

OMNI-5215-SKU

Industrial Touch Panel PC With 6th Gen. Intel® Core™ Processor (Formerly code name: Skylake) User's Manual 1ª Ed

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Packing List

Before setting up your product, please make sure the following items have been shipped:

ltem		Quantity
•	OMNI-5000-SKU Series Panel PC	1
•	Product CD with User's Manual (in pdf) and drivers	1
•	3 Pin Terminal block	1
•	HDD bracket	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

- 1. All cautions and warnings on the device should be noted.
- All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by AAEON to prevent system malfunction or fires.
- 3. Make sure the power source matches the power rating of the device.
- 4. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- Always completely disconnect the power before working on the system's hardware.
- No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
- If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- 8. Always disconnect this device from any AC supply before cleaning.
- 9. While cleaning, use a damp cloth instead of liquid or spray detergents.
- 10. Make sure the device is installed near a power outlet and is easily accessible.
- 11. Keep this device away from humidity.
- 12. Place the device on a solid surface during installation to prevent falls
- 13. Do not cover the openings on the device to ensure optimal heat dissipation.
- 14. Watch out for high temperatures when the system is running.
- 15. Do not touch the heat sink or heat spreader when the system is running
- 16. Never pour any liquid into the openings. This could cause fire or electric shock.

- 17. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
- 18. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device

 DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the 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 and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Panel PC/ Workstation

	有毒有害物质或元素					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
印刷电路板	0	0	0		0	0
及其电子组件	0	0	0	0	0	0
外部信号	0	0	0		0	0
连接器及线材	0	0	0	0	0	0
外壳	0	0	0	0	0	0
中央处理器	0	0	0	0	0	0
与内存	0	0	0	0	0	0
硬盘	0	0	0	0	0	0
液晶模块	0	0	0	0	0	0
光驱	0	0	0	0	0	0
触控模块	0	0	0	0	0	0
电源	0	0	0	0	0	0
O:表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。						

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

备注:

一、此产品所标示之环保使用期限,系指在一般正常使用状况下。 二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Panel PC/ Workstation

	Poisonous or Hazardous Substances or Elements						
Component	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)	
PCB & Other Components	0	0	0	0	0	0	
Wires & Connectors for External Connections	0	0	0	0	0	0	
Chassis	0	0	0	0	0	0	
CPU & RAM	0	0	0	0	0	0	
Hard Disk	0	0	0	0	0	0	
LCD	0	0	0	0	0	0	
Optical Drive	0	0	0	0	0	0	
Touchscreen	0	0	0	0	0	0	
PSU	0	0	0	0	0	0	

O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

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Chapter 1

Product Specifications

1.1 Specifications

Syste	System			
•	Processor	Intel [®] Core™ i5-6300U, 2.4 GHz		
		Intel [®] Celeron™ 3955U, 2 GHz		
•	System Memory	204-pin DDR4 1866/2133 SODIMM x 1		
•	Ethernet	10/100/1000Base-TX, RJ-45 x 3		
•	Side I/O	USB 3.0 Type A x 2		
		SMA antenna hole x 1		
		HDMI x 1		
•	Bottom I/O	DB-9 for RS-485/422/232 x 2		
		10/100/1000Base-T, RJ-45 x 3		
		Type A USB 3.0 x 2		
		3-pin terminal block for 9~30 Vdc power input		
		x 1		
		LED Power on/off switch x1		
		(Power on = orange)		
•	Storage Disk Drive	Internal SATA 2.5" HDD x 1		
•	Expansion Slot	Full Size Mini Card x 1		
•	OS Support	Windows® 10		
		Linux kernel 2.6.x or above		

Environmental

Operating Temperature -20°C~60°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14

	*AAEON suggests users use industrial grade
	wide temperature DRAM and wide temperature
	storage devices.
Storage Temperature	-20 ~ 70°C (-4 ~ -158°F)
Operating Humidity	90% @ 40°C, non-condensing
Anti-Vibration	1 Grms/ 5 ~ 500 Hz/ Operation (HDD)
EMC	CE/FCC Class A

Power Supply

DC Input

9 ~ 30 V

1.1.1 OMNI-5215-SKU

Mechanical

- Construction
- Mounting
- Dimension (W x H x D)
 - Carton Dimension 670(L) x 200(W) x 525(H) mm
 (W x H x D)
- Gross Weight 9.1kg

LCD		
•	Display Type	21.5" TFT LCD
•	Max. Resolution	1920 x 1080
•	Max Colors	16.7M (RGB 8 bits)
•	Luminance (cd/m2)	250 nits
•	Viewing Angle	178° (H), 178° (V)
•	Backlight	LED
•	Backlight MTBF (Hours)	_

IP65/ NEMA 4 for aluminum front bezel

VESA 100 / Panel Mount / Stand

IP30 ECC chassis

550 x 373 x 70 mm

Touchscreen (P-CAP) • Type P-CAP • Light Transmission 90% ± 2%

• Lifetime

Chapter 1 – Product Specifications

Chapter 2

Hardware Information

DMNI-5215-SKU

2.1 Dimensions











2.2 List of Jumpers

Please refer to the table below for all of the system's jumpers that you can configure for your application

Label	Function
JP1	mSATA/Mini-Card Operating VCC Selection
JP2	Resistive Touch Mode
JP3	LVDS Port Backlight Lightness Control Mode Selection
JP4	LVDS Port Backlight Inverter VCC Selection
JP5	Auto Power Button Enable/Disable Selection
JP7	Clear CMOS Jumper
JP8	Panel Select ID (Auto detect by LCD kit cable)
JP9	COM2 Pin8 Function Selection
JP10	COM1 Pin8 Function Selection



mSATA



Mini-Card (Default)

2.2.2 Resistive Touch Mode (JP2)



4/8 Wires Mode



5 Wires Mode (Default)

2.2.3 LVDS Port Backlight Lightness Control Mode Selection (JP3)

1	2	3

VR Mode



PWM Mode (Default)

2.2.4 LVDS Port Backlight Inverter VCC Selection (JP4)





2.2.5 Auto Power Button Enable/Disable Selection (JP5)





2.2.6 Clear CMOS (JP7)



Normal (Default)



Clear CMOS

2.2.7 COM2 Pin8 Function Selection (JP9)



+12V

1		2
3		4
5		6

Ring(Default)

1		2
3		4
5		6

+5V

2.2.8 COM1 Pin8 Function Selection (JP10)



+	1	2V
t		ΖV

1		2
3		4
5		6





+5V

2.3 List of Connectors

Please refer to the table below for all of the system's connectors that you can configure for your application

Label	Function
JP6	Front Panel Connector
CN1	VGA Connector(Optional)
CN2	Mini-Card Slot (Full-Mini Card)
CN3	Touch Screen Connector
CN4	Micro SIM Card Socket
CN5	eDP/LVDS Port
CN6	Omni Panel Wire Type
CN7	LVDS Port Inverter / Backlight Connector Ext. I/O
CN8	LVDS Port Inverter / Backlight Connector
CN9	USB 2.0
CN10	USB 2.0
CN11	LPC Port
CN12	+5V Output for SATA HDD
CN13	SATA Port
CN14	SPI Debug Port
CN15	HDMI
CN16	Speaker R
CN17	Speaker L
CN18	Audio I/O Port
CN19	USB 3.0/2.0 Port
CN20	Battery
CN21	Smart FAN
CN23	LAN Port(RJ45)

CN24	USB 3.0/2.0 Port
CN25	External Power Input
CN26	COM Port 2
CN27	COM Port 1

2.3.1 Front Panel Connector (JP6)

1		2
3		4
5		6
7		8
9		10

Pin	Signal	Pin	Signal
1	PWR_BTN-	2	PWR_BTN+
3	HDD_LED-	4	HDD_LED+
5	SPEAKER-	6	SPEAKER+
7	PWR_LED-	8	PWR_LED+
9	H/W RESET-	10	H/W RESET+

2.3.2 Mini-Card Slot (Full-Mini Card) (CN2)

Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V

Pin	Pin Name	Signal Type	Signal Level
7	PCIE_CLK_REQ#	IN	
8	NC	PWR	
9	GND	GND	
10	NC	I/O	
11	PCIE_REF_CLK-	DIFF	
12	NC	IN	
13	PCIE_REF_CLK+	DIFF	
14	NC		
15	GND	GND	
16	NC	PWR	
17	NC		
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-/MSATA_RX+	DIFF	
24	+3.3VSB	PWR	+3.3V
25	PCIE_RX+/MSATA_RX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX-/MSATA_TX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+/MSATA_TX+	DIFF	

-

Pin	Pin Name	Signal Type	Signal Level
34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	
41	+3.3VSB	PWR	+3.3V
42	NC		
43	GND	GND	
44	NC		
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB	PWR	+3.3V

2.3.3 Touch Screen Connector (CN3)



8 Wires

Pin	Signal	Pin	Signal
1	GND	2	TOP EXCITE
3	BOTTOM EXCITE	4	LEFT EXCITE
5	RIGHT EXCITE	6	TOP SENSE
7	BOTTOM SENSE	8	LEFT SENSE
9	RIGHT SENSE		

4 Wires



Pin	Signal	Pin	Signal
1	GND	2	TOP
3	BOTTOM	4	LEFT
5	RIGHT	6	NC
7	NC	8	NC
9	NC		

5 Wires



Pin	Signal	Pin	Signal
1	GND	2	UL(Y)

Chapter 2 – Hardware Information

3	UR(H)	4	LL(L)
5	LR(X)	6	SENSE(S)
7	NC	8	NC
9	NC		

2.3.4 Micro SIM Card Socket (CN4)

Pin	Pin Name	Signal Type	Signal Level
1	UIM_PWR	PWR	
2	UIM_RST	IN	
3	UIM_CLK	IN	
4	NC		
5	GND	GND	
6	UIM_VPP	PWR	
7	UIM_DATA	I/O	
8	NC		

