## ARC-1232/1532

12.1"/15" 6th Gen Intel® ULT Core™ Processor i7/i5/i3 Fanless Rugged Touch Panel PC with IET Expansion

## **Quick Reference Guide**

5<sup>th</sup> Ed – 22 June 2018

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## **FCC Statement**

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

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 INSTATLLED 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.

## A Message to the Customer

#### **Customer Services**

Each and every product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation

Your satisfaction is our primary concern. Here is a guide to our customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

## **Technical Support**

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

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## **1. Getting Started**

## 1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### **Caution!**



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## **1.2 Packing List**

- 1 x ARC-1232/1532 Panel PC
- 1 x Driver/Utility DVD-ROM
- 1 x Power Adapter
- 1 x Power cord
- 4 x screws for VESA



If any of the above items is damaged or missing, contact your retailer.

## 1.3 System Specifications

Panel	ARC-1232	ARC-1532	
LCD Size	12.1", 4:3	15", 4:3	
Display Type	хс	6A	
Resolution	1024	x 768	
Pixel pitch	0.1905 mm (H) x 0.1905 mm (V)	0.297mm(H) x 0.297mm(V)	
Luminance	600 cd/m <sup>2</sup>	400 cd/m <sup>2</sup>	
Contrast ratio	70	00	
Viewing angle	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	
Response time	16	ms	
Backlight	LE	D	
	5 Wires resist	ive (A Model)	
rouch rype	Projected Capa	citive (B Model)	
Touch Light	80% (A	Model)	
Transmission	89% (B	Model)	
Touch Controllor	Onboard USB touch (	PenMount) (A Model)	
Touch Controller	EETI (B	Model)	
System			
SBC	ARC-SKLU		
Processor	6th Gen Intel® Core™ i5-6300	0U, 2-Core, 2.4GHz processor	
I/O Chipset	EC ITE I	T8528E	
System Memory	1 x 260-Pin DDR4 2	133MHz SO-DIMM	
Watchdog Timer	H/W Reset, 1sec. ~ 65535min. and 1sec. or 1min./step		
H/W Status Monitor	Monitoring SYSTEM Temperature and Voltage with Auto Throttling Control		
Expansion			
Expansion	1 x Mini PCIe Support mSATA		
LAPANSION	1 x Optional 80-pin Expansion		
Storage			
Storage	1 x 2.5" Drive Bay (7mm HDD Restricted)		
I/O			
USB	4 x USB 3.0		
SATA	1 x SATA III		
Com Port	1 x RS-232/422/485 (Factory Optional)		
	1 x RS-232		
Other	3 x Knockouts for	Antenna Mounting	
Display			
Chinset	Intel® Skylake SoC	integrated Graphics	
ompoer	Supports optional dual display		

Resolution	HDMI: Max. resolution 4096 x 2160 @ 24Hz (by IET module)			
Audio				
Audio Codec	Realtek ALC892_op	tional expansion BD		
Audio Interface	Speak	er Out		
Speaker Output	2 x	2W		
Ethernet				
Chincot	1 x Intel®	0 I210AT		
Chipset	1 x Intel®	0 I219LM		
Ethernet Interface	10/100/1000 Base-	Tx GbE compatible		
Lan Port	2 x R	2J-45		
Power Requirement				
Power Connector	Lockable	DC Jack		
Power Requirement	+12V -	- +26V		
Power Type	AT/ATX (ATX is	default setting)		
Adapter	Input: 100 ~ 240	Vac/ 50 ~ 60Hz		
Mechanical &				
Environmental				
System Fan	Fanless			
<b>Construction - Front</b>	Silver Aluminum			
Construction – Rear	Black			
Dimonsion	284 x 223 x 62.2 mm (A Model)	350 x 274 x 49.8 mm (A Model)		
Dimension	294 x 226.3 x 51 mm (B Model)	350.5 x 274.5 x 53 mm (B Model)		
Weight	2.4 Kgs 3.7 Kgs			
Operating	-20°C ~ 60°C (-4°F	~ 140°F) (A Model)		
Temperature	-10°C ~ 50°C (14°F	~ 122°F) (B Model)		
Storage Temperature	-20°C ~ 60°C	(-4°F ~ 140°F)		
Operating Humidity	0% ~ 90% Relative Hur	nidity, Non-condensing		
	ARC-1232			
Vibration Test	With SSD/mSATA : 5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis			
	ARC-1532			
	With SSD/mSATA : 3Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis			
Mounting	Wall / Stand / VESA 75mm x 75mm, 100mm x 100mm			
Shock Test	Operating with SSD/CFast/mSATA : MIL-STD-810G, Method 516.6,			
	Procedure I, functional shock=20G			
Certifications				
Certifications	CE			
Information	FCC C	lass B		
Software Support				
OS Information	Win7, Win 8.1, Win 10, Linux			

Ordering Information/	
Description	
ACC-ARC-USB-1R	4 x USB3.0 (ARC-BYT DB-A)
ACC-ARC-AUDIO-1R	HDMI + Audio/Line out, Line in, Mic in (ARC-BYT DB-B)
ACC-ARC-MPCIE-1R	HDMI + Mini PCIe w/ SIM slot (ARC-BYT DB-C)
ACC-ARC-COM-1R	2 x Isolated RS-232 / 2kv (ARC-BYT DB-D)
ACC-ARC-COM-2R	3 x RS-232 (ARC-BYT DB-G)
ACC-ARC-COM-3R	2 x RS-232 + USB 2.0 (ARC-BYT DB-H)
ACC-ARC-COM-4R	2 x RS-232 + LAN (ARC-BYT DB-K)
ACC-ARC-GPIO-1R	12-bit GPIO + 2-pin CAN Bus Kit for ARC Series
ACC-ARC-OBDII-1R	OBDII - CAN Bus Kit for ARC Series (Small Vehicle)
ACC-ARC-OBDII-2R	OBDII - CAN Bus Kit for ARC Series (Large Vehicle)
ACC-ARC-OBDII-3R	OBDII - CAN Bus Kit for ARC Series (Special Large Vehicle)

**Note:** Specifications are subject to change without notice.





Connectors				
Label	Function	Note		
DC-IN	DC Power-in connector			
COM1/2	Serial port 1/2 connector	DB-9 male connector		
USB	4 x USB 3.0 connector			
LAN1/2	RJ-45 Ethernet 1/2			
LED	HDD/Power LED indicator			
Power Switch	Power on button			

## 1.5 System Dimensions

1.5.1 ARC-1232 (A Model)



## 1.5.2 ARC-1232 (B Model)



## (Unit: mm)

## 1.5.3 ARC-1532 (A Model)



<sup>(</sup>Unit: mm)



## 1.5.4 ARC-1532 (B Model)

# 2. Hardware Configuration

For advanced information, please refer to:

1- ARC-SKLU, ARC-BYT DB-A/B/C/D/G/H/K included in this manual.

