

## **User Manual**

## **TPC-1051WP/1551WP Series**

Industrial Touch Panel Computers with Intel<sup>®</sup> Atom<sup>™</sup> Processors







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This Manual Covers the Following Models:

- TPC-1051WP-E3 Series
- TPC-1551WP-E3 Series

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### **Product Warranty (2 years)**

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For outof-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

- 1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
- 2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
- If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
- 4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
- 5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

### **Declaration of Conformity**

#### CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

#### FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Technical Support and Assistance**

- 1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
- 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages



### **Safety Instructions**

- 1. Read these safety instructions carefully.
- 2. Keep this User Manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- 4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- 12. Never pour any liquid into an opening. This may cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 14. If one of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
- 15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
- 16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.





Caution! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

> Attention! Danger d'explosion si la pile est remplacée de façon incorrecte. Remplacez seulement avec le même type ou équivalent recommandé par le fabricant. disposer des piles usagées selon les instructions du fabricant.

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**General Information** 

### **1.1 Introduction**

The TPC-1051WP/TPC-1551WP Touch Panel Computers are state-of-the-art Human Machine Interfaces featuring 10.1" & 15.6" displays with Intel Atom™ E3827 1.75 GHz Processor

The key features are as follows:

#### True-flat touch screen

TPC-xx51WP series are true-flat touch screen designed with IP66 front protection.

Fanless

By using a low-power processor, the system does not have to rely on fans, which often are unreliable and causes dust to circulate inside the equipment.

#### Wide operating temperature

TPC-1051WP support -20~55°C and the TPC-1551WP support 0-55°C wide operating temperature solution to provide flexibility in harsh environments.

#### Bright Display

The TFT LED LCD display suits industrial demands for clear interfaces. Wide Operating Temperature & Isolation Protection.

### **1.2 Specifications**

#### 1.2.1 System Kernel

- CPU: Intel® Atom™ E3827 1.75 GHz Processor
- BIOS: AMI UEFI BIOS
- VGA: Integrated in Intel® Atom<sup>™</sup> E3827
- **Ethernet:** 10/100/1000Base-T x 2
- Watchdog Timer: EC watchdog timer; 1.0 second timeout period
- Storage:
  - CFast slot x 1 2.5" SATA HDD/SSD slot x 1 (optional, accessory TPC-1251T-EHKE required)

#### 1.2.2 I/O Ports

- RS-232 x 1, RS-232/422/485 x 1
- USB 3.0 x 1
- USB 2.0 x 1
- Full-size Mini PCIe Card x1

#### 1.2.3 O/S support

- Microsoft® Windows
  - WES7 32bit/64bit
  - Win EMB 8.1 Industry Pro
  - Windows 7 32bit/64bit
  - Windows 8 64bit
    - (see Appendix C for BIOS setup before installing Windows 8.X)



#### 1.2.4 Safety and Environment

#### Safety

- FCC Class A
- CE certificated
- The front bezel is compliant with IP66 for true flat models and IP65 for the TPCs with the traditional front bezel

#### Environment

- Operating Temperature:
  - TPC-1051WP: -20~55°C (-4 ~ 131°F)
  - TPC-1551WP: 0-55°C(32~131°F)
- Storage Temperature:
  - TPC-1051WP: -30-70°C (-22 ~ 158°F)
  - TPC-1551WP:-20-60°C(-4 ~ 140°F)
- Humidity: 40°C @ 10~95% relative humidity (non-condensing)
- Vibration:
  - With CFast: 2 Grms (5~500 Hz) With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

### **1.3 LCD Specifications**

	TPC-1051WP Series	TPC-1551WP Series
Display Type	TFT LED LCD	TFT LED LCD
Size	10.1"	15.6"
Maximum Resolution	1280 x 800 (WXGA)	1366 x 768 (WXGA)
Maximum Colors	262K	16.7m
Viewing Angle (CR≥10)	170° /170°	170°/160°
Luminance (cd / m2)	300	300
Contrast Ratio	1300:1	500:1
Operating Temperature	-20~55°C	0~55°C
Backlight Lifetime	25,000 hours	50,000 hours
Backlight	LED	LED

#### Note!

There might be several bright or dark pixels on the LCD. This phenomenon is normal in today's LCD manufacturing. Inspection criteria are following specifications defined by LCD vendor.

### **1.4 Touchscreen Specifications**

- **Touch Type:** Projected Capacitive Touch
- Base Glass Construction: Tempered glass
- **Resolution:** 2048 x 2048
- Light Transmission: 90% ± 3% (Measured by BYK-Gardner)
- Controller: USB Interface

### 1.5 Power

- Input Voltage: 24V<sub>DC</sub> +/- 20% (the fuse will become an open circuit if the input level exceeds 32 V<sub>DC</sub>)
- Typical: 24 V<sub>DC</sub> @ 1.5Amp for TPC-1051WP, 2.0Amp for TPC-1551WP

### **1.6 I/O Ports Arrangement**

The arrangement of the I/O ports is shown in Figure 1.1



Figure 1.1 I/O Port Arrangement



### 1.7 Panel Mounting

- 1. There is a rubber waterproof gasket on the AL front bezel. Make sure the waterproof gasket is in position before installing TPC into the panel opening.
- 2. Install the TPC into the panel opening.
- 3. Take the clamps and long screws from the accessory box. Hook the clamps to the holes around the four sides of the bezel. Insert the screws into every clamp and fasten them. These screws will push the mounting panel and fix the unit.
- 4. The suggested mounting panel thickness is less than 6 mm (0.236").

### **1.8 Dimensions and Cutout**

#### **TPC-1051WP Series**

- Weight: 2.56 kg
- Dimensions (W x H x D): 283.1 x 202.3 x 61.4 mm (11.15" x 7.96" x 2.42)
- **Cutout:** 274.6 (+/- 0.4mm) x 193.8(+/-0.7mm)

#### **TPC-1551WP Series**

- Weight: 5 kg
- Dimensions (W x H x D): 419.7 x 269 x 61.9mm (16.52" x 10.59" x 2.44")
- **Cutout:** 412.4(+/-0.4mm) x 261.7(+/-0.7mm)





Figure 1.2 TPC-1051WP Dimensions





#### Figure 1.3 TPC-1551WP Dimensions



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System Setup

## 2.1 System Setup

You can easily get TPC started by following the below steps.

1. Unpack the TPC package. Check the packing list at the beginning of this manual to make sure all items have been included.



Figure 2.1 Unpack the Package

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Install a CFast<sup>®</sup> card containing the operating system. 2.