2.3.5 eDP/LVDS Port (CN5)



LVDS Function

Pin	Pin Name	Signal Type	Signal Level
1	BKL_ENABLE	OUT	
2	BKL_CONTROL	OUT	
3	LCD_PWR	PWR	+3.3V/+5V
4	GND	GND	
5	LVDS_A_CLK-	DIFF	
6	LVDS_A_CLK+	DIFF	
7	LCD_PWR	PWR	+3.3V/+5V
8	GND	GND	
9	LVDS_DA0-	DIFF	
10	LVDS_DA0+	DIFF	
11	LVDS_DA1-	DIFF	
12	LVDS_DA1+	DIFF	
13	LVDS_DA2-	DIFF	
14	LVDS_DA2+	DIFF	
15	LVDS_DA3-	DIFF	
16	LVDS_DA3+	DIFF	
17	DDC_DATA	I/O	+3.3V
18	DDC_CLK	I/O	+3.3V
19	LVDS_DB0-	DIFF	
20	LVDS_DB0+	DIFF	
21	LVDS_DB1-	DIFF	
22	LVDS_DB1+	DIFF	
23	LVDS_DB2-	DIFF	
24	LVDS_DB2+	DIFF	

Pin	Pin Name	Signal Type	Signal Level
25	LVDS_DB3-	DIFF	
26	LVDS_DB3+	DIFF	
27	LCD_PWR	PWR	+3.3V/+5V
28	GND	GND	
29	LVDS_B_CLK-	DIFF	
30	LVDS_B_CLK+	DIFF	

eDP Function

Pin	Pin Name	Signal Type	Signal Level
1	BKL_ENABLE	OUT	
2	BKL_CONTROL	OUT	
3	LCD_PWR	PWR	+3.3V/+5V
4	GND	GND	
5	eDP_TX3_D-	DIFF	
6	eDP_TX3_D+	DIFF	
7	LCD_PWR	PWR	+3.3V/+5V
8	GND	GND	
9	eDP_TX2_D-	DIFF	
10	eDP_TX2_D+	DIFF	
11	eDP_TX1_D-	DIFF	
12	eDP_TX1_D+	DIFF	
13	eDP_TX0_D-	DIFF	
14	eDP_TX0_D+	DIFF	
15	NC		
16	eDP_HPD	DIFF	
17	eDP_AUX_D-	I/O	+3.3V

Pin	Pin Name	Signal Type	Signal Level
18	eDP_AUX_D+	I/O	+3.3V
19	NC		
20	NC		
21	NC		
22	NC		
23	NC		
24	NC		
25	NC		
26	NC		
27	LCD_PWR	PWR	+3.3V/+5V
28	GND	GND	
29	NC		
30	NC		

2.3.6 LVDS Port Inverter / Backlight Connector (CN8)



Pin	Pin Name	Signal Type	Signal Level
1	BKL_PWR	PWR	+5V/+12V
2	BKL_CONTROL	OUT	
3	GND	GND	
4	GND	GND	
5	BKL_ENABLE	OUT	+5V

* LVDS BKL_PWR can be set to +5V or +12V by JP4

2.3.7 LPC Port (CN11)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	LDRQ0	IN	
11	LDRQ1	IN	
12	SERIRQ	I/O	+3.3V

2.3.8 +5V Output for SATA HDD (CN12)



_

Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	GND	GND	

2.3.9 SATA Port (CN13)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

2.3.10BIOS Debug Port (CN14)

Pin	Pin Name	Signal Type	Signal Level
1	SPI_MISO	OUT	
2	GND	GND	
3	SPI_CLK	IN	
4	+3.3VSB	PWR	+3.3V
5	spi_mosi	IN	
Pin	Pin Name	Signal Type	Signal Level
-----	----------	-------------	--------------
6	SPI_CS	IN	
7	NC		

2.3.11 HDMI Connector (CN15)



Pin	Pin Name	Signal Type	Signal Level
1	DVI_D2+	OUT	
2	GND	GND	
3	DVI_D2-	OUT	
4	DVI_D1+	OUT	
5	GND	GND	
6	DVI_D1-	OUT	
7	DVI_D0+	OUT	
8	GND	GND	
9	DVI_D0-	OUT	
10	DVI_CLK+	OUT	
11	GND	GND	
12	DVI_CLK-	OUT	
13	NC		
14	NC		
15	SCL	I/O	
16	SDA	I/O	
17	GND	GND	
18	+5V	PWR	
19	HPD	IN	

-

2.3.12USB 3.0 Ports (CN19)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	
5	USB_SSRX-	DIFF	
6	USB_SSRX+	DIFF	
7	GND	GND	
8	USB_SSTX-	DIFF	
9	USB_SSTX+	DIFF	
10	+5VSB	PWR	+5V
11	USB_D-	DIFF	
12	USB_D+	DIFF	
13	GND	GND	
14	USB_SSRX-	DIFF	
15	USB_SSRX+	DIFF	
16	GND	GND	
17	USB_SSTX-	DIFF	
18	USB_SSTX+	DIFF	

_

2.3.13 Battery (CN20)

Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	3.3V
2	GND	GND	

2.3.14CPU FAN (Optional) (CN21)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	FAN_POWER	PWR	+12V
3	FAN_TAC	IN	

2.315.LAN (RJ45) Connector (CN23)



Pin	Signal	Pin	Signal
1	MDI0+	2	MDI0-
3	MDI1+	4	MDI2+
5	MDI2-	6	MDI1-

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MDI3+

2.316.External Power Input (CN25)

Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+9~+24V (or
2	GND	GND	

2.3.17COM Port 2 (CN26)

RS-232			
Pin	Pin Name	Signal Type	Signal level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±5V
5	ТХ	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	

RS-422			
Pin	Pin Name	Signal Type	Signal level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	

6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

RS-485			
Pin	Pin Name	Signal Type	Signal level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	1/0	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

* COM2 RS-232/422/485 can be set through BIOS setting. Default is RS-232.

* Pin 8 function can be set by JP11.

2.3.18COM Port 1 (CN27)

RS-232			
Pin	Pin Name	Signal Type	Signal level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	

4	RTS	OUT	±5V
5	ТХ	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	

RS-422			
Pin	Pin Name	Signal Type	Signal level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	
6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

RS-485			
Pin	Pin Name	Signal Type	Signal level
1	RS485_D-	I/O	±5V
2	NC		
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		

7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

* COM1 RS-232/422/485 can be set through BIOS setting. Default is RS-232.

* Pin 8 function can be set by JP9.

2.4 Installing the Hard Disk Drive

1. Put the rubber provided onto the holes of the bracket.



2. Place the HDD onto the bracket and secure with the screws provided



* Users are advised to use storage devices provided and installed by AAEON.

2.5 Mount the OMNI onto the wall

Step 1 - Glue the water-proof rubber along back side of the panel



Step 2 - Screw the provided mounting brackets into back of the panel



Chapter 2 – Hardware Information



Step 3 - Secure the panel with wall-mount brackets onto the wall with screws

Chapter 2 – Hardware Information

2.6 P-CAP Touch Screen Operating



- 1. Always touch the screen with finger pads.
- 2. The force of finger should be lower than 10g.



Chapter 3

AMI BIOS Setup

DMNI-5215-SKU

3.1 System Test and Initialization

The system uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory. If they do not match, an error message will be outputted, in which case you will need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

- You are starting your system for the first time
- You have changed your system's hardware
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention, which is to be replaced once emptied.

Industrial Modular Touch Panel PC

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, press or <F2> immediately while your computer is powering up.

The function for each interface can be found below.

Main – Date and time can be set here. Press <Tab> to switch between date elements

Advanced – Enable/ Disable boot option for legacy network devices

Chipset – For hosting bridge parameters

Boot – Enable/ Disable quiet Boot Option

Security - The setup administrator password can be set here

Save & Exit – Save your changes and exit the program

3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced

Aptio Setup Utility – Copyr Main Advanced Chipset Security Boot	ght (C) 2016 American Megatrends, Inc. Save & Exit
 CPU Configuration SATA Configuration Hardware Monitor SID Configuration USB Configuration Trusted Computing Power Management 	CPU Configuration Parameters
	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Copyrig	t (C) 2016 American Megatrends, Inc.

3.4.1 Advanced: CPU Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2016 American	Megatrends, Inc.
		Fricklad (on Windows VD and
Intel(R) Core(TM) i5–6300U CPU @ 2.4	.0GHz	Linux (OS optimized for
CPU Signature	406E3	Hyper-Threading Technology)
Microcode Patch	9E	and Disabled for other OS (OS
Max CPU Speed	2400 MHz	not optimized for
Min CPU Speed	400 MHz	Hyper-Threading Technology).
CPU Speed	2400 MHz	When Disabled only one thread
Processor Cores	2	per enabled core is enabled.
Hyper Threading Technology	Supported	
Intel VT–x Technology	Supported	
Intel SMX Technology	Supported	
64-bit	Supported	
EIST Technology	Supported	
CPU C3 state	Supported	++: Select Screen
CPU C6 state	Supported	14: Select Item
CPU C7 State	Supported	Enter: Select
14 Data Casha	00 MB 44 0	+/-: Change Upt.
Li Data Cache	32 KB X 2	F1: General Help
LI Coue Cache		F2: Previous values
L2 Cache	200 ND X Z	F3: Optimized Deradits
L4 Cache	Not Present	FSC: Evit
	Not Treacht	LOD. EAIT
Hyper-threading	[Enabled]	
Active Processor Cores	[A11]	

Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.