## 2.1 ARC-1232/1532 connector mapping

2.1.1 Serial port 1 connector (COM1)



RS-485				
Signal	PIN	PIN	Signal	
DATA-	1	6	NC	
DATA+	2	7	NC	
NC	3	8	NC	
NC	4	9	NC	
GND	5			

```
Please set BIOS & JCOM2_SEL2
```

0	$\left(\begin{array}{cccccccccccccccccccccccccccccccccccc$	0
$\bigcirc$	$\left(\begin{array}{cccc} 0 & 0 & 0 & 0 \\ 1 & 2 & 3 & 4 & 5 \\ 0 & 0 & 0 & 0 \\ 6 & 7 & 8 & 9 \end{array}\right)$	$\bigcirc$

RS-232					
Signal	PIN	PIN	Signal		
NDCDA#	1	6	NDSRA#		
NRXDA	2	7	NRTSA#		
NTXDA	3	8	NCTSA#		
NDTRA#	4	9	NRIA#		
GND	5				

RS-422					
Signal	PIN	PIN	Signal		
TxD-	1	6	NC		
TxD+	2	7	NC		
RxD+	3	8	NC		
RxD-	4	9	NC		
GND	5				

Please set BIOS & JCOM2\_SEL2

## 2.1.2 Serial port 2 connector (COM2)





Signal	PIN	PIN	Signal
NDCDB#	1	6	NDSRB#
NRXDB	2	7	NRTSB#
NTXDB	3	8	NCTSB#
NDTRB#	4	9	NRIB#
GND	5		

## 2.2 Installing Hard Disk & Memory

Step 1. Memory Installation: Remove 3 screws to release the chassis cover, and remove it.



Step 2.1 Insert the SODIMM into the memory socket.

Step 2.2 Re-assemble your system back through previous steps to complete the installation.





Step 3. HDD Installation: Insert the HDD into the Drive Bay and fasten 2 screws.

## 2.3 Installing ARC-BYT DB

Step 1. Unfasten 2 screws of the HDD bracket and take it off.



Step 2. Remove 4 screws to release the chassis cover, and remove it.



Step 2.1 Insert the ARC-BYT DB into the socket and fasten 3 screws.

Step 2.2 Re-assemble your system back through previous steps to complete the installation



## 2.4 ARC-SKLU Overviews



## 2.5 ARC-SKLU Jumper and Connector list

Jumper		
Label	Function	Note
JCOMS1	Clear CMOS	3 x 1 header, pitch 2.00mm
JRI1/2	Serial port 1/2 pin9 signal select	3 x 2 header, pitch 2.00mm
JCOM1_SEL1	Serial port 1 in RS-232/422/485 mode	4 x 3 header, pitch 2.00mm
JBKLSEL1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.00mm
JAT1	AT/ATX Input power select	3 x 1 header, pitch 2.00mm

Connectors		
Label	Function	Note
SODIMM1	1 x 260-Pin DDR4 2133MHz SO-DIMN	
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
COM1/2	Serial Port 1/2 connector	D-sub 9 pin, male
JTP1	Touch panel connector	5 x 1 header, pitch 2.54mm
JSPR1	AMPLIFIER_R	2 x 1 wafer, pitch 2.00mm
JSPL1	AMPLIFIER_L	2 x 1 wafer, pitch 2.00mm
JB2B1	B2B connector	40 x 2 wafer, pitch 0.80mm
JBKLCTL1	LCD backlight brightness adjustment	3 x 2 header, pitch 2.00mm
LED1	HDD/Power LED indicator	
JLVDS1	LVDS connector	DIN 40-pin wafer, pitch 1.25mm
USB1/2	USB connector 1/2	
JUSB1	On-board header for USB2.0	5 x 1 wafer, pitch 2.00mm
JUSB2	On-board header for USB2.0	5 x 2 wafer, pitch 2.00mm
LAN1/2	RJ-45 Ethernet 1/2	
MPCIE1	Mini-PCIe connector	
JBAT1	Battery connector	2 x 1 wafer, pitch 1.25mm
JGPIO1	General purpose I/O connector	6 x 2 wafer, pitch 2.00mm
JPWR1	Power connector	
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JEC1	EC Debug connector	2 x 1 header, pitch 2.00 mm
SATA1	Serial ATA connector	
SATAPW1	SATA Power connector	2 x 1 wafer, pitch 2.00mm

## 2.6 ARC-SKLU Jumpers & Connectors settings

2.6.1 Clear CMOS (JCOMS1)



Protect\*



### **Clear CMOS**



\*Default

## 2.6.2 Serial port 1/2 pin9 signal select (JRI1/JRI2)



Ring\*



5

+12V

1	
5	

\* Default



## 2.6.3 LCD backlight brightness adjustment (JBKLSEL1)









\* Default

## 2.6.4 AT/ATX Input power select (JAT1)



\* Default

ATX\*



#### ARC-1232/1532

## 2.6.5 Serial port 1 in RS-232/422/485 mode (JCOM1\_SEL1)



	RS232*				RS422				R	S48	85		
1				3	1			3	1				3
0				12	10			12	10				12

PIN	Signal	PIN	Signal	PIN	Signal
12	422RX1-	11	COM1-4	10	NDTRA#
9	485_422TX1+	8	COM1-2	7	NRXDA
6	422RX1+	5	COM1-3	4	NTXDA
3	485_422TX1-	2	COM1-1	1	NDCDA#

Note:

This connector is available after modify the mode of COM1 in BIOS setting.

\* Default

## 2.6.6 LCD Inverter connector (JBKL1)



5		1
	1•	
	•	
1	I•	
		1

Signal	PIN
+5V	5
LVDS_BKLT_CTL	4
LVDS_BKLT_EN	3
GND	2
+12V	1



## 2.6.7 On-board header for USB2.0 (JUSB1)



Signal	PIN
+5VSB	1
USB_z_PN10	2
USB_z_PP10	3
GND	4
GND	5

## 2.6.8 On-board header for USB2.0 (JUSB2)



1	•	1	1
U •	•	щ	
W • 1	•		
III • 1	•	щ	
•	•		9

Signal	PIN	PIN	Signal
+5VSB	2	1	+5VSB
USB_z_PN6	4	3	USB_z_PN5
USB_z_PP6	6	5	USB_z_PP5
GND	8	7	GND
GND	10	9	GND



