2I110D

Intel® Tiger Lake-UP3 Core™ I / Celeron processor, DDR4 LAN / HDMI / USB / M.2 / COM

All-In-One

11th gen. Intel Tiger Lake-U Core™ I / Celeron CPU HDMI, eDP, 2 x M.2, USB Multi-LAN, COM, 1 x Nano SIM



Contents

2I110D	
Warning!	1
Hardware Notice Guide	2
CHAPTER 1 GENERAL INFORMATION	4
1-1 MAJOR FEATURE	5
1-2 SPECIFICATION	6
1-3 INSTALLING THE SO-DIMM	7
1-3-1 REMOVING THE SO-DIMM	9
1-4 DIRECTIONS FOR INSTALLING THE M.2B KEY MINI CARD	10
CHAPTER 2 HARDWARE INSTALLATION	11
2-1 DIMENSION-2I110D	11
2-2 LAYOUT-2I110D-CONNECTOR AND JUMPER TOP	12
2-2-1 LAYOUT-2I110D-CONNECTOR AND JUMPER BOTTOM BOT	13
2-3 LAYOUT-2I110D-FUNCTION MAPTOP	14
2-3-1 LAYOUT-2I110D-FUNCTION MAP BOT	15
2-4 DIAGRAM-2I110D TOP	16
2-4-1 DIAGRAM-2I110D BOT	17
2-5 FUNCTION MAP-2I110D	18
2-6 LIST OF JUMPERS	19
2-7 JUMPER SETTING DESCRIPTION	19
2-8 JSB1: CMOS DATA CLEAR	20
2-9 JAT1: HW SYSTEM ALWAYS ON	21
2-10 JVL1: eDP PANEL POWER SELECT	21
CHAPTER 3 CONNECTION	22
3-1 LIST OF CONNECTORS	22
3-2 CMOS BATTERY CONNECTOR	23
3-3 COM INTERFACE	24
3-4 FRONT PANEL PIN HEADER	25
3-5 DIO INTERFACE	26
3-5-1 IO DEVICE: F81966 DIO UNDER WINDOWS	27
3-5-2 IO DEVICE: F81966 DIO UNDER LINUX CONSOLE	30
3-6 USB INTERFACE	33
3-7 LAN INTERFACE	34
3-8 CO1: SMBUS 1x4 PIN (1.25mm) WAFER	35
3-9 DISPLAY INTERFACE	35
3-10 CPI1: DC POWER INPUT (2x4 PIN 2.0mm WAFER) (RED)	37
3-11 CPO1: DC +5 / +12V OUTPUT 1x4 PIN (2.0mm) BLACK WAFER	37
3-12 CPU FAN1: CPU Fan 1x4 PIN (2.54mm) WAFER (OPTION)	38
3-13 SATA INTERFACE	39

3-14 NGFF1 M.2 NGFF CARD B KEY SOCKETS 75 PIN	40
3-15 NGFF2 M.2 NGFF CARD M KEY SOCKETS 75 PIN	42
3-16 SIM1: NANO SIM CARD SOCKET	44
3-17 CONNECTOR WAFER OF COMPATIBLE BRAND AND PART NUMBER LIST	45
CHAPTER 4 INTRODUCTION OF BIOS	46
4-1 ENTER SETUP	46
4-2 BIOS MENU SCREEN & FUNCTION KEYS	47
4-3 GETTING HELP	48
4-4 MENU BARS	48
4-5 MAIN	49
4-6 ADVANCED	50
4-6-1 PCH-FW CONFIGURATION	53
4-6-2 AMT CONFIGURATION	55
4-6-2-1 OEM FLAGS SETTINGS	56
4-6-2-2 MEBx RESOLUTION SETTINGS	57
4-6-3 TRUSTED COMPUTING	58
4-6-4 ACPI SETTINGS	59
4-6-5 F81966 SUPER IO CONFIGURATION	60
4-6-5-1 SERIAL PORT 1 CONFIGURATION	. 61
4-6-5-2 SERIAL PORT 2 CONFIGURATION	. 64
4-6-5-3 POWER FAILURE	67
4-6-6 HARDWARE MONITOR	68
4-6-7 USB CONFIGURATION	70
4-6-8 NETWORK STACK CONFIGURATION	71
4-6-9 NVMe CONFIGURATION	72
4-7 CHIPSET	73
4-7-1 SYSTEM AGENT (SA) CONFIGURATION	74
4-7-1-1 GRAPHICS CONFIGURATION	75
4-7-2 PCH-IO CONFIGURATION	76
4-7-2-1 PCI EXPRESS CONFIGURATION	77
4-7-2-2 SATA AND RST CONFIGURATION	80
4-8 SECURITY	81
4-9 BOOT	82
4-10 SAVE & EXIT	. 83
4-11 HOW TO UPDATE INSYDE BIOS	84
APPENDIX B:RESOLUTION LIST	85