Aptio Setup Utility Advanced	– Copyright (C) 2016 A	merican Megatrends, Inc.
Microcode Patch Max CPU Speed Min CPU Speed CPU Speed Processor Cores Hyper Threading Technology Intel VT-x Technology Intel SMX Technology 64-bit EIST Technology CPU C3 state CPU C3 state CPU C6 state	9E 2400 MHz 400 MHz 2400 MHz 2 Supported Supported Supported Supported Supported Supported Supported Supported Supported	▲ Allows more than two frequency ranges to be supported.
L1 Data Cache L1 Dode Cache L2 Cache L3 Cache L4 Cache Hyper-threading Active Processon Cores Intel Virtualization Technology CPU C states Intel(R) SpeedStep(tm)	32 KB x 2 32 KB x 2 256 KB x 2 3 MB Not Present [Enabled] [A11] [Enabled] [Disabled] [Disabled]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.

, ,				
Hyper-threading	Disabled			
	Enabled	Optimal Default, Failsafe Default		
Enabled for Window	Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology			
and Disabled for oth	and Disabled for other OS (OS not optimized for Hyper-Threading Technology). Wh			
Disabled only one th	nread per enabled core is enable	ed.		
Intel Virtualization	Disabled			
Technology	Enabled	Optimal Default, Failsafe Default		
When enabled, a VN	/M can utilize the additional har	dware capabilities provided by		
Vanderpool Technolo	ogy			
Active Processor	1			
Cores	All	Optimal Default, Failsafe Default		
Number of cores to	enable in each processor packa	ge.		
CPU C States	Disabled	Optimal Default, Failsafe Default		
	Enabled			
Enable or disable CPU C states				
Intel(R)	Disabled	Optimal Default, Failsafe Default		
SpeedStep(tm)	Enabled			
Allows more than tw	o frequency ranges to be suppo	orted.		

3.4.2 Advanced: SATA Configuration

Aptio Setup Utility - Advanced	- Copyright (C) 2016 America	n Megatrends, Inc.
SATA Configuration		Enable or disable SATA Device.
SATA Controller(s)		
Serial ATA Port Port Hot Plug	TS32GSSD630 (32.0GB) [Enabled] [Disabled]	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. (Copyright (C) 2016 American	Megatrends, Inc.

SATA Controller(s)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable SA	TA Device.	
Port 0	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable SA	TA Port.	
Hot Plug	Enabled	
	Disabled	Optimal Default, Failsafe Default
Designates this port	as Hot Pluggable.	

3.4.3 Advanced: Hardware Monitor

Aptio Setup Utilit Advanced	y – Copyright (C) 2016 Americar	n Megatrends, Inc.
Advanced Pc Health Status CPU Temperature System Temperature VCORE VMEM +5V +12V +3.3V 3VSB 5VSB VBAT	: +41 % : +127 % : +1.000 V : +1.216 V : +5.003 V : +12.232 V : +3.376 V : +3.392 V : +5.040 V : +3.232 V	+: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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3.4.4 Advanced: SIO Configuration

	Aptio Setup Utility – Copyright (C) 2016 American Advanced	Megatrends, Inc.
>	AMI SIO Driver Version : A5.05.03 Super IO Chip Logical Device(s) Configuration [*Activex] Serial Port 1 [*Activex] Serial Port 2	View and Set Basic properties of the SIO Logical device. Like IO Base, IRQ Range, DMA Channel and Device Mode.
	WARNING: Logical Devices state on the left side of the control, reflects the current Logical Device state. Changes made during Setup Session will be shown after you restart the system.	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.17.1255. Copyright (C) 2016 American Mo	egatrends, Inc.

3.4.4.1 SIO Configuration: Serial Port 1 Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2016 American	Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable this Logical
Logical Device Settings: Current : IO=3F8h; IRQ=4;		
Possible:	[Use Automatic Settings]	
Mode :	[RS232]	
WARNING: Disabling SIO Logical Devic side effects.	es may have unwanted	
PROCEED WITH CAUTION.		≁+: Select Screen ↑↓: Select Item
		Enter: Select +/-: Change Ont
		F1: General Help
		F2: Previous values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
	nuniabt (0) 0046 American M	astatuanda. Taa

Use This	Disabled		
Device	Enabled	Optimal Default, Failsafe Default	
Enable or Di	sable this Logical Device.		
Possible: Use Automatic Settings		Optimal Default, Failsafe Default	
	IO=2F8; IRQ=3;		
	IO=3F8; IRQ=4;		
Allows user to change Device's Resource settings. New settings will be reflected on This			
Setup Page after System restarts.			
Mode:	RS232	Optimal Default, Failsafe Default	
	RS422		
	RS485		
JART RS232, 422, 485 selection			

3.4.4.2 SIO Configuration: Serial Port 2 Configuration

Aptio Setup Utility — Advanced	Copyright (C) 2016 American	Megatrends, Inc.
Serial Port 2 Configuration		Enable or Disable this Logical
		Device.
Logical Device Settings: Current : IO=2F8h; IRQ=3;		
Possible:	[Use Automatic Settings]	
Mode :	[RS232]	
WARNING: Disabling SIO Logical Devic side effects.	es may have unwanted	
PROCEED WITH CAUTION.		<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Use This	Disabled			
Device	Enabled	Optimal Default, Failsafe Default		
Enable or Di	sable this Logical Device.			
Possible: Use Automatic Settings		Optimal Default, Failsafe Default		
	IO=2F8; IRQ=3;			
	IO=3F8; IRQ=4;			
Allows user to change Device's Resource settings. New settings will be reflected on This				
Setup Page after System restarts.				
Mode:	RS232	Optimal Default, Failsafe Default		
	RS422			
	RS485			
JART RS232, 422, 485 selection				

3.4.5 Advanced: USB Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2016 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Devices: 1 Drive, 1 Keyboard, 2 Mice		support if no USB devices are connected. DISABLE option will keen USB devices available
Legacy USB Support		only for EFI applications.
		↔: Select Screen †∔: Select Item
		Enter: Select +/-: Change Opt. E1: General Heln
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Version 2 17 1255 D	onuright (C) 2016 American M	evatrends Inc

Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables Lagas y USP support. AUTO option disables lagas y support if no USP devisor		

Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

3.4.6 Advanced: Trusted Computing

Aptio Setup Utility - Advanced	Copyright (C)	2016 American	Megatrends, Inc.
Configuration Security Device Support TPM State Pending operation Device Select	(Enable) [Enabled] [None] [Auto]		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.
Current Status Information TPM Enabled Status: TPM Active Status: TPM Owner Status:	[Enabled] [Activated] [Owned]		
			14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Options summary:

Security Device Support	Enabled	Optimal Default, Failsafe Default	
	Disabled		
Enables or Disables BIOS su	pport for security de	vice. O.S. will not show Security Device.	
TCG EFI protocol and INT1A	interface will not be	available.	
TPM State	Enabled	Optimal Default, Failsafe Default	
	Disabled	1	
Enable/Disable Security Dev	vice. NOTE: Your Con	nputer will reboot during restart in	
order to change State of the Device.			
Pending operation	None	Optimal Default, Failsafe Default	
	TPM Clear]	
Schedule an Operation for	the Security Device. I	NOTE: Your Computer will reboot	
during restart in order to ch	ange State of Securi	ty Device.	
Security Device Support	Auto	Optimal Default, Failsafe Default	
	TPM 1.2	1	
	TPM 2.0	1	
TPM 1.2 will restrict support	TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0		
devices, Auto will support b	oth with the default	set to TPM 2.0 devices if not found.	

TPM 1.2 devices will be enumerated

3.4.7 Advanced: Power Management

Aptio Setup Utility – Advanced	Copyright (C) 2016 American	Megatrends, Inc.
Power Management		Select system power mode.
Power Mode Restore AC Power Loss	[ATX Type] [Last State]	
Wake Events RTC wake system from S5 Resume from PCIE Resume from LAN/RI	[Disabled] [Enabled] [Enabled]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Co	opyright (C) 2016 American M	egatrends, Inc.

Power Mode	АТХ Туре	Optimal Default, Failsafe Default			
	АТ Туре				
Select power supply	Select power supply mode.				
Restore AC Power	Last State	Optimal Default, Failsafe Default			
Loss	Power On				
	Power Off				
Select power state v	vhen power is re-applied after a	a power failure.			
RTC wake system	Disabled	Optimal Default, Failsafe Default			
from S5	Fixed Time				
	Dynamic Time				
Fixed Time: System	will wake on the hr::min::sec spe	ecified./n Dynamic Time: System will			
wake on the current	time + Increase minute(s)				
Resume from PCIE	Enabled	Optimal Default, Failsafe Default			
	Disabled				
Enable/Disable Resume from PCIE					
Resume from	Enabled	Optimal Default, Failsafe Default			
LAN/RI	Disabled				
Enable/Disable Resume from LAN/RI					

3.5 Setup submenu: Chipset

Aptio Setup Utility – Copyright (C) 2016 American Main Advanced <mark>Chipset</mark> Security Boot Save & Exit	Megatrends, Inc.
 System Agent (SA) Configuration PCH-ID Configuration 	System Agent (SA) Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Copyright (C) 2016 American Me	gatrends, Inc.

3.5.1 Chipset: System Agent (SA) Configuration

Aptio Setup Chipset	Utility – Copyright ((C) 2016 American	Megatrends, Inc.
System Agent Bridge Name	Skylake		Maximum Value of TOLUD.
Memory Configuration Memory Frequency Total Memory Max TOLUD	2133 MHz 4096 MB [Dynamic]		adjust TOLUD automatically based on largest MMIO length of installed graphic controller
Graphics Configuration			
			++: Select Screen
			T4: Select Item Enter: Select +/-: Change Opt.
			F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
			ESS: EXIL
Version 2.	17.1255. Copyright (C)) 2016 American M	egatrends, Inc.