Figure 2.2 Install CFast Memory Card (Mylar in accessory box can be attached to CFast card for easy extraction)



Warning! It is suggested to turn OFF system power as you plug in or pull out the memory card, even though the CompactFlash memory is hot swappable.

> Il est suggéré de désactiver l'alimentation du système que vous branchez ou retirez le carte mémoire, même si la mémoire CompactFlash est remplaçable à chaud.

3. Connect the power connector to the 24  $V_{DC}$  power lines. The power lines can either be of some power adapter or in-house power source.



Figure 2.3 Power Connector and Power Lines



Figure 2.4 Power Receptor & Button Pin Assignment

- 4. Plug the power lines into the system power receptor.
- 5. Supply power to the system

#### 2.1.1 Installing the Drivers

After installing your system software, you will be able to set up the Ethernet, VGA, and touchscreen functions. All drivers are stored in a CDROM disc entitled "TPC-1051WP, TPC-1551WP" which can be found in your accessory box.

The various drivers in the CD-ROM disc have their own text files which help users install the drivers and understand their functions. These files are a very useful supplement to the information in this manual.

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The drivers and utilities used for the TPC-1051WP, TPC-1551WP panel PCs are subject to change without notice. If in doubt, check Advantech's website or contact our application engineers for the latest information regarding drivers and utilities.



## 2.2 Transport and Unpacking

When accepting a delivery, please check the packaging for visible transport damage and check the delivery for completeness by comparing it with your order. If you notice any shipping damage or inconsistencies between the contents and your order, please inform the responsible delivery service immediately.

During transport, the TPC should be protected from excessive mechanical stress. If the TPC is transported or stored without packaging, shocks, vibrations, pressure and moisture may impact the unprotected unit. A damaged packaging indicates that ambient conditions have already had a massive impact on the device. Therefore, please use the original packaging during transportation and storage.

If the TPC is transported in cold weather or is exposed to extreme variations in temperature, make sure that moisture (condensation) does not build up on or inside the HMI device. Moisture can result in short-circuits in electrical circuits and damage the device. To avoid that, please store the TPC in a dry place and bring the TPC to room temperature before starting it up. If condensation occurs, a delay time of approximately 12 hours must be allowed to make sure the TPC is completely dry before the TPC is switched on.

### 2.3 Panel Mounting

1. Position the TPC against the panel.



2. Insert the clamps into the side of the TPC.





3. Secure the clamp to the panel using the included screws



### 2.4 Cabinet Installation and Earth Grounding setup

Please follow the following steps to setup TPC-xx51WP series, and please pay attention that Ground pin of TPC-xx51WP series should be connected to earth ground. Under this circumstance, TPC-xx51WP series could have the best performance such as EMI immunity, ESD immunity, Surge immunity and also system isolation. If TPCxx51WP series is embedded in the cabinet, TPC-xx51WP series's ground, cabinet's ground and earth ground should all be connected together.

1. Embed TPC-xx51WP series into the cabinet.



Step A: Connect the cabinet to earth ground.

Step B: Embed null TPC-xx51WP series into the cabinet without any I/O cable and power.



VICPAS

2. System wiring



Step A: Connect the cabinet to earth ground.

Step B: Ensure that all cabinet has been grounded together.

Step C: Connect the ground of the power supply to the cabinet.

Step D: Connect the ground pin of TPC-xx51WP series to the cabinet.

Step E: Connect the I/O to the controller if needed.

Step F: Connect the V+ and V- of power supply to TPC-xx51WP series.

While completing step A to F step by step, you can supply power to TPC-xx51WP series now.



Make sure all wires follow the installation guidelines or it may cause issues.

#### Note!

If you install a USB device or Mini PCIe card on the TPC-xx51WP series, please double check the voltage between V- and earth ground, if A the voltage is not almost equal with each other, we suggest to short Vand earth ground with wiring.

### 2.5 Power/Digital Ground and Earth Ground

The purpose is to block all the external interference on the chassis, and prevent any possibility of bad grounding design to cause electric shock of people. This is so called level 1 isolation which consumer PC do not implement this kind of design.

- TPC Chassis and Earth (Power pin3) are short,
- TPC Chassis and Power / Digital GND are OPEN



The TPC is and industrial grade product, designed to prevent external interference and the possibility of electric shock. To complete the isolation design, we need to consider the following:

- The Ethernet is isolated, a LAN connection will not impact the isolation design.
- For general USB devices, to solve EMI and ESD issues, they are designed as a chassis and digital short. But the TPC prevents damage to USB devices, ESD and EMI solutions are designed to use the Power GND as a vent path to ensure Power GND and Chassis GND will not have potential difference abnormalities.
- For COM ports, since there are different COM port designs, long distance connection cause voltage level difference between the two COM port chassis.So the shell ground of cable must be isolated to signal digital ground

In real cases, many customers may break the level 1 isolation by 3rd party Device or cable design, in this situation, we need to consider making all the GND short (Power GND/Digital GND/Earth GND), and ensure customers have good Earth GND connection.





Features in Windows Embedded

### **3.1 Features in Windows Embedded**

TPC product supports the embedded Windows platform. This section outlines the important features (EWF, FBWF and HORM), that are provided in WES7, and UWF provided in Win EMB 8.1 Industry Pro.

### 3.2 Enhanced Write Filter (EWF)

Enhanced Write Filter (EWF) and File-Based Write Filter (FBWF) redirect all writes targeted at protected volumes to a RAM or disk cache, called an overlay. The overlay stores changes made to the operating system, but is removed when the device is restarted, restoring the device to its original state. Note that there is no disk-based overlay support for Windows Embedded Standard 7.

EWF works at the sector level on protected disks and allows you to commit changes so that they persist when the device is restarted. EWF is useful for thin clients that do not need to store cached information or receive frequent updates. Changes made to a system protected by EWF are stored in one or more layers that represent snapshots in time. Applying changes to an image applies all changes made to the operating system during a specific period of time.

Advantech provide utility to operate EWF. Refer below steps if you want to enable.

1. Click Start Menu->All Programs->Advantech->AdvWF and click EWF Utility

Enhanced vviite	Filter
Enhanced Write volume from write separate disk par	Filter (EWF) provides the ability to write-protect a e access. It redirects all write requests to either a rittion or RAM. EWF operates at the sector level.
EWF Utility provident of the termination of terminatio	des a way for you to manage EWF or create a lent. To manage EWF, click EWF Utility button.
The button will be	e grey if FBWF is enabled!
	EWF Utility
File-Based Write	Filter
File-Based Write	Filter (FBWF), Like EWF, prevents writes to one
more protected v protected volume evel rather than t	es to a RAM cache. But FBWF operates at the fil the sector level.
more protected volume evel rather than t FBWF Utility prov FBWF, click FBV	sistian a RAM cache. But FBWF operates at the fil the sector level. vides a way for you to manage FBWF. To manag WF Utility button.
more protected vo protected volume evel rather than t FBWF Utility prov FBWF, click FBV The button will be	sis to a RAM cache. But FBWF operates at the fil the sector level. vides a way for you to manage FBWF. To manag WF Utility button. e grey if EWF is enabled!
more protected v protected volume evel rather than t FBWF Utility prov FBWF, click FBV The button will be	sets of a RAM cache. But FBWF operates at the fil the sector level. vides a way for you to manage FBWF. To manag WF Utility button. e grey if EWF is enabled! 