1					
Signal	PIN				
+RTCBAT	1				
GND	2				

## 2.6.9 Battery connector (JBAT1)

2.6.10 LCD backlight brightness adjustment (JBLK\_CTRL1)



1	
5	

PIN	Signal	Note
1-2	BLK_VR_MOD	VR must select 10K/1%
3-1		Low pulse button for
3-4	DLK_DKI_OF	backlight brighter
E C		Low pulse button for
D-0 DLK_BRI_DN		backlight dim

## 2.6.11 LVDS connector (JLVDS1)



Signal	PIN	PIN	Signal
+5V	2	1	+3.3V
+5V	4	3	+3.3V
NC	6	5	NC
GND	8	7	GND
LVDS_DATA0_P	10	9	LVDS_DATA1_P
LVDS_DATA0_N	12	11	LVDS_DATA1_N
GND	14	13	GND
LVDS_DATA2_P	16	15	LVDS_DATA3_P
LVDS_DATA2_N	18	17	LVDS_DATA3_N
GND	20	19	GND
LVDS_DATA4_P	22	21	LVDS_DATA5_P
LVDS_DATA4_N	24	23	LVDS_DATA5_N
GND	26	25	GND
LVDS_DATA6_P	28	27	LVDS_DATA7_P
LVDS_DATA6_N	30	29	LVDS_DATA7_N
GND	32	31	GND
LVDS_CLK1_P	34	33	LVDS_CLK2_P
LVDS_CLK1_N	36	35	LVDS_CLK2_N
GND	38	37	GND
+12V	40	39	+12V

2.6.12 AMPLIFIER\_R (JSPR1)





Signal	PIN
SPK_R-	2
SPK_R+	1

2.6.13 AMPLIFIER\_L (JSPL1)



1		l.
	<b>∐</b> ∎ ∥	
1	1 - 1	
-	ч	

Signal	PIN
SPK_L-	2
SPK_L+	1

## 2.6.14 SPI connector (JSPI1)



7		1

Signal	PIN	PIN	Signal
+3.3VSB	1	2	GND
SPI0_CS0#	3	4	SPI_CLK
SPI_SO	5	6	SPI_SI
HOLD#	7		

## 2.6.15 EC Debug connector (JEC1)



□ 1 □	
Signal	PIN
EC_SMCLK_DEBUG	1
EC_SMDAT_DEBUG	2

## 2.6.16 B2B connector (JB2B1)



1	40
0 <b>0 0 0 0 0 0 0</b> 0 0 0 0 0 0 0 0 0 0 0	<b>0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</b>
2	80

Signal	PIN	PIN	Signal
GND	1	41	GND
GND	2	42	GND
+12V	3	43	GND
+12V	4	44	GND
GND	5	45	GND
LPC_SERIRQ	6	46	+5VSB
LPC_LFRAME#	7	47	+5VSB
CLK3_LPC_B2B	8	48	+5VSB
LPC_AD0	9	49	+5VSB
LPC_AD1	10	50	+5VSB

Signal	PIN	PIN	Signal
LPC_AD2	11	51	GND
LPC_AD3	12	52	USB_PP8
PS_ON_B2B	13	53	USB_PN8
PLT_RST#	14	54	GND
PCH_SLP_S3#	15	55	SMBCLK
HDMI_HPD	16	56	SMBDATA
GND	17	57	GND
HDMI1_CTRL_CLK	18	58	BOARD_ID
HDMI1_CTRL_DAT	19	59	PCIEUSB3_PONRSTB
GND	20	60	PCIEUSB3_SMIB_INT#
HDMI1_TXN_2	21	61	B2BPCIE_WAKE#
HDMI1_TXP_2	22	62	RST_B2BPCIE#
GND	23	63	B2BPCIE_CLK_REQ#
HDMI1_TXN_1	24	64	GND
HDMI1_TXP_1	25	65	PCIE_TXN8
GND	26	66	PCIE_TXP8
HDMI1_TXN_0	27	67	GND
HDMI1_TXP_0	28	68	PCIE_RXN8
GND	29	69	PCIE_RXP8
HDMI1_CLKN	30	70	GND
HDMI1_CLKP	31	71	CLK_B2BPCIE_N2
GND	32	72	CLK_B2BPCIE_P2
GND	33	73	GND
MIC_RIN	34	74	GND
MIC_LIN	35	75	MIC1_JD
GND	36	76	GND
LINEOUT1_JD	37	77	LINE1_JD
LINEOUT_R	38	78	LINE1_RIN
LINEOUT_L	39	79	LNE1_LIN
GND	40	80	GND



2.6.17 Touch panel connector (JTP1)



Signal	PIN
Y-	1
Y+	2
SENSE	3
Х-	4
X+	5

## 2.6.18 General purpose I/O connector (JGPIO1)



11	
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1	[::]
. ' L	

Signal	PIN	PIN	Signal
+3.3V	11	12	GND
SMB_DATA	9	10	SMB_CLK
DIO_GP23	7	8	DIO_GP13
DIO_GP22	5	6	DIO_GP12
DIO_GP21	3	4	DIO_GP11
DIO_GP20	1	2	DIO_GP10



2.6.19 SATA Power connector (SATAPW1)



Signal	PIN
GND	1
+5V	2

## 2.7 ARC-BYT DB-A/B/C/D/G/H/K Overviews

## 2.7.1 ARC-BYT DB-A



## 2.7.2 ARC-BYT DB-B



#### 2.7.3 ARC-BYT DB-C



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#### 2.7.4 ARC-BYT DB-D



#### 2.7.5 ARC-BYT DB-G



2.7.6 ARC-BYT DB-H


## 2.7.7 ARC-BYT DB-K



## 2.8 ARC-BYT DB-A/B/C/D/G/H/K Connector list

#### 2.8.1 ARC-BYT DB-A

Connectors	
------------	--

Connectors			
Label	Function	Note	
A_JUSB1~4	USB3.0 connector 1~4		
A_JB2B1	B2B connector		

## 2.8.2 ARC-BYT DB-B

Connectors		
Label	Function	Note
B_LINE_OUT1	Line-out audio jack	
B_LINE_IN1	Line-in audio jack	
B_MIC_IN1	Mic-in audio jack	
B_JHDMI1	HDMI connector	
B_JB2B1	B2B connector	

#### 2.8.3 ARC-BYT DB-C

# ConnectorsLabelFunctionNoteC\_JPCIE1Mini PCI Express connectorC\_JSIM1SIM card slot (Push-push)C\_JHDMI1HDMI connectorC\_JB2B1B2B connector

## 2.8.4 ARC-BYT DB-D

#### Connectors

Label	Function	Note
D_COM1/2	Serial Port 1/2 connector	DB-9 male connector
D_JB2B1	B2B connector	

## 2.8.5 ARC-BYT DB-G

Connectors		
Label	Function	Note
G_COM1/2/3	Serial Port 1/2/3 connector	DB-9 male connector
G_JB2B1	B2B connector	