Options summary:

Max TOLUD	Dynamic	Optimal Default, Failsafe Default
	1 GB	
	1.25 GB	
	1.5 GB	
	1.75 GB	
	2 GB	
	2.25 GB	
	2.5 GB	
	2.75 GB	
	3 GB	
Maximum Value	of TOLUD (Top of Low L	Isable DRAM)\nDynamic assignment would

Maximum Value of TOLUD (Top of Low Usable DRAM)\nDynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.\nChanging this value may cause side effect, if reserved memory is lesser than MMIO required. This happens often when GfX device with large MMIO requirement.

3.5.1.1 System Agent (SA) Configuration: Graphics Configuration

Aptio Setup Utility Chipset	– Copyright	C) 2016 American Megat	trends, Inc.
Graphics Configuration Primary IGFX Boot Display Secondary IGFX Boot Display ▶ LVDS Panel Configuration	(LVDS) [HDMI]	Selec will This graph Secon selec your VGA n only	t the Video Device which be activated during POST, has no effect if external nics present. ndary boot display ction will appear based on selection. nodes will be supported on primary display
		++: (11: (Enter +/-: F1: (F2: f F3: (F4: (ESC:	Select Screen Select Item Select Change Opt. Beneral Help Previous Values Jotimized Defaults Save & Exit Exit
Version 2.17.1255.	Copyright (C	2016 American Megatre	ends, Inc.

Options summary:

Primary IGFX Boot	VBIOS default		
Display	HDMI		
	LVDS	Optimal Default, Failsafe Default	
Secondary IGFX Boot	Disabled	Optimal Default, Failsafe Default	
Display	HDMI		
Select the Video Device which will be activated during POST.			
This has no effect if external graphics present.			
Secondary boot display selection will appear based on your selection.			

VGA modes will be supported only on primary display

3.5.1.1.1 System Agent (SA) Configuration: Graphics Configuration: LVDS Panel Configuration

LVDS Panel Configuration		Enable/Disabled this panel
LVDS Panel Type Selection OMNI Panel Type Panel Mode Color Depth Backlight Level Backlight PWM Freq	[Enabled] [Auto] [OMNI-2155] [Single channel] [24-Bit] [80%] [220Hz]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

LV ID C	5 11 1	Ortional Default Failerfa Dafailt
LVDS	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable this	panel	
Panel Type	Auto	Optimal Default, Failsafe Default
Selection	Manual	
Select LCD panel ty	/pe by OMNI panel ID	
OMNI Panel Type	OMNI-2155	Optimal Default, Failsafe Default
	OMNI-3105	
	OMNI-3125/3155	
	OMNI-3175/3195	
	OMNI-2215	
Select LCD panel u	sed by selecting the approp	priate OMNI Model.
Panel Mode	Single channel	Optimal Default, Failsafe Default
	Dual channel	
Single channel / Du	ual channel	
Color Depth	24bit	Optimal Default, Failsafe Default
	18bit	
24bit or 18bit		
Backlight Level	80%	Optimal Default, Failsafe Default
	0% ~ 100%	
Select backlight co	ntrol level	
Backlight PWM	100Hz	
Freq	200Hz	
	220Hz	Optimal Default, Failsafe Default
	500Hz	
	1KHz	
	2.2KHz	
	6.5KHz	
Select PWM freque	ency of backlight control sig	nal

3.5.2 Chipset: PCH-IO COnfiguration

Aptio Setup Chipset	Utility – Copyright (C) 2016 American	Megatrends, Inc.
PCH-IO Configuration			Control Detection of the
HD Audio			HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled Auto = HDA will be enabled if present, disabled otherwise. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.	17.1255. Copyright (C)	2016 American M	egatrends, Inc.

HD Audio	Disabled		
	Enabled	Optimal Default, Failsafe Default	
Control Detection of the HD-Audio device.			
Disabled = HDA will be unconditionally disabled			
Enabled = HDA will be unconditionally enabled			
Auto = HDA will be enabled if present, disabled otherwise.			
3.6 Setup submenu: Security

Aptio Setup U1 Main Advanced Chipset <mark>Se</mark>	ility – Copyright (C) 2016 Amer curity Boot Save & Exit	ican Megatrends, Inc.
Password Description If ONLY the Administrator's then this only limits access only asked for when entering If ONLY the User's password is a power on password and m boot or enter Setup. In Setu have Administrator rights. The password length must be in the following range: Minimum length	password is set, to Setup and is (Setup. is set, then this ust be entered to up the User will 3	Set Administrator Password
Maximum length Administrator Password User Password	20	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.17.	1255. Copyright (C) 2016 Americ	an Megatrends, Inc.

Change User/Administrator Password

You can set a User Password once an Administrator Password is set. The password will be required during boot up, or when the user enters the Setup utility. Please Note that a User Password does not provide access to many of the features in the Setup utility. Select the password you wish to set, press Enter to open a dialog box to enter your password (you can enter no more than six letters or numbers). Press Enter to confirm your entry, after which you will be prompted to retype your password for a final confirmation. Press Enter again after you have retyped it correctly.

Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

3.7 Setup submenu: Boot

Aptio Setup U Main Advanced Chipset S	tility – Copyright (C) 2016 America ecurity <mark>Boot</mark> Save & Exit	in Megatrends, Inc.
Boot Configuration Quiet Boot Launch PXE ROM	[Enabled] [Disabled]	Enables or disables Quiet Boot option
Boot Option Priorities Boot Option #1 Boot Option #2	[KingstonDTR30G2 PMAP] [UEFI: KingstonDTR30G2 PMAP, Partition 1]	
Hard Drive BBS Priorities		
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17	.1255. Convright (C) 2016 American	Megatrends, Toc.

Options summary:

Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enables or disables Quiet B	oot option.	
Launch PXE OpROM	Disabled	Optimal Default, Failsafe Default
	Enabled	
Controls the execution of UEFI and Legacy PXE OpROM.		

3.8 Boot: BBS Priorities

Aptio Setup Ut	ility – Copyright (C) 2013 American Boot	Megatrends, Inc.
Boot Option #1 Boot Option #2	[Lexar USB Flash Dri] [PO: mSATA mini 3ME]	Sets the system boot order
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.16.	1242. Copyright (C) 2013 American M	egatrends, Inc.

3.9 Setup submenu: Save & Exit

Aptio Setup Utility – Copyright (C) 2016 American Main Advanced Chipset Security Boot <mark>Save & Exit</mark>	Megatrends, Inc.
Save Changes and Reset Discard Changes and Reset Restore Defaults	Reset the system after saving the changes. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Copyright (C) 2016 American Ma	egatrends, Inc.

Chapter 4

Drivers Installation & Touchscreen Settings

The OMNI-BT series comes with a product DVD that contains all the drivers and utilities you need to setup your product. Insert the DVD and follow the steps in the autorun program to install the drivers.

In case the program does not start, follow the sequence below to install the drivers.

Step 1 – Install Chipset Drivers

- 1. Open the Step 1 Chipset folder and select your OS
- 2. Open the SetupChipset.exe file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 2 – Install Graphics Driver

- 1. Open the STEP2 VGA folder and select your OS
- 2. Open the Setup.exe file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 3 – Install LAN Driver

- 1. Open the STEP3 LAN folder and select your OS
- 2. Open the .exe file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 4 – Install Audio Drivers

 Open the STEP4 - Audio folder followed by 0005-Win7_Win8_Win81_Win10_R279.exe

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- 2. Follow the instructions
- 3. Drivers will be installed automatically

Step 5 – Install USB 3.0 Drivers

- 1. Open the STEP5 USB3.0 folder and select your OS
- 2. Open the .exe file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 6 – Install ME Drivers (Optional, Windows 8.1/10 only)

- 1. Open the STEP6 ME folder followed by SetupME.exe
- 2. Follow the instructions
- 3. Drivers will be installed automatically

Step 7 – Install PenMount Touch 6000 Series Driver (Resistive touchscreen only)

- 1. Open the STEP7 –PenMount Touch 6000 folder followed by Setup.exe
- 2. Follow the instructions
- 3. Drivers will be installed automatically

* The OMNI-SKU Series uses either 5-wire resistive or projected capacitive multi-touch technologies. The latter is capable of 10 fingers multi-touch with Windows 7 & Windows 8.x.

Step 8 – Serial Port Drivers (Optional)

For Windows 7:

1. Change User Account Control settings to Never notify



2. Reboot and log in as administrator

1 serial patch patch install install 2 sten2	
Getting Started	
Windows Media Center	1
Calculator	Documents
🚮 Paint 🕨	Pictures
Sticky Notes	Music
Snipping Tool	Games
Remote Desktop Connection	Computer
Magnifier	Control Panel
Solitaire	Default Program
Intel® Management and Security Status	Help and Suppor
All Programs	Restart
Search programs and files	Shut down P Hibernate
📀 🖉 🚞 D	- 🏴 🗊 🌜 2.08 PM 10/20/2011

3. Run patch.bat as administrator



For Windows 8:

 Open the Apps Screen, right click on the Command Prompt tile and select Run as Administrator



- To install the driver (patch.bat), you will first have to locate the file in command prompt. To do that, first go to the directory which contains the file by entering <drive letter>: eg. if the driver is in D drive, enter D:
- You are now at the directory containing the installation file. Next, go to the folder in which the file resides by entering cd <folder> eg: if the file is in a folder named abc, enter cd <abc>.
- 4. You are now at the folder where the file is located. Enter the patch.bat to open and install the drivers. If your file is in a subfolder, enter the cd <folder> command again to access the subfolder (screenshot below is for reference only).