2. Click EWF tab, and click "Enable" button



3. After the system is rebooted automatically, EWF enable

### **3.3 File-Based Write Filter (FBWF)**

File-Based Write Filter (FBWF) works at the file level instead of the sector level on protected disks. By default, FBWF protects the whole disk, but selective write through exceptions can be granted to specific files and folders. Writes to folders with write-through exceptions will be persisted when the device restarts.

Advantech provide utility to operate FBWF. Refer below steps if you want to enable

 Click Start Menu->All Programs->Advantech->AdvWF and click FBWF Utility

Enhanced Write Filter	
Enhanced Write Filter (EWF) provides volume from write access. It redirects a separate disk partition or RAM. EWF o	the ability to write-protect a all write requests to either a sperates at the sector level.
EWF Utility provides a way for you to r HORM environment. To manage EWF	nanage EWF or create a F, click EWF Utility button.
The button will be grey if FBWF is ena	bled!
	EWF Utility
File-Based Write Filter	
File-Based Write Filter File-Based Write Filter (FBWF), Like EV more protected volumes and redirects protected volumes to a RAM cache. B evel rather than the sector level.	WF, prevents writes to one o all writes targeted for ut FBWF operates at the file
File-Based Write Filter File-Based Write Filter (FBWF), Like EV more protected volumes and redirects protected volumes to a RAM cache. B evel rather than the sector level. FBWF Utility provides a way for you to FBWF, click FBWF Utility button.	WF, prevents writes to one o all writes targeted for ut FBWF operates at the file manage FBWF. To manage
File-Based Write Filter File-Based Write Filter (FBWF), Like ET more protected volumes and redirects protected volumes to a RAM cache. B level rather than the sector level. FBWF Utility provides a way for you to FBWF, click FBWF Utility button. The button will be grey if EWF is enab	WF, prevents writes to one o all writes targeted for ut FBWF operates at the file manage FBWF. To manage led!
File-Based Write Filter File-Based Write Filter (FBWF), Like EV more protected volumes and redirects protected volumes to a RAM cache. B level rather than the sector level. FBWF Utility provides a way for you to FBWF, click FBWF Utility button. The button will be grey if EWF is enab	WF, prevents writes to one o all writes targeted for ut FBWF operates at the file manage FBWF. To manage led!

2. Move volume you want to protect from "Available Volume" to "Protected Volume" and choose "Write-Through Files and Folders"

Available V	olume: Protecte	d volume st: Ove	erlay threshol
Write-Throu	gh Files and Folders o	of protected volum	e:
	C: SRECYCLE.BIN Boot		* II
	Documents and S inetpub Intel	Settings	Ŧ
Available V Protected V Write-Throu files and din FBWF prote Overlay thre the FBWF r	olumes: The volumes folume list; The Volum gh Files and Folders of actories within a prote action. shold: Specifies the a nay use for cache.	can be FBWF pro es are protected b if protected volum cted volume exclu mount of memory	tected. ry FBWF. e: A list of ided from in MB, that

3. Click "**Apply**", and the system is rebooted automatically. Then FBWF enable.



### 3.4 **HORM**

HORM stands for Hibernate Once Resume Many. In HORM environment, a single hibernation file is used to boot the system repeatedly. To set a HORM environment, please follow the steps below.

- 1. Make sure EWF is disabled. You can run OSUnLock to disable EWF.
- 2. Enable hibernation support: Open the command prompt and type "powercfg -h on"
- 3. Run "power options" in control panel, and then select "Enable Hibernation" in hibernation pane.

#### Enable EWF:

- 1. Run OSLock, and then system reboot automatically.
- 2. Open those software that customers want to directly use after system resume from hibernation.
- 3. Hibernate via Advantech HORM utility:
- 1. Click Start Menu->All Programs->Advantech->AdvWF
- 2. Select "Enable Hibernation" in "Power Options".
- 3. Open AdvWF and enable EWF
- 4. After the system is rebooted automatically, open AdvWF and click EWF Utility.
- 5. Click HORM tab, and click "HORM" button.





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Serial Port Settings

## A.1 Jumper, Dip switch and Connector location

### A.1.1 Top



#### A.1.2 Bottom



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## A.2 Jumper setting and Description

### A.2.1 CMOS Clear Function (CN1)

	CMOS Clear Function
Description	This jumper is used to select CMOS Clear Enable/Disable
Default	(1-2)
(2-3)	Enable (Clear CMOS)
(1-2)	Disable

0

0

0

О



#### **A.3 Switch Setting**

COM2 RS232/422/485 mode setting (SW2)

	COM2 RS232/422/485 mode setting			
Description	This switch is used to select COM2 RS232/422/485 mode setting			
Default	RS232 mode			
RS232 Mode	Bit 1,2,3,4,5 ON Bit 6,7,8,9,10 OFF	20 2 3 4 5 7 8 7 19 19 18 18 17 18 18 17 5 18 18 18 18 17 18 18 18 18 18 18 18 18 18 18		
RS422 Master Mode	Bit 1,2,3,4,5,10 OFF Bit 6,7,8,9 ON			
RS422 Slave Mode	Bit 1,2,3,4,5 OFF Bit 6,7,8,9,10 ON	1 20 1 20		



RS485 Mode	Bit 1,2,3,4,5,8,9 OFF Bit 6,7,10 ON	1 7 7 7 7 7 7 7 7 7 7 7 7 7
------------	--	--

### A.3.1 Termination Resistor Select (SW3)

	Termination Resistor Select	
Description	This switch is used to select Termination Resistor (120 ohm) for long distance transmission or device matching.	
Default	Bit1 off & Bit2 off (DATA+ & RX-)	
DATA+	Pin 1	
RX-	Pin 2	
R_RX+	Pin 3	Default
R_DATA-	Pin 4	
	1 2	SW3 4 3 CHS-02TB(20)