## 2.8.6 ARC-BYT DB-H

Jumpers		
Label	Function	Note
H_USB_PW	R_SEL1 USB Power selector	3 x 1 header, pitch 2.00mm

#### Connectors

Label	Function	Note
H_JUSB1	USB3.0 connector	
H_COM1/2	Serial Port 1/2 connector	DB-9 male connector
H_JB2B1	B2B connector	

## 2.8.7 ARC-BYT DB-K

Connectors		
Label	Function	Note
I_JLAN1	RJ-45 Ethernet	
I_COM1/2	Serial Port 1/2 connector	DB-9 male connector
I_JB2B1	B2B connector	

# 2.9 ARC-BYT DB-D Connectors settings

2.9.1 Serial Port 1 connector (D\_COM1)



Signal	PIN	PIN	Signal
NDCD#_3_D	1	6	NDSR#_3_D
NRXD_3_D	2	7	NRTS#_3_D
NTXD_3_D	3	8	NCTS#_3_D
NDTR#_3_D	4	9	NRI#_3_D
GND	5		

## 2.9.2 Serial Port 2 connector (D\_COM2)





Signal	PIN	PIN	Signal
NDCD#_2_D	1	6	NDSR#_2_D
NRXD_2_D	2	7	NRTS#_2_D
NTXD_2_D	3	8	NCTS#_2_D
NDTR#_2_D	4	9	NRI#_2_D
GND	5		

# 2.10 ARC-BYT DB-G Connectors settings

2.10.1 Serial Port 1 connector (G\_COM1)



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Signal	PIN	PIN	Signal
NDCD#_3_G	1	6	NDSR#_3_G
NRXD_3_G	2	7	NRTS#_3_G
NTXD_3_G	3	8	NCTS#_3_G
NDTR#_3_G	4	9	NRI#_3_G
GND	5		

2.10.2 Serial Port 2 connector (G\_COM2)





Signal	PIN	PIN	Signal
NDCD#_2_G	1	6	NDSR#_2_G
NRXD_2_G	2	7	NRTS#_2_G
NTXD_2_G	3	8	NCTS#_2_G
NDTR#_2_G	4	9	NRI#_2_G
GND	5		

#### ۰Ô C $\cap$ CE FC ġ. 0 0 C Ď. l **200**8 õ ARC-BYT 18-5 Rev.A01 E1907ABYT00RD-5 MADE IN TAIWAN 0 $\bigcirc$ 0 U ့တ္တိ့ 8) 8) 8) 0°°°°°°°O

## 2.10.3 Serial Port 3 connector (G\_COM3)



Signal	PIN	PIN	Signal
NDCD#_1_G	1	6	NDSR#_1_G
NRXD_1_G	2	7	NRTS#_1_G
NTXD_1_G	3	8	NCTS#_1_G
NDTR#_1_G	4	9	NRI#_1_G
GND	5		

# 2.11 ARC-BYT DB-H Jumpers settings

2.11.1 USB Power selector (H\_USB\_PWR\_SEL1)



+5VSB\*



+5V

\*Default

## 2.12 ARC-BYT DB-H Connectors settings

2.12.1 Serial Port 1 connector (H\_COM1)



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Signal	PIN	PIN	Signal
NDCD#_1_H	1	6	NDSR#_1_H
NRXD_1_H	2	7	NRTS#_1_H
NTXD_1_H	3	8	NCTS#_1_H
NDTR#_1_H	4	9	NRI#_1_H
GND	5		

2.12.2 Serial Port 2 connector (H\_COM2)





Signal	PIN	PIN	Signal
NDCD#_2_H	1	6	NDSR#_2_H
NRXD_2_H	2	7	NRTS#_2_H
NTXD_2_H	3	8	NCTS#_2_H
NDTR#_2_H	4	9	NRI#_2_H
GND	5		

# 2.13 ARC-BYT DB-K Connectors settings

2.13.1 Serial Port 1 connector (I\_COM1)





Signal	PIN	PIN	Signal
NDCD#_1_I	1	6	NDSR#_1_I
NRXD_1_I	2	7	NRTS#_1_I
NTXD_1_I	3	8	NCTS#_1_I
NDTR#_1_I	4	9	NRI#_1_I
GND	5		

## 2.13.2 Serial Port 2 connector (I\_COM2)





Signal	PIN	PIN	Signal
NDCD#_2_I	1	6	NDSR#_2_I
NRXD_2_I	2	7	NRTS#_2_I
NTXD_2_I	3	8	NCTS#_2_I
NDTR#_2_I	4	9	NRI#_2_I
GND	5		





## **3.1 Introduction**

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

## 3.2 Starting Setup

AMI BIOS<sup>™</sup> is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <F2> or <Del> immediately after switching the system on, or

By pressing the <F2> or <Del> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

#### Press <F2> or <Del> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

## 3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
$\downarrow$	Move to next item
<i>←</i>	Move to the item in the left hand
$\rightarrow$	Move to the item in the right hand
Esc key	Main Menu Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values
F3 key	Optimized defaults
F4 key	Save & Exit Setup

#### • Navigating Through The Menu Bar

Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

#### • To Display a Sub Menu

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A " $\geq$ " pointer marks all sub menus.

## 3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

#### 3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

# 3.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

#### 3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

Aptio Setup Utility - Main Advanced Chipset Security	- Copyright (C) 2016 American Boot Save & Exit	Megatrends, Inc.
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level EC 8528 Firmware BIOS Name System Language ▶ Platform Information	American Megatrends 5.11 UEFI 2.4; PI 1.3 1ASOI 0.30 x64 09/08/2016 18:26:12 Administrator DC ASKLU00D [English]	Choose the system default language
System Date System Time	[Wed 10/05/2016] [14:09:05]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1255. (	Copyright (C) 2016 American M	egatrends, Inc.

Aptio Setup Utility - Main	Copyright (C) 2016 America	n Megatrends, Inc.
Processor Information Name Brand String Frequency Processor ID Stepping Number of Processors Microcode Revision GT Info Memory RC Version Total Memory Memory Frequency PCH Information Name PCH SKU Stepping LAN PHY Revision ME FW Version ME Firmware SKU	SkyLake Intel(R) Core(TM) i5-6300U CPU @ 2.40GHz 2300 MHz 406E3 D0/K0 2Core(s) / 4Thread(s) 5E GT2 1.8.0.1 4096 MB 2133 MHz SKL PCH-LP PCH-LP Mobile (U) Premium SKU 21/C1 B2 11.0.0.1194 Corporate SKU	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

#### 3.6.1.1 System Language

This option allows choosing the system default language.