	📾 Administrator: Command Prompt – 🗖 🔀
Computer	[Celeron 1020E performance] [gv-r5678c] ^ [AMD Windows Driver] 3dmark vantage.jpg 3d2811 x829.jpg 3d2811 x8273.jpg 3d2811 x829.jpg 3d2811 x8733.jpg 3d2811 x8733.jpg 3d2811 x8733.jpg 3d286 GTA688.jpg [HBB-Q87A] [HBB-Q87A] 5000000000000000000000000000000000000
Natwork	G:\>cd inba-q87a G:\IMBA-Q87A>dir/u Uolume in drive G is KINGSTON Uolume Serial Number is 54F5-FE9C Directory of G:\IMBA-Q87A
	[.] [.] [.] [Step5 - LAN] [Step2 - UGA] [Step8 - TPM] [Step1 - INF] [Step7 - RS1] [Step7 - UART] [Step3 - USB3.0] [Step4 - AUDIO] [Step6 - ME] [Step3 - USB3.0] [Step4 - AUDIO] [Step6 - ME] [] [] [] [] [] [] [] [] [] [] [] [] [] [
Nasyele Bin	G:\IMBA-Q87A>cd step7 - UART G:\IMBA-Q87A\Step7 - UART>patch v
ontrol Panel	
Ð	

- 5. Reboot after installation completes.
- To confirm the installation, go to Device Manager, expand the Ports (COM & LPT) tree and double click on any of the COM ports to open its properties. Go to the Driver tab, select Driver Details and click on serial.sys, you should see its provider as Windows (R) Win 7 DDK Provider.



For Windows 10

- Open the STEP8 Serial Port Driver (Optional) folder and select Win10_32_64
- 2. Open the Setup.exe file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 9 - Install DIO Driver (for DIO module only)

Please refer to Appendix D – DI/O Utility (for DI/O Module)

Step 10 - Install CANBus Driver (for CANBus module only)

Please refer to Appendix C - CANBus Utility (for DI/O Module)

4.2 PCAP Dual Monitor Touch Settings

When two panels are used, they can set to be the primary and secondary display. The instruction below shows how this can be done:

Go to Display Panel and choose your preferred primary display.

.	Screen Resolution – 🗖	×
🔄 🏵 🗉 🕇 💆	≪ Displ → Screen Resoluti ✓ C Search Control Panel	٩
Change the ap	Detect	
Display:	1. Mobile PC Display v	
Resolution: Orientation:	1366 × 768 (Recommended) v Landscape v	
Multiple displays:	Extend these displays V	~

1.

2. Go to Tablet PC Settings in Control Panel. Under Display options, select the

primary display from step 1. Apply the changes and exit.

-	and the second s	
20 -I	🤑 • Control Panel •	- 37 ta a
Ta Au Cu Gn Lo Tu W	iskbar and Start Menu to-hide the taskbar storize the taskbar oup similar windows on the taskbar ck or unlock the taskbar ck or unlock the taskbar on or off hat happened to the Quick Launch toolbar?	Tablet PC Settings
Ta Se	iblet PC Settings tablet buttons to perform certain tasks	Display options
Pe B	oubleshooting form recommended maintenance tasks automatically Find and fix audio recording problems	Display: 2. Dell ST2220T[Analog] • Details: Touch Input Available
	ternet Options ange how web pages are displayed in tabs	Çalibrate
S) Vie Be	rstem w running processes with Task Manager Device Manager w to change the size of virtual memory	Choose the order in which your screen rotates. Go to Orientation
No Co Sh Sh Sh Sh Re	otification Area Icons stomize icons on the taskbar ow or hide inactive icons on the taskbar ow or hide the outfication area on the taskbar ow or hide volume (speaker) icon on the taskbar ow or hide battery icon on the taskbar move riche clock icon on the taskbar move icons from notification area (system tray) on the desktop	OK Cancel Asoly

*Do NOT calibrate the screen on your own. Doing so might disrupt the device's factory

calibration

Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Initial Program

Table 1 : Super I/O relative register table		
	Default Value	Note
Index	0x2E(Note1)	SIO MB PnP Mode Index Register
		0x2E or 0x4E
Data		SIO MB PnP Mode Data Register
	UX2F(NOLEZ)	0x2F or 0x4F

Table 2 : Watchdog relative register table					
	LDN	Register	BitNum	Value	Note
Timer Counter	0x07 (Note3)	0xF6(Note4)		(Note24)	Time of watchdog timer (0~255) This register is byte access
Counting Unit	0x07 (Note5)	0xF5(Note6)	3 (Note7)	0 (Note8)	Select time unit. 0: second 1: minute
Watchdog Enable	0x07 (Note9)	0xF5 (Note10)	5 (Note11)	1 (Note12)	0: Disable 1: Enable
Timeout Status	0x07 (Note13)	0xF5 (Note14)	6 (Note15)	1	1: Clear timeout status
Output Mode	0x07 (Note16)	0xF5 (Note17)	4 (Note18)	1 (Note19)	Select WDTRST# output mode 0: level 1: pulse
WDTRST output	0x07 (Note20)	0xFA(Note21)	0 (Note22)	1 (Note23)	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable

// SuperIO relative definition (Please reference to Table 1)

#define byte SIOIndex //This parameter is represented from Note1 //This parameter is represented from Note2 #define byte SIOData IOWriteByte(**byte** IOPort, **byte** Value); #define void IOReadByte(byte IOPort); #define bvte // Watch Dog relative definition (Please reference to Table 2) TimerLDN //This parameter is represented from Note3 #define byte TimerReg //This parameter is represented from Note4 #define byte TimerVal // This parameter is represented from Note24 #define byte #define byte //This parameter is represented from Note5 UnitLDN //This parameter is represented from **Note6** #define byte UnitReg //This parameter is represented from Note7 #define byte UnitBit //This parameter is represented from Note8 #define byte UnitVal //This parameter is represented from Note9 #define byte EnableLDN EnableReg //This parameter is represented from **Note10** #define byte EnableBit //This parameter is represented from **Note11** #define byte //This parameter is represented from Note12 #define byte EnableVal // This parameter is represented from Note13 #define byte StatusLDN #define byte StatusReq // This parameter is represented from Note14 StatusBit // This parameter is represented from Note15 #define byte ModeLDN // This parameter is represented from Note16 #define byte #define byte ModeReq // This parameter is represented from **Note17** ModeBit // This parameter is represented from Note18 #define byte #define byte ModeVal // This parameter is represented from Note19 // This parameter is represented from Note20 #define byte WDTRstLDN // This parameter is represented from Note21 #define byte WDTRstRea // This parameter is represented from Note22 #define byte WDTRstBit // This parameter is represented from Note23 #define byte **WDTRstVal** *****

- // Procedure : AaeonWDTConfig
- // (byte)Timer : Time of WDT timer.(0x00~0xFF)
- // (boolean)Unit : Select time unit(0: second, 1: minute).

AaeonWDTConfig();

// Procedure : AaeonWDTEnable

// This procudure will enable the WDT counting.

AaeonWDTEnable();

)

}

}

}

}

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// Procedure : AaeonWDTEnable

VOID AaeonWDTEnable (){

WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 1);

// Procedure : AaeonWDTConfig

VOID AaeonWDTConfig (){

// Disable WDT counting WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 0); // Clear Watchdog Timeout Status WDTClearTimeoutStatus(); // WDT relative parameter setting WDTParameterSetting();

VOID WDTEnableDisable(byte LDN, byte Register, byte BitNum, byte Value){ SIOBitSet(LDN, Register, BitNum, Value);

VOID WDTParameterSetting(){

// Watchdog Timer counter setting

SIOByteSet(TimerLDN, TimerReg, TimerVal);

// WDT counting unit setting

SIOBitSet(UnitLDN, UnitReg, UnitBit, UnitVal);

// WDT output mode setting, level / pulse

SIOBitSet(ModeLDN, ModeReg, ModeBit, ModeVal);

// Watchdog timeout output via WDTRST#

SIOBitSet(WDTRstLDN, WDTRstReg, WDTRstBit, WDTRstVal);

VOID WDTClearTimeoutStatus(){

SIOBitSet(StatusLDN, StatusReg, StatusBit, 1);

}

VOID	SIOEnterMBPnPMode(){ IOWriteByte(SIOIndex, 0x87); IOWriteByte(SIOIndex, 0x87);
VOID }	SIOExitMBPnPMode() { IOWriteByte(SIOIndex, 0xAA);
VOID	SIOSelectLDN(byte LDN){ IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07 IOWriteByte(SIOData, LDN);
VOID	SIOBitSet(byte LDN, byte Register, byte BitNum, byte Value) Byte TmpValue; SIOEnterMBPnPMode(); SIOSelectLDN(byte LDN); IOWriteByte(SIOIndex, Register); TmpValue = IOReadByte(SIOData); TmpValue &= ~(1 << BitNum); TmpValue &= ~(1 << BitNum); IOWriteByte(SIOData, TmpValue); SIOExitMBPnPMode();
VOID	SIOByteSet(byte LDN, byte Register, byte Value){ SIOEnterMBPnPMode(); SIOSelectLDN(LDN); IOWriteByte(SIOIndex, Register); IOWriteByte(SIOData, Value); SIOExitMBPnPMode();

Appendix B

I/O Information

DMNI-5215-SKU

B.1 I/O Address Map

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	Those is no	DC /2 interfece		Lassian ha	امندم مطلا ممص	
note.	There is no	PS/2 Interface	on the Oppini-Ski	J series, rie	ince the excl	amation marks