### A.4 Connector Pin Definition

#### A.4.1 SATA connector (CN12)

1654004659 Serial ATA 7P 1.27mm 180D(M) DIP WATM-07DBN4A3B83.12

Pin	Signal	Description	
1	GND	GND	
2	A+	Signal Pair A : TX+/-	
3	A-	(Transmit)	
4	GND	GND	
5	B-	Signal Pair B : RX+/	
6	B+	(Receive)	
7	GND	GND	

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#### A.4.2 SATA Power connector (CN13)

1655000453 WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI

Pin	Signal	Description	
1	+V3.3SATA	SATA power output 3.3V/1A	
2	+V5SATA	SATA power output 5V/1A	
3	+V12SATA	SATA power output 12V/0.5A	
4	GND	GND	
5	GND	GND	

#### A.4.3 Mini PCIE slot (MINIPCIE)

1654002538 MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68N7H Supports PCI1.1, PCI1.2 Power Definition

Pin	Signal	Description Pi		Signal	Description
52	+3.3Vaux / +3.3V	PCI1.1 was +3.3V, PCI1.2 was +3.3Vaux		Reserved	NC
50	GND			Reserved	NC
48	+1.5V		47	Reserved	NC
46	NC	NC	45	Reserved	NC
44	NC	NC	43	PIN43_MPCIE_ PWRSEL	The pin to select the Pin 2, 52 power output for +3.3Vaux or +3.3V (PCI1.1 was Reserved and PIC1.2 was GND
42	NC	NC	41	+3.3Vaux	
40	GND		39	+3.3Vaux	
38	USB_D+	USB serial data interface compliant to	37	GND	
36	USB_D-	the USB 2.0 specification	35	GND	
34	GND		33	PETp0	PCI Express differential transmit pair
32	SMB_DATA	SMBus data signal compliant to the	31	PETn0	
30	SMB_CLK	SMBus 2.0 specification		GND	
28	+1.5V			GND	
26	GND		25	PERp0	PCI Express differential receive pair
24	+3.3Vaux		23	PERn0	
22	PERST#	Functional reset to the card	21	GND	
20	W_DISABLE #	Active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio fre- quency applications. When implemented, this signal requires a pull-up resistor on the card.	19	Reserved	NC
18	GND			Reserved	NC
	Key	Кеу		Key	Кеу
16	NC	NC	15	GND	
14	NC	NC	13	REFCLK+	
12	NC	NC	11	REFCLK-	
10	NC	NC	9	GND	
8	NC	NC	7	CLKREQ#	Reference clock request signal
6	1.5V		5	NC	NC
4	GND		3	NC	NC
2	+3.3Vaux / +3.3V	<ul> <li>PCI1.1 was +3.3V , PCI1.2 was</li> <li>+3.3Vaux</li> </ul>		WAKE#	Open Drain active Low signal. This sig- nal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.

\* +3.3Vaux was suspend Power , power out to device +3.3V/1.1A

\* +3.3V was core power

\* +1.5V was core power, power out to device +1.5V/0.5A

#### A.4.4 CFast slot (CN14)

1653004849 CFast 24P 1.27mm 90D(M) SMD N7G24-A0B2RA-10-0HT-The host is connected to the CFast Card using a 7+17 pin connector

Pin	Segment	CFast Name	Description	
S1	SATA	SGND	Ground for signal integrity	
S2	SATA	A+	Signal Pair A : TX+/-	
S3	SATA	A-	(Transmit)	
S4	SATA	SGND	Ground for signal integrity	
S5	SATA	В-	Signal Pair B : RX+/	
S6	SATA	B+	(Receive)	
S7	SATA	SGND	Ground for signal integrity	
	Key			
	Key			
PC1	PWR/CTL	CDI	NC	
PC2	PWR/CTL	GND	GND	
PC3	PWR/CTL	TBD	NC	
PC4	PWR/CTL	TBD	NC	
PC5	PWR/CTL	TBD	NC	
PC6	PWR/CTL	TBD	NC	
PC7	PWR/CTL	GND	GND	
PC8	PWR/CTL	LED1	CF_PHYRDY LED	
PC9	PWR/CTL	LED2	CF_HDDA LED	
PC10	PWR/CTL	IO1	NC	
PC11	PWR/CTL	IO2	NC	
PC12	PWR/CTL	IO3	NC	
PC13	PWR/CTL	PWR	-CFast Power output to Device +3.3V / 1.2A	
PC14	PWR/CTL	PWR		
PC15	PWR/CTL	PGND	-Ground for Power return	
PC16	PWR/CTL	PGND		
PC17	PWR/CTL	CDO	NC	

#### A.4.5 Power in connector (CN18)

1652003104 PLUG-IN BLOCK 3P 5.08mm 90D(M) DIP ME050-50803

Pin	Signal	Description	
1	Power IN V+	-24VDC +-20% Power in	
2	Power IN V– (GND)		
3	GND_EARTH The GND_EARTH to connect a Screw hole for short with the chassis GND		
CN18			
○ <b>● ●</b> ● ○ ~ ○ ~ ○ PLUG_3_508mm			


## A.4.6 LAN RJ45 connector (CN7,CN8)

1652002996 PHONE JACK RJ45 14P 90D(M) DIP RTA-195AAK1A

RJ45 Pin	Signal	Description
1	MDI0+	<ul> <li>In BASE-T: Media Dependent Interface[0]:</li> <li>1000BASE-T: In MDI configuration, MDI[0]+/- corresponds to BI_DA+/- and in MDI-X configuration MDI[0]+/- corresponds to BI_DB+/</li> </ul>
2	MDI0-	10BASE-T and 100BASE-TX: In MDI configuration, MDI[0]+/- is used for the transmit pair and in MDIX configuration MDI[0]+/- is used for the receive pair.
3	MDI1+	<ul> <li>In BASE-T: Media Dependent Interface[1]:</li> <li>1000BASE-T: In MDI configuration, MDI[1]+/- corresponds to BI_DB+ and in MDI-X configuration MDI[1]+/- corresponds to BI_DA+/</li> </ul>
6	MDI1-	10BASE-T and 100BASE-TX: In MDI configuration, MDI[1]+/- is used for the receive pair and in MDI-X configuration MDI[1]+/- is used for the transmit pair.
4	MDI2+	<ul> <li>In BASE-T: Media Dependent Interface[3:2]:</li> <li>1000BASE-T: In MDI and in MDI-X configuration,</li> </ul>
5	MDI2-	MDI[2]+/- corresponds to BI_DC+/- and MDI[3]+/- corre- sponds to BI_DD+/
7	MDI3+	<ul> <li>10BASE-TX. Unused.</li> <li>10BASE-T: Unused.</li> </ul>
8	MDI3-	