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Warning !

1. Battery

Batteries on board are consumables. The life time of them are not guaranteed.

2. Fanless solution with HDD

The specification & limitation of HDD should be considered carefully when the fanless solution is implemented.

- 3. We will not give further notification in case of changes of product information and manual.
- 4. SATA interface does not support Hot SWAP function.
- 5. There might be a 20% inaccuracy of WDT at room temperature.
- 6. Please make sure the voltage specification meets the requirement of equipment before plugging in.
- 7. There are two types of SSD, commercial grade and industrial grade, which provide different read / write speed performance, operation temperature and life cycle. Please contact sales for further information before making orders.
- Caution! Please notice that the heat dissipation problem could cause the MB system unstable. Please deal with heat dissipation properly when buying single MB set.
- 9. Please avoid approaching the heat sink area to prevent users from being scalded with fanless products.
- 10. If users repair, modify or destroy any component of product unauthorizedly, We will not take responsibility or provide warranty anymore.
- 11. DO NOT apply any other material which may reduce cooling performance onto the thermal pad.
- 12. It is important to install a system fan toward the CPU to decrease the possibility of overheating / system hanging up issues, or customer is suggested to have a fine cooling system to dissipate heat from CPU.

***** Hardware Notice Guide

- Before linking power supply with the motherboard, please attach DC-in adapter to the motherboard first. Then plug the adapter power to AC outlet. Always shut down the computer normally before you move the system unit or remove the power supply from the motherboard. Please unplug the DC-in adapter first and then unplug the adapter from the AC outlet. Please refer photo 1 as standard procedures.
- 2. In case of using DIRECT DC-in (without adapter), please check the allowed range for voltage & current of cables. And make sure you have the safety protection for outer issues such as short / broken circuit, overvoltage, surge, lightning strike.
- 3. In case of using DC-out to an external device, please make sure its voltage and current comply with the motherboard specification.
- The total power consumption is determined by various conditions (CPU / motherboard type, device, application, etc.). Be cautious to the power cable you use for the system, one with UL standard will be highly recommended.
- 5. It's highly possible to burn out the CPU if you change / modify any parts of the CPU cooler.
- Please wear wrist strap and attach it to a metal part of the system unit before handling a component. You can also touch an object which is ground connected or attached with metal surface if you don't have wrist strap.
- 7. Please be careful to handle & don't touch the sharp-pointed components on the bottom of PCBA.
- 8. Remove or change any components form the motherboard will VOID the warranty of the motherboard.
- Before you install / remove any components or even make any jumper setting on the motherboard, please make sure to disconnect the power supply first. (follow the aforementioned instruction guide)
- "POWERON after PWR-Fail" function must be used carefully as below: When the DC power adaptor runs out of power, unplug it from the DC current; Once power returns, plug it back after 5 seconds.

If there is a power outage, unplug it from the AC current, once power returns, plug it back after 30 seconds. Otherwise it will cause system locked or made a severe damage.

Remark 1:

Always insert / unplug the DC-in horizontally & directly to / from the motherboard. DO NOT twist, it is designed to fit snugly.

Moreover, erratic pull / push action might cause an unpredictable damage to the component & system unit.



Unplug



Chapter-1

General Information

The 2I110D is an ultra compact (102 x 108 mm) SBC with11th Gen. Intel® Tiger Lake UP3 i7 / i5 / i3 / Celeron processor, integrated 4 x GbE LAN, 9 x USB, 2 x COM Port and HDMI, eDP display interface that offer the ideal platforms for high performance applications in Networking, Smart Automation, Machine Vision, In-vehicle, Industry 4.0 and any compact high-performance Internet of Things (IoT) applications.