~	ļ.	DESKTOP-CGVLQ5J
	\mathbf{v}	Input/output (IO)
		[000000000000000 - 00000000000CF7] PCI Express Root Complex
		💻 [0000000000000020 - 0000000000000021] Programmable interrupt controller
		💻 [000000000000024 - 000000000000025] Programmable interrupt controller
		💻 [000000000000028 - 000000000000029] Programmable interrupt controller
		💻 [00000000000002C - 00000000000002D] Programmable interrupt controller
		[00000000000002E - 0000000000002F] Motherboard resources
		💻 [000000000000030 - 000000000000031] Programmable interrupt controller
		💻 [000000000000034 - 000000000000035] Programmable interrupt controller
		💻 [000000000000038 - 000000000000039] Programmable interrupt controller
		💻 [00000000000003C - 0000000000003D] Programmable interrupt controller
		💻 [0000000000000040 - 0000000000000043] System timer
		[00000000000004E - 0000000000004F] Motherboard resources
		💻 [0000000000000050 - 0000000000000053] System timer
		[000000000000061 - 00000000000061] Motherboard resources
		[000000000000063 - 00000000000063] Motherboard resources
		[000000000000065 - 00000000000065] Motherboard resources
		[000000000000067 - 00000000000067] Motherboard resources
		[0000000000000070 - 000000000000000] Motherboard resources
		💻 [000000000000070 - 000000000000077] System CMOS/real time clock
		[000000000000080 - 0000000000080] Motherboard resources
		[0000000000000092 - 00000000000092] Motherboard resources
		💻 [00000000000000A0 - 0000000000000A1] Programmable interrupt controller
		📃 [0000000000000A4 - 000000000000A5] Programmable interrupt controller
		💻 [0000000000000A8 - 000000000000A9] Programmable interrupt controller
		[00000000000000AC - 000000000000AD] Programmable interrupt controller
		💻 [00000000000000B0 - 000000000000B1] Programmable interrupt controller
		[000000000000082 - 0000000000083] Motherboard resources
		💻 [0000000000000B4 - 000000000000B5] Programmable interrupt controller
		📃 [0000000000000B8 - 000000000000B9] Programmable interrupt controller
		📃 [0000000000000BC - 000000000000BD] Programmable interrupt controller
		🚏 [0000000000002F8 - 000000000002FF] Communications Port (COM2)
		[0000000000003B0 - 00000000003BB] Intel(R) HD Graphics 520

	-	[00000000000000A0 - (00000000000000A1]	Programmable interrupt controller
	-	[0000000000000A4 - (0000000000000A5]	Programmable interrupt controller
	_	[00000000000000A8 - (0000000000000A9]	Programmable interrupt controller
		[000000000000AC -	0000000000000AD]	Programmable interrupt controller
	_	[0000000000000B0 - 0	0000000000000B1]	Programmable interrupt controller
	_	[000000000000B2 - 0	0000000000000B3]	Motherboard resources
	1	[000000000000B4 - 0	0000000000000B5]	Programmable interrupt controller
	_	[000000000000B8 - 0	0000000000000B9]	Programmable interrupt controller
		[000000000000BC - (0000000000000BD]	Programmable interrupt controller
	- 👘	[000000000002F8 - 0	000000000002FF]	Communications Port (COM2)
	1 22	[000000000003B0 - 0	000000000003BB]	Intel(R) HD Graphics 520
	6 22	[000000000003C0 - (0000000000003DF]	Intel(R) HD Graphics 520
	7	[000000000003F8 - 0	000000000003FF]	Communications Port (COM1)
		[0000000000004D0 - (0000000000004D1]	Programmable interrupt controller
	-	[000000000000680 - 0	00000000000069F]	Motherboard resources
	-	[000000000000000000 - (000000000000A0F]	Motherboard resources
	-	[000000000000A10 - (0000000000000A1F]	Motherboard resources
	-	[000000000000A20 - (000000000000A2F]	Motherboard resources
	_	[000000000000D00 - (00000000000FFFF]	PCI Express Root Complex
	_	[00000000000164E - 0	00000000000164F]	Motherboard resources
	_	[000000000001800 - 0	0000000000018FE]	Motherboard resources
	-	[000000000001854 - 0	000000000001857]	Motherboard resources
	_	[00000000000E000 - 0	00000000000EFFF]	Mobile 6th Generation Intel(R) Processor Family I/O PCI Express Root Port #1 - 9D10
		[00000000000F000 - 0	00000000000F03F]	Intel(R) HD Graphics 520
	_	[00000000000F040 - 0	00000000000F05F]	Mobile 6th Generation Intel(R) Processor Family I/O SMBUS - 9D23
		[00000000000F060 - 0	00000000000F07F]	Standard SATA AHCI Controller
		[00000000000F080 - 0	00000000000F083]	Standard SATA AHCI Controller
		[00000000000F090 - 0	00000000000F097]	Standard SATA AHCI Controller
		[00000000000FF00 - 0	00000000000FFFE]	Motherboard resources
	_	[00000000000FFFF - 0	00000000000FFFF]	Motherboard resources
		[00000000000FFFF - 0	00000000000FFFF]	Motherboard resources
	-	[00000000000FFFF - 0	00000000000FFFF]	Motherboard resources
> 🎽	Int	errupt request (IRQ)		
> 🎽	Me	emory		

B.2 Memory Address Map

Ĩ	Me	emory
	8 8	[0000000000A0000 - 0000000000BFFF] Intel(R) HD Graphics 520
	-	[0000000000A0000 - 000000000BFFF] PCI Express Root Complex
		[000000009000000 - 0000000DFFFFFF] PCI Express Root Complex
	88	[0000000C0000000 - 0000000CFFFFFF] Intel(R) HD Graphics 520
	8 8	[0000000DE000000 - 0000000DEFFFFF] Intel(R) HD Graphics 520
		[0000000DF000000 - 0000000DF01FFF5] Intel(R) I210 Gigabit Network Connection
	_	[0000000DF000000 - 0000000DF0FFFF] Mobile 6th Generation Intel(R) Processor Family I/O PCI Express Root Port #1 - 9D10
		[0000000DF020000 - 0000000DF023FFF] Intel(R) I210 Gigabit Network Connection
	-	[0000000DF100000 - 0000000DF10FFFF] High Definition Audio Controller
	Ψ.	[0000000DF110000 - 0000000DF11FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	_	[0000000DF120000 - 0000000DF123FFF] High Definition Audio Controller
	-	[0000000DF124000 - 0000000DF127FFF] Mobile 6th Generation Intel(R) Processor Family I/O PMC - 9D21
	C ji	0000000DF128000 - 0000000DF129FFF] Standard SATA AHCI Controller
	_	[0000000DF12A000 - 0000000DF12A0FF] Mobile 6th Generation Intel(R) Processor Family I/O SMBUS - 9D23
		[0000000DF12B000 - 0000000DF12B7FF] Standard SATA AHCI Controller
	C ji	0000000DF12C000 - 0000000DF12C0FF] Standard SATA AHCI Controller
	-	[0000000DF12E000 - 0000000DF12EFFF] Mobile 6th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
	_	[0000000DFFE0000 - 0000000DFFFFFF] Motherboard resources
	_	[0000000E0000000 - 0000000EFFFFFF] Motherboard resources
	-	[0000000FD000000 - 0000000FDABFFFF] Motherboard resources
	-	[0000000FD000000 - 0000000FE7FFFF] PCI Express Root Complex
	-	[0000000FDAC0000 - 0000000FDACFFF] Motherboard resources
	- 11-1	[0000000FDAD0000 - 0000000FDADFFF] Motherboard resources
		[0000000FDAE0000 - 0000000FDAEFFFF] Motherboard resources
	-	[0000000FDAF0000 - 0000000FDAFFFF] Motherboard resources
	-	[0000000FDB00000 - 0000000FDFFFFF] Motherboard resources
		[0000000FE000000 - 0000000FE01FFFF] Motherboard resources
		[0000000FE028000 - 0000000FE028FFF] Motherboard resources
	-	0000000FE029000 - 0000000FE029FFF] Motherboard resources
		[0000000FE036000 - 0000000FE03BFFF] Motherboard resources
	-	[0000000FE03D000 - 00000000FE3FFFF] Motherboard resources
	2	[0000000FE40F000 - 0000000FE40FFFF] Intel(R) Management Engine Interface
		[0000000FE410000 - 0000000FE7FFFF] Motherboard resources

~

_	[0000000DF120000 - 0000000DF123FFF] High Definition Audio Controller
_	[00000000DF124000 - 00000000DF127FFF] Mobile 6th Generation Intel(R) Processor Family I/O PMC - 9D21
C iii	[0000000DF128000 - 0000000DF129FFF] Standard SATA AHCI Controller
_	[0000000DF12A000 - 0000000DF12A0FF] Mobile 6th Generation Intel(R) Processor Family I/O SMBUS - 9D23
-	[0000000DF12B000 - 0000000DF12B7FF] Standard SATA AHCI Controller
	[0000000DF12C000 - 0000000DF12C0FF] Standard SATA AHCI Controller
-	[00000000DF12E000 - 00000000DF12EFFF] Mobile 6th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
_	[0000000DFFE0000 - 0000000DFFFFFF] Motherboard resources
_	[0000000E0000000 - 00000000EFFFFFF] Motherboard resources
_	[00000000FD000000 - 00000000FDABFFFF] Motherboard resources
-	[00000000FD000000 - 00000000FE7FFFFF] PCI Express Root Complex
-	[00000000FDAC0000 - 0000000FDACFFFF] Motherboard resources
	[00000000FDAD0000 - 00000000FDADFFFF] Motherboard resources
_	[00000000FDAE0000 - 00000000FDAEFFFF] Motherboard resources
_	[00000000FDAF0000 - 0000000FDAFFFFF] Motherboard resources
-	[00000000FDB00000 - 0000000FDFFFFF] Motherboard resources
-	[0000000FE000000 - 0000000FE01FFF] Motherboard resources
-	[00000000FE028000 - 00000000FE028FFF] Motherboard resources
-	[00000000FE029000 - 00000000FE029FFF] Motherboard resources
-	[00000000FE036000 - 00000000FE03BFFF] Motherboard resources
-	[00000000FE03D000 - 00000000FE3FFFFF] Motherboard resources
-	[00000000FE40F000 - 00000000FE40FFFF] Intel(R) Management Engine Interface
-	[00000000FE410000 - 00000000FE7FFFFF] Motherboard resources
-	[00000000FED00000 - 00000000FED003FF] High precision event timer
-	[00000000FED10000 - 00000000FED17FFF] Motherboard resources
_	[00000000FED18000 - 00000000FED18FFF] Motherboard resources
_	[00000000FED19000 - 00000000FED19FFF] Motherboard resources
_	[00000000FED20000 - 00000000FED3FFFF] Motherboard resources
p	[00000000FED40000 - 00000000FED40FFF] Trusted Platform Module 1.2
-	[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
-	[0000000FED90000 - 0000000FED93FFF] Motherboard resources
-	[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
_	[0000000FF000000 - 0000000FFFFFFF] Legacy device
	[0000000EE000000 - 0000000EEEEEE] Motherboard resources