		Left LED	Right LED
10Link	100Link	1000 Link	Active
Off	Orange	Green	Green



## A.4.7 USB connector (CN10)

1654010199 USB Conn. 2.0+3.0 13P 90D(F) DIP UEA1112C-UHS6-4

Pin	Signal	Description
1, 10	USB VBUS	USB Power output ,USB2.0 5V/0.5A and USB3.0 5V/0.9A
2, 11	USB_P-	USB2.0 date -
3, 12	USB_P+	USB2.0 date +
4,13	GND	Ground for Power return
5	SSRX-	USB3.0 RX -
6	SSRX+	USB3.0 RX +
7	GND_DRAIN	Ground for signal return
8	SSTX-	USB3.0 TX -
9	SSTX+	USB3.0 TX +



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## A.4.8 COM1 RS232 connector (CN15)

1654000056 D-SUB Conn. 9P 90D(M) DIP 070241MR009S200ZU

Pin	RS232
1	DCD
2	RX
3	ТХ
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



## A.4.9 COM2 RS232/422/485 connector (CN16)

1654000056 D-SUB Conn. 9P 90D(M) DIP 070241MR009S200ZU

Pin	RS232	RS422	RS485	
1	DCD	TX-	D-	
2	RX	TX+	D+	
3	TX	RX+		
4	DTR	RX-		
5	GND	GND	GND	
6	DSR			
7	RTS			
8	CTS			
9	RI			
		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		







Driver Installation and Configuration

# **B.1** Intel Chipset Software Installation Utility Installation

Follow the steps below to install the Intel Chipset Software Installation Utility:

- 1. Launch <Driver Root Path>\Intel Chipset Software Installation Utility\SetupChipset\_XX.X.XX\_PV
- 2. Install SetupChipset.exe



3. Click Next

Intel(R) Chipset Device Software Welcome	(intel)
You are about to install the following product:	
Intel(R) Chipset Device Software	
It is strongly recommended that you exit all programs before	continuing.
Press Next to continue, or press Cancel to exit the setup prog	ram.
	Next Cancel



4. Click Accept

ntel(R) Chipset Device Software	(intel)
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV User)	Distribution & Single
IMPORTANT - READ BEFORE COPYING, INSTALLING OR U Do not use or load this software and any associated mater "Software") until you have carefully read the following terr loading or using the Software, you agree to the terms of t not wish to so agree, do not install or use the Software.	ISING. rials (collectively, the ms and conditions. By his Agreement. If you do
Please Also Note: * If you are an Original Equipment Manufacturer (OEM), In Vendor (IHV), or Independent Software Vendor (ISV), this AGREEMENT applies:	ndependent Hardware complete LICENSE
* If you are an End-User, then only Exhibit A, the INTEL SO AGREEMENT, applies.	FTWARE LICENSE
Back	Accept Cance

#### 5. Click Install

Readme File Inform	nation			
			***********	*******
<ul> <li>Product: In</li> <li>Version: 10</li> </ul>	o Chipset	Device Sor	tware	1.3
* Target PCH/0 * Date: 2014-0	Thipset: Mixed	Platform		
***********	***********	*********	**********	******
NOTE:				
Foi to	r the list of s the Release No	supported cl	nipsets, plea	se refer
*******	************		**********	******
CONTENTS OF	THIS DOCUMENT	*********	***********	******
This document	contains the fo	llowing se	ctions:	
1. Overview				
2. System Req	uirements			
3. Contents o	F the Distribut	ion Packag	Barran and	
4. List of Av	ailable Command	Line Swit	ch Options	

6. Click Finish





## **B.2** Intel Graphics Driver Installation

Follow the steps below to install the Intel Graphics driver:

- 1. Launch folder <Driver Root Path>\Graphics Driver\Intel EMGD win7 XX bit\
- 2. Install Setp.exe



3. Click Next



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4. Click Yes



#### 5. Click Next



6. Click Install





7. Click Next



8. Choose Yes, then click Finish to restart



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# **B.3 LAN Driver Installation**

Follow the steps below to install the LAN driver:

- 1. Launch folder <Driver Root Path>\LAN\Win7 \Install\_Win7\_XXX\_XXXXXXXX
- 2. Install setup.exe

				- =	0
Organize 👻 🔟 Ope	n Share with View folder		.9:	= ¥ 🛄	۲
🙀 Favorites	Name	Date modified	Туре	Size	i i
📃 Desktop	Jan FAQ	7/28/2014 7:30 PM	File folder		
🚺 Downloads	JEON	7/28/2014 7:30 PM	File folder		
🔛 Recent Places	QUICK_INSTALL_GUIDE	7/28/2014 7:30 PM	File folder		
	I README	7/28/2014 7:30 PM	File folder		
🥽 Libraries	DOL 3	7/28/2014 7:30 PM	File folder		
Documents	UTILIZE_DUAL_MAC_GUIDE	7/28/2014 7:30 PM	File folder		
J Music	J WIN7	7/28/2014 7:30 PM	File folder		
E Pictures	Setup.dll	7/24/2013 7:41 PM	Application extens	318 KB	
Videos	AutoInst	5/14/2012 10:30 PM	Application	87 KB	
	🔡 data1	7/24/2013 7:41 PM	Cabinet File	3,471 KB	
🜉 Computer	data1.hdr	7/24/2013 7:41 PM	HDR File	35 KB	
	data2	7/24/2013 7:41 PM	Cabinet File	1 KB	
👊 Network	EngLangID	11/3/2011 4:47 PM	Text Document	1 KB	
	InstCtrl	2/16/2011 5:11 PM	Text Document	1 KB	
	InstOpt	2/16/2011 5:11 PM	Text Document	1 KB	
	ISSetup.dll	7/24/2013 7:41 PM	Application extens	551 KB	
	layout.bin	7/24/2013 7:41 PM	BIN File	1 KB	
	setup	7/24/2013 7:41 PM	Application	392 KB	
	setup	7/24/2013 7:41 PM	Configuration sett	1 KB	
	C setun inv	7/24/2013 7-41 PM	TNX File	267 KB	



3. Click Next



#### 4. Click Install





#### 5. Click Finish



# **B.4** Intel® Trusted Execution Engine Driver Installation

Follow the steps below to install the Intel Trusted Execution Engine driver:

- 1. Launch folder <Driver Root Path>\TXE\Intel TXE Firmware\Win7
- 2. Install kmdf-1.11-Win-6.1-x86.msu

ndf-1.11-Win-6.1-x64 ndf-1.11-Win-6.1-x86	Date modified 2/7/2014 1:17 PM 2/7/2014 1:17 PM	Type Microsoft Update Microsoft Update	Size	792 KB 712 KB
	2/1/2027 2021 F M	milliour opport.		TIE ND