The 2I110D supports high-speed data transfer interfaces such as PCIe gen3, USB 3.0, and SATA 6 Gb/s (SATA III), with one-channel DDR4 3200 MHz memory up to 32GB SODIMM slot and supports two serial ports RS232 / RS485 / RS422 jumper free auto switch by BIOS. It supports 3 ports of USB 3.0, 6 ports of USB 2.0. The expandable interfaces include 1 M.2 3042 B-key for PCI2 x 2 and USB 3.0 / 2.0 & 1 M.2 2242 M-key for PCIe x 4, mSATA (auto-detect).

1-1 Major Feature

- Intel® Core i3-1115GRE Processor 2.2GHz / 3.9GHz (Quad core), Intel® Core i7-1185GRE Processor 1.8GHz / 4.4GHz (Quad core).
- 2. Intel® UHD Graphics for 11th Gen Intel® Processors, Intel® Iris® Xe Graphics.
- 3. DDR4 SODIMM slot x 1, up to 32GB.
- 4. Support 1 x 10 / 100 / 1000 Mbps & 3 x 2.5Gbps Intel LAN ports.
- 5. Support 2 x RS232 selectable to RS485 / RS422 by BIOS.
- 6. 3 x USB 3.0 and 6 x USB 2.0.
- Support extended 1 x M.2 3042 B-Key for PCIe x 2 and USB 3.0 / 2.0 interface, 1 x M.2 2242 M Key for PCIe x 4 / mSATA (auto-detect).
- 8. Support 1 SATA port
- Hardware digital Input & Output, 4 x DI / 4 x DO, Hardware Watch Dog Timer, 0~255 sec programmable.

1-2 Specification

- SOC: Intel® Core i3-1115GRE Processor 2.2GHz / 3.9GHz (Quad core), Intel® Core i7-1185GRE Processor 1.8GHz / 4.4GHz (Quad core).
- 2. Memory: DDR4 SODIMM slot x 1, up to 32GB.
- Graphics: Intel® UHD Graphics for 11th Gen Intel® Processors, Intel® Iris® Xe Graphics.
- 4. **SATA:** Integrated Serial ATA Host Controller 1 SATA port, SATA Gen3 Data transfer rates up to 6.0 Gb/s (600 MB/s).
- 5. LAN: 1 Intel I219 PHY & 3 Intel I225 LAN chipset with 2.5Gbps for PCIe x 1 V2.1.
- 6. I/O Chip: Switch chipset for 2 ports RS232 / RS422 / RS485 selected by BIOS.
- 7. **USB:** 3 type A USB 3.0, 6 USB 2.0 (internal).
- WDT / DIO: Hardware digital Input & Output, 4 x DI / 4 x DO (Option) / Hardware Watch Dog Timer, 0~255 sec programmable.
- Expansion interface: one M.2 3042 B-Key for PCIe x 2 and USB 3.0 / 2.0 interface, one M.2 2242 M-Key for PCIe x 4 / mSATA (auto-detect).
- 10. BIOS: AMI UEFI BIOS
- 11. Dimension: 102 x 108 mm
- 12. Power: On board DC +12V

1-3 Installing the SO-DIMM

1. Align the SO-DIMM with the connector at a 45 degree angle.



2. Press the SO-DIMM into the connector until you hear a click.



Notices:

1. The connectors are designed to ensure the correct insertion. If you feel resistance, check t h e connectors & golden finger direction, and realign the card.



2. Make sure the retaining clips (on two sides of the slot) lock onto the notches of the card firmly.



1-3-1-1 Removing the SO-DIMM

1. Release the SO-DIMM by pulling outward the two retaining clips and the SO-DIMM pops up slightly.



2. Lift the SO-DIMM out of its connector carefully.



1-4 Directions for installing the M.2B Key Mini Card

1. Unscrew the screw on the board



2. Plug in the Mini Card in a 45 angle



3. Gently push down the Mini Card and screw the screw back.



Chapter-2

2-1 Dimension-2l110D





2-2 Layout-2l110D-Connector and Jumper TOP



2-2-1 Layout-2I110D-Connector and Jumper Bottom BOT



2-3 Layout-2I110D-Function MAP

TOP



2-3-1 Layout-2I110D-Function MAP

BOT



2-4 Diagram- 2I110D

TOP



2-4-1 Diagram- 2I110D

вот



2-5 Function MAP- 2I110D



2-6 List of Jumpers

JSB1: CMOS DATA Clear

JAT1: HW system always on

JVL1: eDP panel power select

2-7 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.