#### 3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

#### 3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

Q

**Note:** The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

#### 3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

Aptio Setup Utility – Copyright (C) 2016 American Main <mark>Advanced</mark> Chipset Security Boot Save & Exit	Megatrends, Inc.
<ul> <li>Trusted Computing</li> <li>ACPI Settings</li> <li>AMT Configuration</li> <li>PCH-FW Configuration</li> <li>IT8528 Super IO Configuration</li> <li>EC 8528 HW monitor</li> <li>SS RTC Wake Settings</li> <li>Serial Port Console Redirection</li> <li>CPU Configuration</li> <li>Intel TXT Information</li> <li>SATA Configuration</li> <li>CSM Configuration</li> <li>USB Configuration</li> </ul>	Trusted Computing Settings ++: 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 Me	egatrends, Inc.

#### 3.6.2.1 Trusted Computing



Item	Options	Description
		Enables or Disables BIOS support for
Security Device Support	Disable,	security device. O.S. will not show
	Enable[Default]	Security Device. TCG EFI protocol and
		INT1A interface will not be available.

#### 3.6.2.2 APCI Settings



Item	Options	Description
Enable Hibernation	Disabled Enabled <b>[Default]</b> ,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM) <b>[Default]</b>	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
ACPI Low Power S0 Idle	Disabled <b>[Default]</b> , Enabled	Enable or Disable ACPI Low Power S0 Idle Support.
ErP Function	Disabled <b>[Default]</b> , Enabled	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off <b>[Default]</b> On Last state	AC loss resume.
Watch Dog	Disabled <b>[Default]</b> , 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
USB Standby Power Setting	Disabled Enabled <b>[Default]</b> ,	Enabled/Disabled USB Standby Power during S3/S4/S5.

## 3.6.2.3 AMT Configuration

Aptio Setu Advanced	p Utility – Copyright (C) 2016 An	merican Megatrends, Inc.
Intel AMT Un-Configure ME	[Enabled] [Disabled]	Enable/Disable Intel (R) Active Management Technology BIOS Extension. Note : iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device
		<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	.17.1255. Copyright (C) 2016 Amer	ican Megatrends, Inc.

Item	Options	Description
Intel AMT	Disabled Enabled <b>[Default]</b> ,	Enable/Disable Intel® Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device.
Un-Configure ME	Disabled <b>[Default]</b> Enabled,	OEMFlag Bit 15: Un-Configure ME without password.

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.         Advanced         ME FH Version       11.0.0.1194         ME Firmware Mode       Normal Mode         ME Firmware Type       Full Sku Firmware         ME Firmware SKU       Corporate SKU         PTT Capability / State       1 / 0         NFC Support       Disabled         ME State       [Enabled]         Firmware Update Configuration       [Enabled]         **: Select Screen       11: Select Item         Enter: Select       +-: Change Opt.         F1: General Help       F2: Previous Values         F3: Optimized Defaults       F4: Save & Exit         ES: Exit       ES: Exit
ME FW Version       11.0.0.1194       Configure Management Engine         ME Firmware Type       Full Sku Firmware       Technology Parameters         ME Firmware SKU       Corporate SKU       Technology Parameters         PTT Capability / State       1 / 0       Disabled         ME Unconfig on RTC Clear State       [Enabled]       Enabled]         ME State       [Enabled]       **: Select Screen         *Firmware Update Configuration       **: Select Item       Enter: Select         */-: Change Opt.       Fi General Help       Fi: General Help         F2: Previous Values       F3: Optimized Defaults       F4: Save & Exit
ME FW Version       11.0.0.1194       Configure Management Engine         ME Firmware Mode       Normal Mode       Technology Parameters         ME Firmware Type       Full Sku Firmware       Technology Parameters         ME Firmware SKU       Corporate SKU       Technology Parameters         PTT Capability / State       1 / 0       Technology Parameters         ME Unconfig on RTC Clear State       [Enabled]       Firmware Update Configuration         * Firmware Update Configuration       Firmware Update Configuration       **: Select Screen         **: Select Item       Enter: Select         *-: Change Opt.       Fi: General Help         F2: Previous Values       F3: Optimized Defaults         F4: Save & Exit       ESC: Exit

## 3.6.2.4 PCH-FW Configuration

## 3.6.2.5 IT8528 Super IO Configuration

You can use this item to set up or change the IT8528 Super IO configuration for serial ports. Please refer to 3.6.2.5.1~ 3.6.2.5.5 for more information.

Aptio Setup Utility Advanced	– Copyright (C) 2016 Americar	n Megatrends, Inc.
IT8528 Super IO Configuration		Set Parameters of Serial Port
Super IO Chip ▶ Serial Port 1 Configuration ▶ Serial Port 2 Configuration	IT8528	
<ul> <li>DB board</li> <li>▶ Serial Port 3 Configuration</li> <li>▶ Serial Port 4 Configuration</li> <li>▶ Serial Port 5 Configuration</li> </ul>	[M/B mode test]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1255.	Copyright (C) 2016 American M	Megatrends, Inc.

Item	Options	Description
DB board	DB-A/C/E/J DB-B DB-F 1COM	DB board A-K. DA-A/B/C/E/J w/o UART DB-G w/t 3UART DB-D/H/K w/t 2UART DB-F w/t 1UART.

#### ARC-1232/1532

	DB-D/H/K 2COM
	DB-G 3COM
	M/B mode test[Default],
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).

# 3.6.2.5.1 Serial Port 1 Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2016 American	Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	(609)
UART 232 422 485	[UART 232]	
		++: Select Screen ↑↓: Select Item
		Enter: Select +/−: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Cc	pyright (C) 2016 American M	egatrends, Inc.

Item	Option	Description
Serial Port	Enabled <b>[Default]</b> , Disabled	Enable or Disable Serial Port (COM).
	UART 232[Default]	
UART 232 422 485	UART 422	Change the Serial Port
	UART 485	



#### 3.6.2.5.2 Serial Port 2 Configuration

Item	Option	Description
Serial Port	Enabled <b>[Default]</b> ,	Enable or Disable Serial Port (COM)
	Disabled	

#### 3.6.2.5.3 Serial Port 3 Configuration



Item	Option	Description
Serial Port	Enabled <b>[Default]</b> , Disabled	Enable or Disable Serial Port (COM).

## 3.6.2.5.4 Serial Port 4 Configuration



Item	Option	Description
Serial Port	Enabled <b>[Default]</b> , Disabled	Enable or Disable Serial Port (COM).

#### 3.6.2.5.5 Serial Port 5 Configuration



Item	Option	Description
Serial Port	Enabled <b>[Default]</b> , Disabled	Enable or Disable Serial Port (COM).