3. Click Yes





4. Click Restart Now, then the system will restart



- 5. Launch folder <Driver Root Path>\TXE\TXE\_Win7\_X\_X.X\_X.X.XXXX
- 6. Install SetupTXE.exe

rganize 🔻 🛅 Oper	n Share with 🔻 New folder			()EE		0
<b>Favorites</b>	Name	Date modified	Туре	Siz	e	
🔜 Desktop	퉬 x64	7/28/2014 8:25 PM	File folder			
鷆 Downloads	₩ x86	7/28/2014 8:25 PM	File folder			
🖳 Recent Places	🞬 mup	2/19/2014 11:36 PM	XML Document		5 KB	
	M SetupTXE	1/22/2014 7:42 PM	Application		35,582 KB	
Documents     Music     Pictures     Videos						
<ul> <li>Documents</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> <li>Computer</li> <li>Local Disk (C:)</li> <li>Network</li> </ul>						



7. Click Next

Setup	×
Intel® Trusted Execution Engine Welcome	(intel)
You are about to install the following product: Intel® Trusted Execution Engine	
It is strongly recommended that you exit all program Click Next to continue, or click Cancel to exit the set	ns before continuing. tup program.
Intel Corporation	<back next=""> Cancel</back>

#### 8. Click Next

etup			x
Intel® Trusted Execution Engine License Agreement		(intel.	
INTEL SOFTWARE LICENSE AGREEMENT (OEM, IMPORTANT - READ BEFORE COPYING, INSTAL Do not use or load this software and any associ until you have carefully read the following term: Software, you agree to the terms of this Agree install or use the Software.	/ IHV / ISV Distribution & S LING OR USING. lated materials (collectivel) s and conditions. By loadin ment. If you do not wish t	ingle User) y, the "Software ig or using the to so agree, do i	م ا ا
Please Also Note: * If you are an Original Equipment Manufacture (IHV), or Independent Software Vendor (ISV), i * If you are an End-User, then only Exhibit A, t applies.	r (OEM), Independent Ha this complete LICENSE AG he INTEL SOFTWARE LICE	rdware Ve <mark>n</mark> dor REEMENT applie ENSE AGREEME!	s; vT,
For OEMs, IHVs, and ISVs: LICENSE. This Software is licensed for use only Use of the Software in conjunction with non-Int I compared the terms in the License Agreement	in conjunction with Intel c el component products is i	omponent produ not licensed	ucts. Ŧ
Intel Corporation	< <u>B</u> ack	Next >	<u>C</u> ancel

9. Click Next





10. Choose Yes, then click Finish to restart.

:t:
ect. Would you like to restart the

# **B.5** Windows 7 USB 3.0 Driver Installation

Follow the steps below to install the Windows 7 USB 3.0 driver:

- 1. Launch folder <Driver Root Path>\USB3\Win7\SetupUSB3\_X.X.X.XX
- 2. Install Setup.exe

Image: Second	Eavoriter	Name	Date modified	Туре	Size
Johnson       Johnson       Johnson       Johnson       Johnson         Downloads       Drivers       7/28/2014 7:30 PM       File folder         X64       7/28/2014 7:30 PM       File folder         X64       7/28/2014 7:30 PM       File folder         Libraries       DIFxAPLdII       11/2/2006 8:21 AM       Application extens       312 KB         Documents       mup       6/9/2014 1:50 PM       XML Document       10 KB         Music       Readme       6/9/2014 1:50 PM       Application       954 KB         Videos       Setup.if2       6/9/2014 1:49 PM       Text Document       54 KB         Videos       Setup.if2       6/9/2014 1:49 PM       Application extens       41 KB         Computer       Network       Network       Application extens       41 KB	Deskton	anns	7/28/2014 7:30 PM	File folder	
Recent Places       Image: constraint of the second s	Downloads	Drivers	7/28/2014 7:30 PM	File folder	
iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	Recent Places	Lang	7/28/2014 7:30 PM	File folder	
Libraries       DIFxAPI.dll       11/2/2006 8:21 AM       Application extens       312 KB         Documents       mup       6/9/2014 1:50 PM       XML Document       10 KB         Music       Readme       6/9/2014 1:49 PM       Text Document       53 KB         Pictures       Setup       6/9/2014 1:50 PM       Application       954 KB         Videos       Setup.if2       6/9/2014 1:49 PM       IF2 File       6 KB         USB3Ver.dll       6/9/2014 1:49 PM       Application extens       41 KB         Computer       Network       Network       Image: Setup in the setup in th		🗼 x64	7/28/2014 7:30 PM	File folder	
Documents       mup       6/9/2014 1:50 PM       XML Document       10 KB         Music       Readme       6/9/2014 1:49 PM       Text Document       53 KB         Pictures       Setup       6/9/2014 1:50 PM       Application       954 KB         Videos       Setup.if2       6/9/2014 1:49 PM       IF2 File       6 KB         USB3Ver.dll       6/9/2014 1:49 PM       Application extens       41 KB	Libraries	DIFxAPI.dll	11/2/2006 8:21 AM	Application extens	312 KB
Music       Readme       6/9/2014 1:49 PM       Text Document       53 KB         Pictures       Setup       6/9/2014 1:50 PM       Application       954 KB         Videos       Setup.if2       6/9/2014 1:49 PM       IF2 File       6 KB         USB3Ver.dll       6/9/2014 1:49 PM       Application extens       41 KB         Network       Network       Setup       Setup       Setup	Documents	mup	6/9/2014 1:50 PM	XML Document	10 KB
Pictures       Setup       6/9/2014 1:50 PM       Application       954 KB         Videos       Setup.if2       6/9/2014 1:49 PM       IF2 File       6 KB         USB3Ver.dll       6/9/2014 1:49 PM       Application extens       41 KB         Computer       Network       Vetwork       Image: Setup in the setup i	J Music	Readme	6/9/2014 1:49 PM	Text Document	53 KB
Videos     Setup.if2     6/9/2014 1:49 PM     IF2 File     6 KB       Substrained     6/9/2014 1:49 PM     Application extens     41 KB       Computer       Network	E Pictures	🔙 Setup	6/9/2014 1:50 PM	Application	954 KB
USB3Ver.dll 6/9/2014 1:49 PM Application extens 41 KB     Computer     Network	Videos	Setup.if2	6/9/2014 1:49 PM	IF2 File	6 KB
Computer		🚳 USB3Ver.dll	6/9/2014 1:49 PM	Application extens	41 KB
	Computer				

3. Click Next



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4. Click Yes



#### 5. Click Next



6. Click Next





7. Choose Yes, then click Finish to restart





# **B.6 Advantech EC Driver Installation**

Follow the steps below to install the EC drivers:

- 1. Launch folder < Driver Root Path>\EC\Vx.xx.xxxx
- 2. Install AdvEC\_Vx.xx.xxxx.exe



3. Click Next

AdvEC - InstallShield Wizard	×
	Welcome to the InstallShield Wizard for AdvEC
	The InstallShield Wizard will install AdvEC on your computer. To continue, click Next.
	< Back Next> Cancel



AdvEC - InstallShield Wizard
Ready to Install the Program The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exi the wizard.
IristallShield -

#### 5. Click Finish



6. Choose Yes, then click OK to restart

Setup use the	nas finished cop program, you r	oying files to yo nust restart you	ur computer. Ir computer.	Before you car
Select	one of the follow	wing options ar	nd click OK to	o finish setup.
	Yes, I want to	) restart my con	puter now.	
¢	) No, I will resta	art my compute	r later.	
				OK



# **B.7** Advantech EC Brightness Control Tool Installation

Note!	The Advantech EC driver must be installed first

Follow the steps below to install the EC brightness control tool:

- 1. Launch folder <Driver Root Path>\EC Brightness\Vx.xx.xxxx
- 2. Install AdvECBrightness\_Vx.xx.xxx.exe



3. Click Next





4. Click Install



5. Click Finish

AdvECBrightness - InstallShiel	d Wizard
	InstallShield Wizard Complete
	AdvELbrightness. Llick Finish to exit the Wizard.
	Kack Finish Cancel

6. Choose **Yes**, then click **OK** to restart

Distance in the second second
your computer. Berore you can your computer.
and click UK to finish setup.
computer now.
uter later.
ОК





# **B.8 Advantech EC Watchdog Timer Driver** Installation

Ν	ote!

The EC driver must be installed first

Follow the steps below to install the EC Watchdog Timer driver:

- 1. Launch folder < Driver Root Path>\WDT\Vx.xx.xxxx
- 2. Install AdvWDT\_Vx.xx.xxxx.exe





3. Click Next



4. Choose Advantech [EC]WDT, then click Next



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#### 5. Click Install



#### 6. Click Finish





7. Choose Yes, then click OK to restart





# **B.9 Advantech LMsensor Driver Installation**

Follow the steps below to install the LMsensor driver:

- 1. Launch folder <Driver Root Path>\Lmsensor\Vx.xx.xxxx
- 2. Install AdvLmsensor\_EC\_Vx.xx.xxx.exe



3. Next

4.

🔠 Advant

Restart



#### Note!

The drivers and utilities used for the panel PCs are subject to change without notice. If in doubt, check Advantech's website or contact our application engineers for the latest information regarding drivers and utilities.







**BIOS Setup** 



AMI BIOS has been integrated into many motherboards for over a decade. With the AMI BIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the BIOS Setup Utility

Main Advanced Chipset	Security Boot Save & Exit	an Megatrends, Inc.
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time	American Megatrends 5.0.1.0 0.18 x64 UEFI 2.4; PI 1.3 TPC 1130000IF60X013 12/09/2014 19:07:13	Choose the system default language
Memory Information Total Memory	8192 MB (DDR3L)	
System Language		
System Date System Time	[Wed 12/10/2014] [01:07:47]	++: Select Screen 14: Select Item
Access Level	Administrator	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in flash ROM so it retains the Setup information when the power is turned off.

# C.1 Entering Setup

Turn on the computer and check for the patch code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press <DEL> and you will immediately be allowed to enter Setup.



## C.1.1 Main Setup

When you first enter the BIOS Setup Utility, users will enter the Main setup screen. Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc. Main Advanced Chipset Security Boot Save & Exit		
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Memory Information Total Memory	American Megatrends 5.0.1.0 0.18 x64 UEFI 2.4; PI 1.3 TPC 11300007F60X013 12/09/2014 19:07:13 8192 MB (DDR3L)	Choose the system default language
System Language System Date System Time	[English] [Wed 12/10/2014] [01:07:47]	++: Select Screen
Access Level	Administrator	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

#### System time / System date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.



Before installing WinCE image, IDE configuration must set SATA Mode to IDE Mode in BIOS to boot successfully.



### C.1.2 Advanced BIOS Features Setup

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. Users can select any item in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. Users can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.





### C.1.2.1 ACPI Settings Configuration



#### Enable ACPI Auto Configuration

This item allows users to enable or disable BIOS ACPI auto configuration.

#### Enable Hibernation

This item allows users to enable or disable System ability to hibernate (OS/S4 sleep State). This option may be not effective with some OS.

#### ACPI Sleep State

This item allows users to select the ACPI sleep state. The system will enter when the SUSPEND button is pressed.

#### Lock Legacy Resources

Enables or Disables Lock of Legacy Resources

#### C.1.2.2 Super I/O Configuration



Serial Port 1 Configuration

Set Parameters of Serial Port 1 (COMA)

Serial Port 2 Configuration

Set Parameters of Serial Port 2 (COMB)

#### C.1.2.3 Embedded Controller Configuration

Aptio Setup Util. Advanced	ity – Copyright (C) 2014 Ame	rican Megatrends, Inc.	
EC Firmware Version	I283BX0006	Select Irq Number eBrain	
EC Hardware Monitor		watchbog	
CPU temperature	: +32°C		
+VBAT	: +2.872 V		
+5VSB	: +5.020 V		
Vin	: +24.195 V		
Voore	: +0.868 V		
Current	: +0.314 A		
iManager WatchDog IRQ	[Disable]		
EC Watch Dog Function	[Disable]		
		M. Orlert Organi	
		tl: Select Item	
		Fnter: Select	
		+/-: Change Ont.	
		F1: General Help	
		F2: Previous Values	
		F3: Optimized Defaults	
		F4: Save & Exit	
		ESC: Exit	
Version 2 17 1246 Comunicht (C) 2014 American Medatrends. Inc			
Version 2.17.1240. Copyright (C) 2014 miler Lean Megatrends, Inc.			

#### EC Hardware Monitor

This page display all information about system Temperature/Voltage/Current.

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#### iManager WatchDog IRQ

This item allows users to set the IRQ number of EC watchdog.

#### EC Watch Dog Function

This item allows users to select EC watchdog timer.


## C.1.2.4 S5 RTC Wake Settings



## Wake system with Fixed Time

Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified.

## C.1.2.5 Serial Port Console Redirection

Aptio Setup Utility – C Advanced	opyright (C) 2014 American	Megatrends, Inc.
COMO Console Redirection ▶ Console Redirection Settings	[Disabled]	Console Redirection Enable or Disable.
COM1 Console Redirection ▶ Console Redirection Settings	[Disabled]	
Legacy Console Redirection ▶ Legacy Console Redirection Settings		
Serial Port for Out-of-Band Managemen Windows Emergency Management Services Console Redirection ▶ Console Redirection Settings	t/ : (EMS) [Disabled]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1246. Cop	yright (C) 2014 American M	egatrends, Inc.