The below figure 2.2 shows the examples of different jumper settings in this manual.



All jumpers already have its default setting with the plastic cap inserted as ON, or without the plastic cap as OFF. The default setting may be referred in this manual with a " * " symbol .

2-8 JSB1: CMOS DATA Clear

A battery must be used to retain the motherboard configuration in CMOS RAM. Close Pin1 and pin 2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:

- 1. Turn off the system and unplug the AC power
- 2. Remove DC IN power cable from DC IN power connector
- 3. Locate JSB1 and close pin 1-2 for few seconds
- 4. Return to default setting by Close pin 1-2
- 5. Connect DC IN power cable back to DC IN Power connector

JSB1	DESCRIPTION	
*1-2	Normal set	
2-3	CMOS / ME data clear	

Note: Do not clear CMOS unless

- 1. Troubleshooting
- 2. Forget password
- 3. You fail over-clocking system



2-9 JAT1: HW system always on

JAT1	DESCRIPTION	
*1-2	Normal Set	
2-3	HW system always on	





*Normal Set

HW system always on



2-10 JVL1: eDP panel power select

JVL1	DESCRIPTION	
1-2	+5V	
*2-3	+3.3V	

Note: Attention! Check Device Power in spec



Chapter-3

Connection

This chapter provides all necessary information of the peripheral's connections, switches and indicators. Always power off the board before you install the peripherals.

3-1 List of Connectors

CPI1:	DC 12V-IN 2x4 pin (2.0mm) Red wafer
CBT1:	COMS battery 1x2 pin (1.25mm) wafer
CC1~CC2:	COM 2x5 pin (2.0mm) wafer
CFP1:	Front Panel connector 2x5 pin (2.0mm) wafer
CIO1:	4DI / 4DO 2x5 pin (2.0mm) wafer
CPU FAN1:	CPU Fan 1x4 pin (2.54mm) wafer
EDP1:	HDMI 2x10 pin (1.25mm) wafer
CU1~CU3:	USB 3.0 Type A connector
CU5~CU10:	USB 2.0 port 1x4 pin (1.25mm) wafer
CL1~CL3:	LAN RJ45 Connector
CO1:	SMBus 1x4 pin (1.25mm) wafer
CPO1:	+12V / +5V power output 4 pin (2.0mm) Black wafer
SATA1:	SATA connector 7 pin
SODIMM1:	DDR4 Channel A SODIMM H: 9.2mm
NGFF1:	M.2 NGFF B key sockets 75 pin H: 8.5mm
NGFF2:	M.2 NGFF M key sockets 75 pin H: 8.5mm
SIM1:	Nano SIM card socket

3-2 CMOS battery connector

• CBT1: CMOS Battery 1x2 pin (1.25mm) Wafer.

PIN NO.	DESCRIPTION
1	GND
2	+3V

Note:

- 1. When the board without Adaptor plug in, this board power RTC consumption about 2.7uA
- 2. If adaptor always plug in RTC power consumption about 0.1uA



3-3 COM interface CC1 / CC2: COM 2x5 pin (2.0mm) Wafer

• (RS232 Mode)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	RXD
3	TXD	4	DTS
5	GND	6	DSR
7	RTS	8	CTS
9	RI / VCC	10	+5V

• (RS485 Mode)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data-	2	Data+
3	NC	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V

• (RS422 Mode)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	NC
7	NC	8	NC
9	NC	10	+5V

Note:

1. Pin 9 RI and Voltage setting only for COM 1/2 ports, is used BOM control.

2. Default support RS232 / RS422 / RS485 by BIOS selected, default set RS232.



3-4 Front Panel Pin Header

• CFP1: Front Panel connector 2x5 pin (2.0mm) Wafer

PIN NO.	Description	PIN NO.	Description
1	Power button	2	GND
3	Reset	4	GND
5	Power LED-	6	Power LED+
7	HDD LED-	8	HDD LED+
9	LAN LED-	10	LAN LED+





3-5 DIO Interface

PIN NO.	Description	PIN NO.	Description
1	DI-0	2	DO-3
3	DI-1	4	DO-2
5	DI-2	6	DO-1
7	DI-3	8	DO-0
9	GND	10	+5V

• CIO1: 4DI / 4DO 2x5 pin (2.0mm) Wafer

Note: 1. DIO and WDT function from SIO F81966D-I.



• WDT For F81966D-I watch dog timer device:

DC spec: Input low Voltage (VIL): +0.8 Max Input High Voltage(VIH): +2V Min Output low Current (IOL): 10mA (Min) VOL=0.4V Output High Current (IOH): -10mA (Min) VOH=2.4V Watch Dog Time value 0~255 sec The system will be issued reset. When WDT is enable the hardware start down counter to zero. The reset timer have 10~20% tolerance upon the Temperature. Note: If want to SDK support. Please contact to sales window.

3-5-1 IO Device: F81966 DIO under Windows The Sample code source you can download from

http://tprd.info/lexwiki/index.php/IO_Device:F81966_LPC_DIO_under_Windows

Source file: F81966_LPC_GPIO_Utility_Src_v1.5.zip Binary file: F81966_LPC_GPIO_Utility_Bin_x86_v1.5.zip F81966_LPC_GPIO_Utility_Bin_x64_v1.5.zip F81966 DLL: F81966_DLL_x32_v1.0.zip F81966_DLL_x64_v1.0.zip

Introduction F81966 DIO

F81966 LF	PC GPIO Utility v1.4									
GPI01 GPI02 GPI03	Disable Disable Enable									
GPI04	Enable	7	6	5	4	3	2	1	0	
Digital O	utput LOW BYTE	۲	۲	۲	۲	۲	۲	۲	۲	
Digital Ir	iput LOW BYTE	۲	۲	۲	۲	۲	۲	۲	۲	
		15	14	13	12	11	10	9	8	
Digital O	utput HIGH BYTE	۲	۲	۲	۲	۲	۲	۲	۲	
Digital Ir	put HIGH BYTE	0	0	۲	۲	۲	۲	۲	۲	
	1	s	tart tesi	:	2 r	CI01	16 mod	e		
WDTT	est									1
3	Enable	10			Disa	ble				
4	Enable loop	WDT	status							

- 1. Start test Button, Send bits one by one and one by one receive
- 2. CIO116 mode for CIO116 module use
- 3. Set time countdown, If the end of the countdown, the trigger signal to reboot
- Enable loop, Continuously reset the WDT to ensure that when the system is normal, the restart signal will not be triggered.

F81966_DLL Function

F81966_DLL_API bool F81966_LPC_Init(pF81966_status status); F81966_DLL_API BYTE F81966_LPC_Digital_Read_LOW(); F81966_DLL_API void F81966_LPC_Digital_Write_LOW(BYTE byteValue); F81966_DLL_API BYTE F81966_LPC_Digital_Read_HIGH(); F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue);	e –		• •
F81966_DLL_API BYTE F81966_LPC_Digital_Read_LOW(); F81966_DLL_API void F81966_LPC_Digital_Write_LOW(BYTE byteValue); F81966_DLL_API BYTE F81966_LPC_Digital_Read_HIGH(); F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();		F81966_DLL_API bool F81966_LPC_Init(pF81966_status status);	
F81966_DLL_API void F81966_LPC_Digital_Write_LOW(BYTE byteValue); F81966_DLL_API BYTE F81966_LPC_Digital_Read_HIGH(); F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	÷	F81966_DLL_API BYTE F81966_LPC_Digital_Read_LOW();	į
F81966_DLL_API BYTE F81966_LPC_Digital_Read_HIGH(); F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	i.	F81966_DLL_API void F81966_LPC_Digital_Write_LOW(BYTE byteValue);	j
F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	i i	F81966_DLL_API BYTE F81966_LPC_Digital_Read_HIGH();	Ì
F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	Ľ	F81966_DLL_API void F81966_LPC_Digital_Write_HIGH(BYTE byteValue);	ł
F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue); F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	Ľ		ł
F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	1	F81966_DLL_API void F81966_LPC_Set_WDT_Enable(BYTE byteValue);	ł
I	Ľ	F81966_DLL_API void F81966_LPC_Set_WDT_Disable();	ł
	! _		1