B.3 IRQ Mapping Chart

~	Interrupt request (IRQ)	
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000003 (03)	Communications Port (COM2)
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000008 (08)	System CMOS/real time clock
	(ISA) 0x000000E (14)	Motherboard resources
	(ISA) 0x0000036 (54)	Microsoft ACPI-Compliant System
	(ISA) 0x00000037 (55)	Microsoft ACPI-Compliant System
	(ISA) 0x0000038 (56)	Microsoft ACPI-Compliant System
	(ISA) 0x00000039 (57)	Microsoft ACPI-Compliant System
	💻 (ISA) 0x000003A (58)	Microsoft ACPI-Compliant System
	(ISA) 0x000003B (59)	Microsoft ACPI-Compliant System
	(ISA) 0x000003C (60)	Microsoft ACPI-Compliant System
	(ISA) 0x000003D (61)	Microsoft ACPI-Compliant System
	(ISA) 0x000003E (62)	Microsoft ACPI-Compliant System
	(ISA) 0x000003F (63)	Microsoft ACPI-Compliant System
	(ISA) 0x00000040 (64)	Microsoft ACPI-Compliant System
	(ISA) 0x00000041 (65)	Microsoft ACPI-Compliant System
	(ISA) 0x0000042 (66)	Microsoft ACPI-Compliant System
	(ISA) 0x0000043 (67)	Microsoft ACPI-Compliant System
	(ISA) 0x00000044 (68)	Microsoft ACPI-Compliant System
	(ISA) 0x0000045 (69)	Microsoft ACPI-Compliant System
	(ISA) 0x0000046 (70)	Microsoft ACPI-Compliant System
	(ISA) 0x00000047 (71)	Microsoft ACPI-Compliant System
	(ISA) 0x0000048 (72)	Microsoft ACPI-Compliant System
	(ISA) 0x00000049 (73)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004A (74)	Microsoft ACPI-Compliant System
	(ISA) 0x000004B (75)	Microsoft ACPI-Compliant System
	(ISA) 0x000004C (76)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004D (77)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004E (78)	Microsoft ACPI-Compliant System
	(ISA) 0x0000004F (79)	Microsoft ACPI-Compliant System
	(ISA) 0x00000050 (80)	Microsoft ACPI-Compliant System

(ISA) 0x00000051 (81)
(ISA) 0x00000052 (82)
(ISA) 0x00000053 (83)
(ISA) 0x00000054 (84)
(ISA) 0x00000055 (85)
(ISA) 0x00000056 (86)
💻 (ISA) 0x00000057 (87)
(ISA) 0x00000058 (88)
(ISA) 0x00000059 (89)
(ISA) 0x0000005A (90)
(ISA) 0x0000005B (91)
(ISA) 0x0000005C (92)
(ISA) 0x0000005D (93)
(ISA) 0x000005E (94)
(ISA) 0x0000005F (95)
(ISA) 0x0000060 (96)
💻 (ISA) 0x0000061 (97)
(ISA) 0x0000062 (98)
💻 (ISA) 0x0000063 (99)
(ISA) 0x00000064 (100)
(ISA) 0x00000065 (101)
(ISA) 0x00000066 (102)
(ISA) 0x00000067 (103)
(ISA) 0x00000068 (104)
(ISA) 0x00000069 (105)
(ISA) 0x000006A (106)
(ISA) 0x000006B (107)
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OMNI-5215-SKU

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Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

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Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

	💻 (ISA) 0x000001ED (493)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
	PCI) 0x00000005 (05)	Mobile 6th Generation Intel(R) Processor Family I/O SMBUS - 9D23
	PCI) 0x0000006 (06)	Mobile 6th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
	PCI) 0x00000010 (16)	High Definition Audio Controller
	PCI) 0xFFFFFFF4 (-12)	Intel(R) Management Engine Interface
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	PCI) 0xFFFFFFF6 (-10)	Intel(R) HD Graphics 520
	(PCI) 0xFFFFFFF7 (-9)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFF8 (-8)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFF9 (-7)	Intel(R) I210 Gigabit Network Connection
	📃 (PCI) 0xFFFFFFFA (-6)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFB (-5)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFC (-4)	Intel(R) I210 Gigabit Network Connection
	🕞 (PCI) 0xFFFFFFD (-3)	Standard SATA AHCI Controller
	PCI) 0xFFFFFFFE (-2)	Mobile 6th Generation Intel(R) Processor Family I/O PCI Express Root Port #1 - 9D10
>	Memory	

Appendix C

CANBus Utility (for CANBus Module)

0MNI-5215-SKU

C.1 CANBus Driver Installation

Before using the utility, please follow the instructions below to install the drivers.

For Windows 8.1

1. Locate the CANBus in Device Manager



2. Right click and select Update driver



Appendix C – CANBus Utility (for CANBus Module)

3. Choose Browse my computer for driver software and Next

C I Update Driver Software - CDC USB Demonstration
Browse for driver software on your computer
Search for driver software in this location:
C:\Users\user\Documents V Browse
✓ Include subfolders
★ Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next Cancel
Click Have Disk and browse to the driver's directory
€
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
(Retrieving a list of all devices)



5. After selecting the directory, click next and install the drivers

	×
€	Update Driver Software - CDC USB Demonstration
	Select the device driver you want to install for this hardware. Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
	Show <u>c</u> ompatible hardware Model
	This driver has an Authenticode(tm) signature.
	<u>N</u> ext Cancel

Appendix C – CANBus Utility (for CANBus Module)



6. You should see this after the driver is successfully installed.



C.2 CANBus Utility



- 1. COM PORT NUMBER
- 2. COM PORT BAUD RATE:
 - i. <u>115200</u>
 - ii. <u>57600</u>
 - iii. <u>38400</u>
 - iv. <u>19200</u>
 - v. <u>9600</u>
- 3. CONNECTION BUTTON
- 4. FIRMWARE VERSION
- 5. CAN BUS PORT SELECTOR: 0 OR 1
- 6. CAN BUS BAUD RATE (PRESS SET TO APPLY CHANGE):
 - i. <u>125K</u>

- ii. <u>500K</u>
- iii. <u>1M</u>
- 7. CAN BUS MODE: STANDARD OR EXTENDED (PRESS SET BUTTON TO APPLY CHANGE)
 - <u>STANDARD: ID RANGE WILL BE 0x000~0x7FF</u>
 - i. Extended: ID range will be 0x00000000~0x1FFFFFF
- 8. ENABLE/ DISABLE RTR MODE (PRESS SET BUTTON TO APPLY CHANGE):

IF RTR IS ENABLED, A REMOTE FRAME WILL BE TRANSMITTED VIA THE BUS. THIS MEANS THAT NO DATA BYTES ARE INCLUDED WITHIN THIS FRAME. NEVERTHELESS, IT IS NECESSARY TO SPECIFY THE CORRECT DATA LENGTH CODE WHICH DEPENDS ON THE CORRESPONDING DATA FRAME WITH THE SAME IDENTIFIER CODING. IF THE RTR IS DISABLED, A DATA FRAME WILL BE SENT INCLUDING THE NUMBER OF DATA BYTES AS SPECIFIED BY THE DATA LENGTH CODE.

- 9. CAN BUS ID: THE IDENTIFIER IS TRANSMITTED FIRST ON THE BUS DURING THE ARBITRATION PROCESS. THE IDENTIFIER ACTS AS THE MESSAGE'S NAME.
- 10. DATA FIELD: DATA TO BE TRANSMITTED.
- 11. RECEIVED DATA WILL BE LISTED HERE
- 12. COUNTER INCREASED WHEN RECEIVING DATA
- 13. Send button
- 14. LOOP TEST FUNCTION: PRESS THIS BUTTON TO SEND DATA AUTOMATICALLY.
- 15. RECEIVE BUTTON: PRESS TO START RECEIVING DATA.
- 16. CLEAR RECEIVE FIELD
- 17. MASK AND FILTER FUNCTION, PLEASE REFER TO NEXT SESSION.
- 18. GET STATUS FROM FIRMWARE REGISTER
- 19. GET ERROR STATUS FROM FIRMWARE REGISTER
- 20. LOAD DEFAULT
- 21. SAVE CURRENT SETTING TO FIRMWARE REGISTER

C.3 Mask and Filter Function

Mask Function	
Mask Settings: 💿 E	nable 🔾 Disable 🛛 Apply
000	Port: 0 👻
001	
002	ID to be masked:
003	
005	
005	
007	Remove Add
Filter Function	
Filter Function	nable 💿 Disable 🛛 Apply
Filter Function Filter Settings: 🔘 E	nable Disable Apply Port: 0
Filter Function	nable
Filter Function	nable Disable Apply Port: 0 = ID to be filtered: 0 = 0 = 0 = 0 =

- 1. MASK: SPECIFIED ID CANNOT BE RECEIVED.
- 2. FILTER: ONLY SPECIFIED ID CANNOT BE RECEIVED.
- 3. WORKS ON PORT THAT APPLY TO RECEIVE PORT