#### 3.6.2.6 H/W Monitor

Aptio Advanced	Setup Utility – Copyright (	C) 2016 American	Megatrends, Inc.
Pc Health Status			
CPU temperature VIN_L VCORE	: +53 C : +24.105 : +0.855 V	V	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Versi	on 2.17.1255. Copyright (C)	2016 American Me	egatrends, Inc.

#### 3.6.2.7 S5 RTC Wake Settings



Item	Options	Description
Wake system from S5	Disabled <b>[Default]</b> , Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).

#### 3.6.2.8 Serial Port Console Redirection



ltem	Options	Description
Console Redirection	Disabled <b>[Default]</b> , Enabled	Console Redirection Enable or Disable.

#### 3.6.2.8.1 Legacy Console Redirection Settings

Legacy Serial Redirection Port       [COM1]       Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages         ++: Select Screen       ++: Select Screen         11: Select Item       Enter: Select         +/-: Change Opt.       F1: General Help         F2: Previous Values       F3: Optimized Defaults         F4: Save & Exit       ESC: Exit	A	Aptio Setup dvanced	Utility –	Copyright	(C) 2	2016 A	Merican	Megatrends, Inc.
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Legacy S	erial Redirection	Port	[COM1]				Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
								<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

ltem	Option	Description
Legacy Serial Redirection Port	COM1 <b>[Default]</b> ,	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

## 3.6.2.9 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

Aptio Setup Utility Advanced	) – Copyright (C) 2016 A	American Megatrends, Inc.
CPU Configuration		Enabled for Windows XP and Linux (OS optimized for
Intel(R) Core(TM) i5–6300U CPU @	2.40GHz	Hyper-Threading Technology)
CPU Signature	406E3	and Disabled for other OS (OS
Microcode Patch	SE	not optimized for
Max CPU Speed	2400 MHz	Hyper-Threading Technology).
Min CPU Speed	400 MHz	When Disabled only one thread
CPU Speed	2300 MHz	per enabled core is enabled.
Processor Cores	2	
Hyper Threading Technology	Supported	
Intel VT–x Technology	Supported	
Intel SMX Technology	Supported	
64-bit	Supported	
EIST Technology	Supported	→+: Select Screen
CPU C3 state	Supported	↑↓: Select Item
CPU C6 state	Supported	Enter: Select
CPU C7 state	Supported	+/-: Change Opt.
CPU C8 state	Supported	F1: General Help
CPU C9 state	Supported	F2: Previous Values
CPU C10 state	Supported	F3: Optimized Defaults
		F4: Save & Exit
L1 Data Cache	32 kB x 2	ESC: Exit
L1 Code Cache	32 kB x 2	
L2 Uache	256 kB x 2	
L3 Cache	3 MB	▼ I
Vension 0 47 4055	Comunicht (0) 0010 And	aniaan Matatuanda Tua

## 3.6.2.10 Intel TXT Configuration

Aptio S Advanced	etup Utility – Copyright (C) 2016 America	n Megatrends, Inc.
Intel TXT Information	1	
Chipset BiosAcm Chipset Txt Cpu Txt Error Code Class Code Major Code Minor Code	Production Fused Production Fused Supported None None None None	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vanaio	n 2 17 1255 Conunight (C) 2016 American	Magatranda Tra

## 3.6.2.11 SATA Configuration



ltem	Options	Description
SATA Controller(s)	Enabled <b>[Default]</b> Disabled,	Enable or disable SATA Device.
SATA Test Mode	Enabled Disabled <b>[Default]</b> ,	Test Mode Enable/Disable (Loop Back).
Aggressive LPM Support	Enabled <b>[Default]</b> Disabled	Enable PCH to aggressively enter link power state.
Port 1/2	Enabled <b>[Default]</b> Disabled,	Enable or Disable SATA Port.
SATA Device Type	Hard Disk Drive <b>[Default]</b> Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

Aptio Setup	) Utility – Copyright (C) 2016 Amer	rican Megatrends, Inc.
Havanceu		
Network Stack		Enable/Disable UEFI Network Stack
		<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.	17.1255. Copyright (C) 2016 Americ	can Megatrends, Inc.

## 3.6.2.12 Network Stack Configuration

ltem	Options	Description
Network Stack	Enabled Disabled <b>[Default]</b>	Enable/Disable UEFI Network Stack.

## 3.6.2.13 CSM Configuration

Advance	Aptio Setup Utility – C ed	Copyright (C) 2016 American	Megatrends, Inc.
Compatibility	Support Module Configur	ation	Enable/Disable CSM Support.
CSM Support			
			++: 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. Cop	oyright (C) 2016American M	egatrends, Inc.

Item	Options	Description
CSM Support	Enabled Disabled <b>[Default]</b>	Enable/Disable CSM Support.

## 3.6.2.14 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

Aptio Setup Utility – Advanced	Copyright (C) 2016 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Module Version	13	support if no USB devices are connected. DISABLE option will
USB Controllers: 1 XHCI		keep USB devices available only for EFI applications.
USB Devices: 1 Drive, 1 Keyboard, 1 Mouse		
Legacy USB Support XHCI Hand-off USB Mass Storage Driver Support	[Enabled] [Enabled] [Enabled]	
Port 60/64 Emulation	[Disabled]	++: Select Screen
USB hardware delays and time–outs:		↑↓: Select Item
USB transfer time–out	[20 sec]	Enter: Select
Device reset time-out	[20 sec]	+/-: Change Opt.
Device power-up delay	[Auto]	F1: General Help
		F2: Previous Values
Mass Storage Devices:		F3: Optimized Defaults
hp V220w 1100	[Auto]	F4: Save & Exit
		ESU: EXIL
Vérsion 2.17.1255. Co	pyright (C) 2016 American M	legatrends, Inc.

Item	Options	Description
Legacy USB Support	Enabled <b>[Default]</b> Disabled Auto	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.
XHCI Hand-off	Enabled <b>[Default]</b> Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enabled <b>[Default]</b> Disabled	Enable/Disable USB Mass Storage Driver Support.
Port 60/64 Emulation	Enabled Disabled <b>[Default]</b>	Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec <b>[Default]</b>	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec <b>[Default]</b> 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto[Default]	Maximum time the device will take before it

#### **Quick Reference Guide**

	Manual	properly reports itself to the Host Controller.
		'Auto' uses default value: for a Root port it is
		100ms, for a Hub port the delay is taken form
		Hub descriptor.
	Auto[Default]	Mass storage device emulation type. 'AUTO'
	Floppy	enumerates devices according to their media
hp v220w 1100	Forced FDD	format. Optical drives are emulated as
	Hard Disk	'CDROM', drives with no media will be
	CD-ROM	emulated according to a drive type.