## Console Redirection

This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).

## Console Redirection

This item allows users to configuration console redirection detail settings.

## C.1.2.6 CPU Configuration



## Execute Disable Bit

This item allows users to enable or disable Execute Disable Bit.

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows server 2003 SP1, Windows XP SP2, RedHat Enterprise 3 update 3.)

## Intel Virtualization Technology

This item allows users to enable or disable Intel Virtualization Technology.

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.



## C.1.2.7 Thermal Configuration



## Critical Trip Point

This value controls the temperature of the ACPI critical Trip Point in which the OS will shut the system off.

## Passive Trip Point

This value controls the temperature of the ACPI critical Trip Point - the point in which OS will begin throttling the processor.

## C.1.2.8 IDE Configuration



## Serial-ATA (SATA)

This item allows users to enable or disable SATA devices.

#### SATA Test Mode

Test Mode enable / disable ...

#### SATA Speed Support

Indicates the maximum speed the SATA controller can support.

#### SATA ODD Port

SATA ODD is Port0 or Port1.

#### SATA Mode

This item allows users to select SATA mode selection. (Determines how SATA controller(s) operate)

#### Serial-ATA Port 0 / Port1

Enable / Disable Serial ATA Port0 / Port1.

#### SATA Port 0 / Port1 HotPlug

Enable / Disable SATA Port0 / Port1 hotplug function.

#### Note!

Before installing WinCE image, IDE configuration must set SATA Mode to IDE Mode in BIOS to boot successfully.





## C.1.2.9 Miscellaneous Configuration



## OS Selection

OS Selection to choose Windows 8.X / Windows 7

## C.1.2.10 LAN Controller

Aptio Setup Utility – Copyright (C) 2015 American Megatrends, Inc. Advanced		
LAN Configuration LAN A Controller LAN B Controller Hake on LAN Enable	[Enabled] [Enabled] [Enabled]	Enable or disable LAN A.
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

## LAN A Controller

Enable or disable onboard NIC.

## LAN B Controller

Enable or disable onboard NIC.

## Wake on LAN Enable

Enable/Disable integrated LAN to wake the system

## C.1.2.11 CSM Configuration

Aptio Setup Utility – ( Advanced	Copyright (C) 2014 American	Megatrends, Inc.
Compatibility Support Module Configuration		Enable/Disable CSM Support.
CSM Support		
CSM16 Module Version	07.76	
GateA20 Active Option ROM Messages	[Upon Request] [Force BIOS]	
Boot option filter	[UEFI only]	
Option ROM execution		
Network Storage Video Other PCI devices	[UEFI] [UEFI] [Legacy] [UEFI]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Vencion 2 17 1246 Po	aunight (C) 2014 American M	odatnonde. Inc

#### CSM Support

Enable/Disable CSM Support.

#### GateA20 Active

UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1 MB.

#### Option ROM Messages

Set display mode for Option ROM

## Boot option filter

This option controls Legacy/UEFI ROMs priority

## Network

Controls the execution of UEFI and Legacy PXE OpROM

#### Storage

Controls the execution of UEFI and Legacy Storage OpROM

#### Video

Controls the execution of UEFI and Legacy Video OpROM

#### Other PCI devices

Determines OpROM execution policy for devices other than Network, Storage, or Video

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## C.1.2.12USB Configuration



## Legacy USB Support

Enables support for legacy USB. Auto option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only

## XHCI Hand-Off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should claim by XHCI driver.

## EHCI Hand-Off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

## ■ USB Mass Storage Driver Support

This item allows you to enable or disable the USB mass storage device support.

## Device reset time-out

USB mass storage device start unit command time-out.

## Device power-up delay

Maximum time the device will take before it properly report itself to the host controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.



# C.1.3 Chipset Configuration



# Intel IGD Configuration

Configure Intel IGD Settings

## C.1.3.1 Intel IGD Configuration

		LUDIOO
Intel IGD Configuration		VBIUS
Integrated Graphics Device	[Enabled]	
IGD Turbo Enable Primary Display	[Enabled] [IGD]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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## GOP Driver

Enable GOP Driver will unload VBIOS; Disable it will load VBIOS.



# C.1.4 Security



Select Security Setup from the main BIOS setup menu. All Security

Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

- Administrator Password
- Set Administrator Password..
- User Password

Set User Password..

## C.1.5 Boot

Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc. Main Advanced Chipset Security <mark>Boot</mark> Save & Exit			
Boot Configuration		Number of seconds to wait for	
Bootup NumLock State	1 [0n]	65535(0xFFFF) means indefinite	
Quiet Boot	[Disabled]	watchig.	
Tast boot	[01300100]		
Boot Option Priorities			
Boot Option #1 Boot Option #2	[UEFI: USB.2.0 Flash] [UEFI: Built-in FEI]		
		++: Select Screen	
		↑↓: Select Item	
		+/-: Change Opt.	
		F1: General Help	
		F3: Optimized Defaults	
		F4: Save & Exit FSC: Fxit	
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## Setup Prompt Timeout

Number of seconds that the firmware will wait before initiating the original default boot selection. A value of 0 indicates that the default boot selection is to be initiated immediately on boot. A value of 65535(0xFFFF) indicates that firmware will wait for user input before booting. This means the default boot selection is not automatically started by the firmware.

#### Bootup NumLock State

Select the keyboard NumLock state

#### Quiet Boot

Enables or disables Quiet Boot option

#### Fast Boot

Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

#### Boot Option #1

Sets the system boot order

#### Boot Option #2

Sets the system boot order



## C.1.6 Save & Exit



## Save Changes and Exit

This item allows you to exit system setup after saving the changes.

## Discard Changes and Exit

This item allows you to exit system setup without saving any changes.

## Save Changes and Reset

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

## Discard Changes and Reset

This item allows you to rest system setup without saving any changes.

## Save Changes

This item allows you to save changes done so far to any of the options.

## Discard Changes

This item allows you to discard changes done so far to any of the options.

## Restore Defaults

This item allows you to restore/load default values for all the options.

## Save as User Defaults

This item allows you to save the changes done so far as user defaults.

## Restore User Defaults

This item allows you to restore the user defaults to all the options.

## Boot Override

Boot device select can override your boot priority.

## Launch EFI Shell from files system device

Attempts to Launch EFI Shell application (Shell.efi) from one of the available file system devices.





# www.advantech.com

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