Appendix D

Electrical Specifications for I/O Ports

DMNI-5215-SKU

D.1 Digital I/O Register

Table 1 : SuperIO relative register table			
	Default Value	Note	
Index	x 0x2E(Note1)	SIO MB PnP Mode Index Register	
index		0x2E or 0x4E	
Data		SIO MB PnP Mode Data Register	
Data	UX2F(INOLEZ)	0x2F or 0x4F	

Table 2 : Digital Input relative register table					
	LDN	Register	BitNum	Value	Note
DIO-1 Pin Status	0x06 (Note3)	0xA2 (Note4)	0 (Note5)		GPIO50
DIO-2 Pin Status	0x06 (Note6)	0xA2 (Note7)	1 (Note8)		GPIO51
DIO-3 Pin Status	0x06 (Note9)	0xA2 (Note10)	2 (Note11)		GPIO52
DIO-4 Pin Status	0x06 (Note12)	0xA2 (Note13)	3 (Note14)		GPIO53
DIO-5 Pin Status	0x06 (Note15)	0xA2 (Note16)	4 (Note17)		GPIO54
DIO-6 Pin Status	0x06 (Note18)	0xA2 (Note19)	5(Note20)		GPIO55
DIO-7 Pin Status	0x06 (Note21)	0xA2 (Note22)	6 (Note23)		GPIO56
DIO-8 Pin Status	0x06(Note24)	0xA2 (Note25)	7(Note26)		GPIO57

Table 3 : Digital Output relative register table					
	LDN	Register	BitNum	Value	Note
DIO-1 Output	0x06 (Note27)	0xA1	0 (Note29)	(Note30)	GPIO50
Data	. ,	(Note28)	. ,	,	
DIO-2 Output		0xA1	1(Noto22)	(Nioto24)	
Data	UXUO(INOLESI)	(Note32)	I(NOLESS)	(110(854)	GFIOJI
DIO-3 Output		0xA1	$2(N \to 27)$	(NIata 20)	
Data	UXUb(NOte35)	(Note36)	2(Note37)	(NOLE38)	GPIU52
DIO-4 Output		0xA1	2 (N Lat a 44)	(N	
Data Ox06(Note39)		(Note40)	3 (INOTE41)	(INOLE42)	GPIU53
DIO-5 Output	0:00 (Nlata (2))	0xA1	(Nista (E)	(N_{a})	
Data	UXU6(INOTE43)	(Note44)	4 (NOLE45)	(1101646)	GPIO54
DIO-6 Output		0xA1		(Niete CO)	
Data 0x06(Note		(Note48)	5 (NOLE49)	(NOLESU)	GRIUDD
DIO-7 Output		0xA1	C(N) = t = (2)	(Niete C 4)	
Data		(Note52)	0(1101653)	(1901624)	GPIU50
DIO-8 Output		0xA1	7(NiotoE7)	(NiotoE0)	
Data		(Note56)	(INOLES7)	(1901628)	GPIU57

D.2 Digital I/O Sample Program

// SuperIO rela	itive definition (Please reference to Table 1)
#define byte	SIOIndex //This parameter is represented from Note1
#define byte	SIOData //This parameter is represented from Note2
#define void	IOWriteByte(byte IOPort, byte Value);
#define byte	IOReadByte(byte IOPort);
// Digital Input	Status relative definition (Please reference to Table 2)
#define byte	DInput1LDN // This parameter is represented from Note3
#define byte	DInput1Reg // This parameter is represented from Note4
#define byte	DInput1Bit // This parameter is represented from Note5
#define byte	DInput2LDN // This parameter is represented from Note6
#define byte	DInput2Reg // This parameter is represented from Note7
#define byte	DInput2Bit // This parameter is represented from Note8
#define byte	DInput3LDN // This parameter is represented from Note9
#define byte	DInput3Reg // This parameter is represented from Note10
#define byte	DInput3Bit // This parameter is represented from Note11
#define byte	DInput4LDN // This parameter is represented from Note12
#define byte	DInput4Reg // This parameter is represented from Note13
#define byte	DInput4Bit // This parameter is represented from Note14
#define byte	DInput5LDN // This parameter is represented from Note15
#define byte	DInput5Reg // This parameter is represented from Note16
#define byte	DInput5Bit // This parameter is represented from Note17
#define byte	DInput6LDN // This parameter is represented from Note18
#define byte	DInput6Reg // This parameter is represented from Note19
#define byte	DInput6Bit // This parameter is represented from Note20
#define byte	DInput7LDN // This parameter is represented from Note21
#define byte	DInput7Reg // This parameter is represented from Note22
#define byte	DInput7Bit // This parameter is represented from Note23
#define byte	DInput8LDN // This parameter is represented from Note24
#define byte	DInput8Reg // This parameter is represented from Note25
#define byte	DInput8Bit // This parameter is represented from Note26
************	***************************************

// Digital Output control relative definition (Please reference to Table 3)

#define byte DOutput1LDN // This parameter is represented from Note27 #define byte DOutput1Reg // This parameter is represented from Note28 DOutput1Bit // This parameter is represented from Note29 #define byte DOutput1Val // This parameter is represented from Note30 #define byte DOutput2LDN // This parameter is represented from Note31 #define byte DOutput2Reg // This parameter is represented from Note32 #define byte DOutput2Bit // This parameter is represented from Note33 #define byte DOutput2Val // This parameter is represented from Note34 #define byte DOutput3LDN // This parameter is represented from Note35 #define byte DOutput3Reg // This parameter is represented from Note36 #define byte DOutput3Bit // This parameter is represented from Note37 #define byte #define byte DOutput3Val // This parameter is represented from Note38 #define byte DOutput4LDN // This parameter is represented from Note39 #define byte DOutput4Reg // This parameter is represented from **Note40** DOutput4Bit // This parameter is represented from Note41 #define bvte DOutput4Val // This parameter is represented from Note42 #define byte #define byte DOutput5LDN // This parameter is represented from Note43 #define byte DOutput5Reg // This parameter is represented from Note44 #define byte DOutput5Bit // This parameter is represented from Note45 #define byte DOutput5Val // This parameter is represented from Note46 DOutput6LDN // This parameter is represented from Note47 #define byte #define byte DOutput6Reg // This parameter is represented from Note48 #define byte DOutput6Bit // This parameter is represented from Note49 #define byte DOutput6Val // This parameter is represented from Note50 #define byte DOutput7LDN // This parameter is represented from Note51 DOutput7Reg // This parameter is represented from Note52 #define byte #define byte DOutput7Bit // This parameter is represented from Note53 DOutput7Val // This parameter is represented from Note54 #define byte #define byte DOutput8LDN // This parameter is represented from Note55 #define byte DOutput8Reg // This parameter is represented from Note56 #define byte DOutput8Bit // This parameter is represented from Note57 DOutput8Val // This parameter is represented from Note58 #define byte

VOID Main(){

Boolean PinStatus ;

// Procedure : AaeonReadPinStatus

// Input :

/ Example, Read Digital I/O Pin 3 status

// Output :

// InputStatus :

// 0: Digital I/O Pin level is low

// 1: Digital I/O Pin level is High

PinStatus = AaeonReadPinStatus(DInput3LDN, DInput3Reg, DInput3Bit);

// Procedure : AaeonSetOutputLevel

// Input :

// Example, Set Digital I/O Pin 6 level

AaeonSetOutputLevel(DOutput6LDN, DOutput6Reg, DOutput6Bit, DOutput6Val);

}

Boolean AaeonReadPinStatus(byte LDN, byte Register, byte BitNum){

Boolean PinStatus ;

PinStatus = SIOBitRead(LDN, Register, BitNum); Return PinStatus ;

VOID AaeonSetOutputLevel(byte LDN, byte Register, byte BitNum, byte Value){ ConfigToOutputMode(LDN, Register, BitNum); SIOBitSet(LDN, Register, BitNum, Value);

}

}

*****	***************************************
VOID	SIOEnterMBPnPMode(){ IOWriteByte(SIOIndex, 0x87); IOWriteByte(SIOIndex, 0x87);
VOID }	SIOExitMBPnPMode(){ IOWriteByte(SIOIndex, 0xAA);
VOID	SIOSelectLDN(byte LDN){ IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07 IOWriteByte(SIOData, LDN);

VOID SIOBitSet(byte LDN, byte Register, byte BitNum, byte Value){ Byte TmpValue;

SIOEnterMBPnPMode(); SIOSelectLDN(byte LDN); IOWriteByte(SIOIndex, Register); TmpValue = IOReadByte(SIOData); TmpValue &= ~(1 << BitNum); TmpValue |= (Value << BitNum); IOWriteByte(SIOData, TmpValue); SIOExitMBPnPMode();

}

VOID SIOByteSet(byte LDN, byte Register, byte Value){ SIOEnterMBPnPMode(); SIOSelectLDN(LDN); IOWriteByte(SIOIndex, Register); IOWriteByte(SIOData, Value);

SIOExitMBPnPMode();

Boolean SIOBitRead(byte LDN, byte Register, byte BitNum){

Byte TmpValue;

SIOEnterMBPnPMode(); SIOSelectLDN(LDN); IOWriteByte(SIOIndex, Register); TmpValue = IOReadByte(SIOData); TmpValue &= (1 << BitNum); SIOExitMBPnPMode(); If(TmpValue == 0) Return 0; Return 1;

VOID ConfigToOutputMode(byte LDN, byte Register, byte BitNum){

Byte TmpValue, OutputEnableReg;

OutputEnableReg = Register-1; SIOEnterMBPnPMode(); SIOSelectLDN(LDN); IOWriteByte(SIOIndex, OutputEnableReg); TmpValue = IOReadByte(SIOData); TmpValue |= (1 << BitNum); IOWriteByte(SIOData, OutputEnableReg); SIOExitMBPnPMode();

1

}

Appendix D – DI/O Utility (for DI/O Module)