## 3.6.3 Chipset

Aptio Setup Utility – Copyright (C) 2016 American Main Advanced <mark>Chipset</mark> Security Boot Save & Exit	Megatrends, Inc.
<ul> <li>▶ System Agent (SA) Configuration</li> <li>▶ PCH-IO Configuration</li> </ul>	System Agent (SA) Parameters
	++: Select Screen †4: 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	egatrends, Inc.

# 3.6.3.1 System Agent (SA) Configuration

Aptio Setup Chipset	Utility – Copyright (C) 2016 Am	merican Megatrends, Inc.
System Agent Bridge Name SA PCIe Code Version VT-d	Skylake 1.8.0.0 Supported	VT-d capability
VT-d		
<ul> <li>▶ Graphics Configuration</li> <li>▶ Memory Configuration</li> </ul>		
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Vancian 2 1	17 19EE Conunidht (C) 2016 Amor	ican Magathondo . The

Item	Option	Description
VT-d	Enabled <b>[Default]</b> Disabled	VT-d capability.

# 3.6.3.1.1 Graphics Configuration

Aptio Setup Utility – Chipset	Copyright (C) 2016 American	Megatrends, Inc.
Graphics Configuration		Port1—EDP to LVDS(Chrotel 7511) Panel EDID Option
CH7511 EDID Panel Option Active LVDS(Ch7511) Brightness Control Method LVDS Back Light PWM LVDS Back Light PWM Frequency Onboard Touch Setting	[1024x768 24/1] [Enabled] [BIOS] [100%] [ 200] [Enabled]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1255. Co	pyright (C) 2016 American M	egatrends, Inc.

Item	Option	Description
	1024x768 24/1[Default]	
	800x600 18/1	
	1024x768 18/1	
	1366x768 18/1	
	1024x600 18/1	
	1280x800 18/1	
CH7511 EDID Danal Ontion	1920x1200 24/2	Port1-EDP to LVDS (Chrotel 7511)
CH7511 EDID Panel Option	1920x1080 18/2	Panel EDID Option.
	1280x1024 24/2	
	1440x900 18/2	
	1600x1200 24/2	
	1366x768 24/1	
	1920x1080 24/2	
	1680x1050 24/2	
	Enabled[Default]	Active Internal LVDS (eDP->Ch7511-
Active LVDS (CH7511)	Disabled	to-LVDS).
	BIOS[Default]	LVDS Brightness Control Mothed
Brightness Control Method	BR Button	LVDS Brightness Control Method.
	VR	1.BIOS 2.Blighteres Bullon
	OS Driver	3. Variable Resistor 4.05 Driver.
	00%	
LVDS Back Light PWM	25%	Select LVDS back light PWM duty.
	50%	

	75% 100% <b>[Default]</b>	
	200[Default]	
	300	
	400	
	500	
LVDS Book Light DWM	700	Salaat LVDS baak light DWM
	1k	Select LVDS back light PVVIVI
Frequency	2k	Frequency.
	3k	
	5k	
	10k	
	20k	
Onboard Touch Sotting	Enabled[Default]	Enable/Disable USP Touch
Unboard Touch Setting	Disabled	

# 3.6.3.1.2 Memory Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2016 America	n Megatrends, Inc.
Memory Configuration Memory RC Version Memory Frequency Total Memory VDD DIMM#0 DIMM#2 Memory Timings (tCL-tRCD-tRP-tRAS)	1.8.0.1 2133 MHz 4096 MB 1200 4096 MB Not Present 15-36	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller
Max TOLUD	[Dynamic]	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
Max TOLUD	Dynamic <b>[Default]</b> 1GB/1.25GB/1.5GB/1.75GB /2GB/2.25GB/2.5GB/2.75GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

# 3.6.3.2 PCH-IO Configuration

Aptio Setup U Chipset	tility – Copyright (C) 2016 American	Megatrends, Inc.
Intel PCH RC Version Intel PCH SKU Name	1.8.0.0 PCH-LP Mobile (U) Premium SKU	PCI Express Configuration settings
Intel PCH Rev ID	21/01	
PCI Express Configuration USB Configuration HD Audio Configuration		
PCH LAN Controller	[Enabled]	
		↔: Select Screen †↓: Select Item
		Enter: Select +/−: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults
		ESC: Exit
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Item	Option	Description
PCH LAN Controller	Disabled Enabled <b>[Default]</b>	Enable or disable onboard NIC.

## 3.6.3.2.1 PCI Express Configuration

Aptio Setup Utility – Copyright (C) 2016 Americar <mark>Chipset</mark>	Megatrends, Inc.
PCI Express Configuration	PCI Express Root Port 5 Settings.
<pre>PCIE Port 4 is assigned to LAN &gt; PCI Express Root Port 5(i210/211) &gt; PCI Express Root Port 8(B2B mPCIe) &gt; PCI Express Root Port 12(mPCIe)</pre>	
	<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 2.17.1255.Copyright (C) 2016 American M	egatrends, Inc.

Aptio Setu Chipset	p Utility – Copyright (C) 2016 American	Megatrends, Inc.
PCI Express Root Port 5 ASPM Support L1 Substates PCIe Speed	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port. ++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	17 12EE Copunight (C) 2016 American M	adathande The

## 3.6.3.2.1.1 PCI Express Root Port5 (i210/211)

Item	Option	Description
PCI Express Root Port 5	Enabled <b>[Default]</b> ,	Control the PCI Express Root Port.
· · ·	Disabled	
	Disabled [Default],	
	LOs	Set the ASPM Level: Force L0s – Force all
ASPM Support	L1	links to L0s State AUTO – BIOS auto
	L0sL1	configure DISABLE – Disables ASPM.
	Auto	
	Disabled	
14 Substates	L1.1	DCI Everage I 1 Substates actings
LI Substates	L1.2	POI Express LT Substates settings.
	L1.1 & L1.2[Default],	
	Auto[Default]	
PCIe Speed	Gen1	Solact PCI Express part speed
	Gen2	Select FOI Express port speed.
	Gen3	

•		. ,	
	Aptio Setup Utility -	Copyright (C) 2016 American	Megatrends, Inc.
	chipset		
PCI Express ASPM Support L1 Substates PCIe Speed	Root Port 8	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Vencion 2 17 1955 C	ppupidht (C) 2016 Amonicon M	odotnondo Inc

## 3.6.3.2.1.2 PCI Express Root Port8 (B2B mPCIe)

Item	Option	Description	
PCI Express Root Port 8	Enabled <b>[Default]</b> , Disabled	Control the PCI Express Root Port.	
	Disabled [Default],		
	LOs	Set the ASPM Level: Force L0s – Force all	
ASPM Support	L1	links to L0s State AUTO – BIOS auto	
	L0sL1	configure DISABLE – Disables ASPM.	
	Auto		
	Disabled		
1 1 Substates	L1.1	DCI Everena I.1 Substates actings	
LI Substates	L1.2	POI Express LT Substates settings.	
	L1.1 & L1.2[Default],		
	Auto[Default]		
PCIe Speed	Gen1	Solact PCI Express part speed	
	Gen2	Select FOI Express port speed.	
	Gen3		

