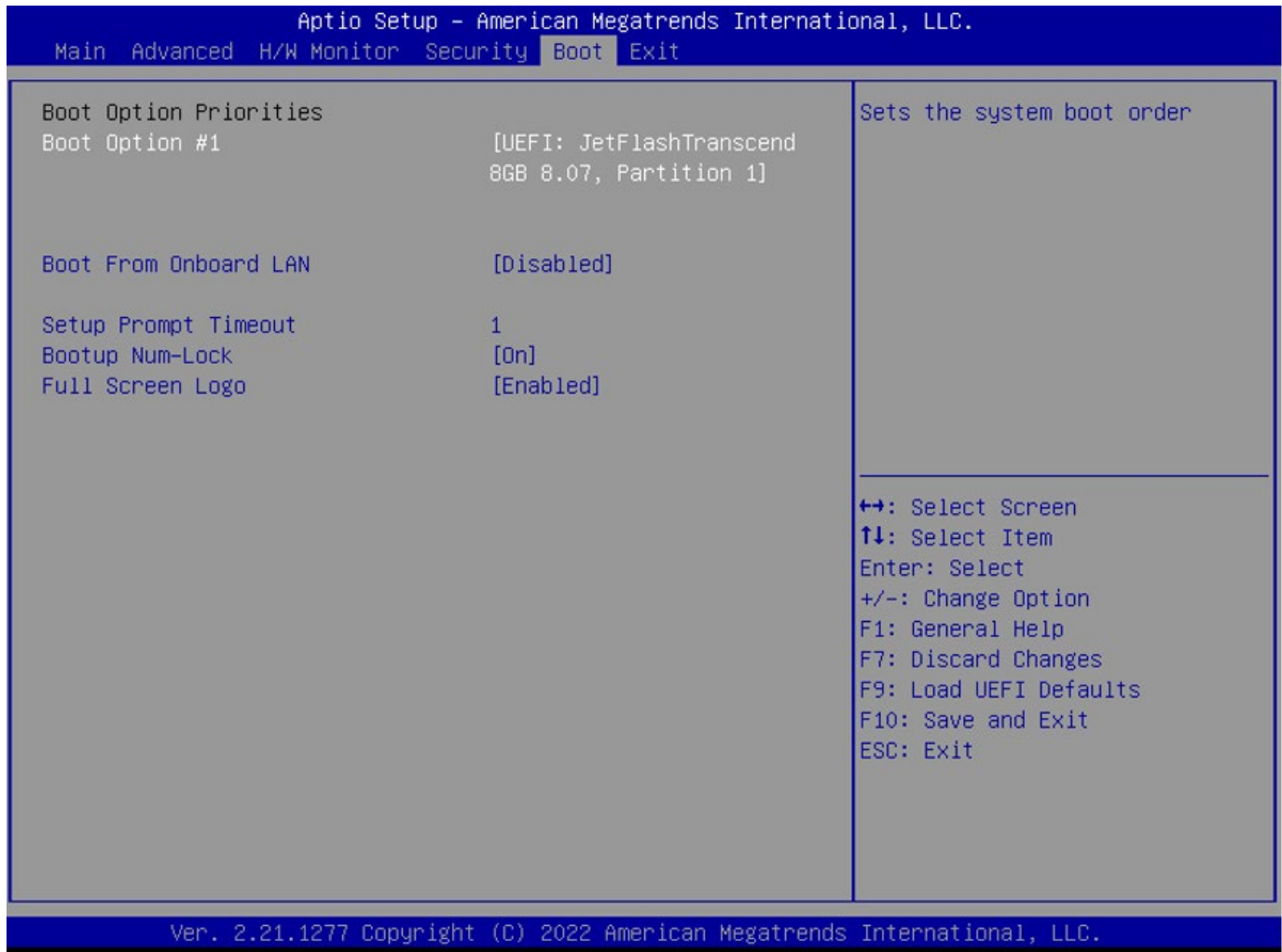
The Security Screen lets you change or clear the supervisor / user passwords for the system.



| Feature | Description |
|------------------------|---------------------------------|
| Administrator Password | Sets Administrator Password |
| User Password | Sets User Password |
| Secure Boot | Enables support for Secure Boot |

7.6 Boot Screen

This section displays the available devices on your system for you to configure the boot priority and settings.



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Main Advanced H/W Monitor Security **Boot** Exit

Boot Option Priorities

Boot Option #1 [UEFI: JetFlashTranscend 8GB 8.07, Partition 1]

Boot From Onboard LAN [Disabled]

Setup Prompt Timeout 1

Bootup Num-Lock [On]

Full Screen Logo [Enabled]

Sets the system boot order

←→: 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 |
|-----------------------|---|
| Boot From Onboard LAN | Enables Boot From Onboard LAN feature |
| Setup Prompt Timeout | Displays the number of seconds to wait for setup activation key |
| Bootup Num-Lock | Enables automatically activation of the Numeric Lock upon boot-up |
| Full Screen Logo | Enables OEM logo |

Safety Instructions

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- Please read these safety instructions carefully.
- Please keep this User's Manual for later reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment, turn off the power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
 - Keep equipment away from water or liquid sources.
 - Keep equipment away from high heat or high humidity.
 - Keep equipment properly ventilated (do not block or cover ventilation openings).
 - Make sure to use recommended voltage and power source settings.
 - Always install and operate equipment near an easily accessible electrical socket-outlet.
 - Secure the power cord (do not place any object on/over the power cord).
 - Only install/attach and operate equipment on stable surfaces and/or recommended mountings.
 - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

Getting Service

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