Aptio Setup Ut. Chipset	ility – Copyright (C) 2016 Ame	erican Megatrends, Inc.
PCI Express Root Port 12 ASPM Support L1 Substates PCIe Speed	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port.
		++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

## 3.6.3.2.1.3 PCI Express Root Port12 (mPCle)

ltem	Option	Description
PCI Express Root Port 12	Enabled <b>[Default]</b> , Disabled	Control the PCI Express Root Port.
	Disabled [Default].	
	LOs	Set the ASPM Level: Force L0s – Force all
ASPM Support	L1	links to L0s State AUTO – BIOS auto
	L0sL1	configure DISABLE – Disables ASPM.
	Auto	
	Disabled	
1 1 Substatos	L1.1	PCI Express I 1 Substates settings
LI Substates	L1.2	FOI Express LT Substates settings.
	L1.1 & L1.2[Default],	
	Auto[Default]	
PCIe Speed	Gen1	Solact PCI Express part speed
	Gen2	Select FOI Express port speed.
	Gen3	

## 3.6.3.2.2 USB Configuration



Item	Option	Description
USB Brocondition	Enabled	Precondition work on USB host controller
USB Precondition	Disabled[Default],	and root ports for faster enumeration.
XHCI Disable Compliance Mode	FALSE <b>[Default]</b> , TRUE	Option to disable Compliance Mode. Default
		is FALSE to not disable Compliance Mode.
		Set TRUE to disable Compliance Mode.

#### 3.6.3.2.3 HD Audio Configuration

Aptio Setup Chipset	Jtility – Copyright (C) 2016	American Megatrends, Inc.
HD Audio Configuration HD Audio Amplifier Gain	(Auto] [20db]	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.
		<pre>++: Select Screen  14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults E4: Souce Sevit</pre>
		ESC: Exit

Item	Option	Description	
		Control Detection of the HD-Audio device.	
HD Audio	Disabled	Disable = HDA will be unconditionally	
	Enabled	disabled Enabled = HDA will be	
	Auto[Default],	unconditionally enabled Auto = HDA will be	
		enabled if present, disabled otherwise.	
Amplifier Gain	20db[Default],		
	26db	Amplifier Gain.	
	32db		
	36db		

#### 3.6.4 Security

Aptio Setup Main Advanced Chipset	Utility – Copyright (C) 2016 Security Boot Save & Exit	American Megatrends, Inc.
Password Description If ONLY the Administrator' then this only limits acce only asked for when enteri	s password is set, ss to Setup and is ng Setup.	Set Administrator Password
If ONLY the User's passwor is a power on password and boot or enter Setup. In Se have Administrator rights. The password length must b in the following range:	d is set, then this must be entered to tup the User will e	
Minimum length Maximum length	3 20	
Administrator Password User Password		++: Select Screen fl: Select Item Enter: Select +/-: Change Opt.
▶ Secure Boot menu		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.1	7.1255. Copyright (C) 2016 Am	erican Megatrends. Inc.

## • Administrator Password

Set setup Administrator Password

#### • User Password

Set User Password

## 3.6.4.1 Secure Boot menu

Aptio Setup	Utility – Copyright ( Security	C) 2016 American	Megatrends, Inc.
System Mode Secure Boot Vendor Keys Secure Boot Secure Boot Mode ▶ Key Management	Setup Not Active Not Active [Disabled] [Custom]		Secure Boot can be enabled if 1.System running in User mode with enrolled Platform Key(PK) 2.CSM function is 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 2.1	.7.1255. Copyright (C)	2016 American M	egatrends, Inc.

Item	Option	Description
Secure Boot Disa	Disabled <b>[Default]</b>	Secure Boot can be enabled if 1.System running in
	Enabled	User mode with enrolled Platform Key(PK) 2.CSM function is disabled
		Secure Boot mode coloctor 'Custom' Mode enables
Secure Boot Mode Standard Custom[Default]	users to change Image Execution policy and manage	
	Custom[Default]	Secure Boot Keys.
### 3.6.4.1.1 Key Management

Aptio Setup Utility – Copyright (C) 2016 American <mark>Security</mark>	Megatrends, Inc.
Provision Factory Default keys [Disabled] ▶ Enroll all Factory Default keys ▶ Save all Secure Boot variables	Install factory default Secure Boot keys when System is in Setup Mode
Secure Boot variable   Size  Key#  Key source > Platform Key(PK)   0  0  > Key Exchange Keys   0  0  > Authorized Signatures  0  0  > Forbidden Signatures  0  0  > Authorized TimeStamps  0  0	
	<pre>++: Select Screen tl: 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 1255 Convright (C) 2016 American Me	agatrends Inc

Item	Option	Description
Provision Factory Default keys	Enabled,	Install Factory default Secure Boot Keys
	Disabled[Default]	when System is in Setup Mode.

#### 3.6.5 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On <b>[Default]</b> Off	Select the Keyboard NumLock state
Quiet Boot	Disabled <b>[Default]</b> Enabled	Enables or disables Quiet Boot option
Fast Boot	Disabled <b>[Default]</b> Enabled	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	Set the system boot order.	

# 3.6.6 Save and exit

Aptio Setup Utility – Copyright (C) 2016 American Main Advanced Chipset Security Boot <mark>Save &amp; Exit</mark>	Megatrends, Inc.
Save Options Save Changes and Reset Discard Changes and Reset Default Options Restore Defaults	Reset the system after saving the changes.
Boot Override UEFI: hp v220w 1100, Partition 1 Launch EFI Shell from filesystem device	++: Select Screen †4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
Version 2.17.1255. Copyright (C) 2016 American Ma	F4: Save & Exit ESC: Exit egatrends, Inc.

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc. Main Advanced Chipset Security Boot <mark>Save &amp; Exit</mark>		
Save Options Save Changes and Reset Discard Changes and Reset Default Options Restore Defaults	Reset the system after saving the changes.	
Boot Override UEFI: hp v220w 1100, Partition Launch EFI Shell from filesyst Yes No	<ul> <li>←: Select Screen</li> <li>↓: Select Item nter: Select</li> <li>/-: Change Opt.</li> <li>F1: General Help</li> <li>F2: Previous Values</li> <li>F3: Optimized Defaults</li> <li>F4: Save &amp; Exit</li> <li>ESC: Exit</li> </ul>	
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# 3.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

# 3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

#### 3.6.6.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

#### 3.6.6.4 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