Digital Input / Output test

Note when using the following boards: 2I110D CIO1 needs to be controlled by CIO3

	Digital output Low Byte		Digital iutput Low Byte		
	Do	0	Di	0	
001	Do	1	Di	1	
	Do	2	Di	2	
	Do	3	Di	3	
	Do	4	Di	4	
0100	Do	5	Di	5	
CIUZ	Do	6	Di	6	
	Do	7	Di	7	

	Digital output High Byte		Digital iutput High Byte		
	Do	8	Di	8	
CIO3	Do	9	Di	9	
0103	Do	10	Di	10	
	Do	11	Di	11	
	Do	12	Di	12	
0104	Do	13	Di	13	
0104	Do	14	Di	14	
	Do	15	Di	15	

sample code

		٦
	Set CIO1 CIO2 Digital Output all high	ł
	F81966_LPC_Digital_Write_LOW(256);	i
		i
	Set CIO1 CIO2 Digital Output all low	i
I	F81966_LPC_Digital_Write_LOW(0);	i
		i
	Set CIO1 Digital Output bit 4 high	i
	F81966_LPC_Digital_Write_LOW(16);	i
		i
	Set CIO2 Digital Output bit 10 high	i
	F81966_LPC_Digital_Write_HIGH(4);	i
·		-
1	Read Din	i
	value = F81966 LPC Digital Read LOW();	i
		ļ

Watch Dog test sample code

30		
	Set WDT 10 sec F81966_LPC_Set_WDT_Enable(10);	
	Disable WDT F81966_LPC_Set_WDT_Disable();	

3-5-2 IO Device: F81966 DIO under Linux console The Sample code source you can download from

http://tprd.info/lexwiki/index.php/IO_Device:F81966_LPC_DIO_under_Linux_console

Source file: F81966_DIO_v1.1_Src_L.tar.gz

Binary file: F81966_DIO_v1.1_Bin_x64_L.tar.gz F81966_DIO_v1.1_Bin_x32_L.tar.gz

F81966 Libary: F81966_LIB_v1.1_x64_L.tar.gz F81966_LIB_v1.1_x32_L.tar.gz

Introduction F81966 DIO

```
😑 回 🛛 root@ubuntu: /home/test/Desktop/f81966/F81966_DIO
root@ubuntu:/home/test/Desktop/f81966/F81966_DIO# ./f81966 -h
F81966 OPEN FAIL!!!!
Usage: ./f81966 [OPTION] ... [--mode value]
 -h.--help
                        printf this help and exit
 -s DOx, --setDo value
                        | value:number of bits
 -r DIx, --readD value
                        | value:number of bits
 --CI012
                          test CI01,CI02
 --CI034
                         test CI03.CI04
Example:
 ./f81966 --CI012
root@ubuntu:/home/test/Desktop/f81966/F81966_DIO#
```

- 1. Start test Button, Send bits one by one and one by one receive
- 2. CIO116 mode for CIO116 module use
- 3. Set time countdown, If the end of the countdown, the trigger signal to reboot
- 4. Enable loop, Continuously reset the WDT to ensure that when the system is normal, the restart signal will not be triggered.

F81966_DLL Function

; -		ì
1	bool F81966_OPEN();	i
	void F81966_Init();	ł
1	void F81966_LPC_Write(BYTE LDNData, BYTE reg, BYTE value);	ł
1	BYTE F81966_LPC_Read(BYTE LDNData, BYTE reg);	i
	void F81966_LPC_Digital_Write_LOW(BYTE byteValue);	ł
1	void F81966_LPC_Digital_Write_HIGH(BYTE byteValue);	ł
1	BYTE F81966_LPC_Digital_Read_LOW();	ļ
	BYTE F81966_LPC_Digital_Read_HIGH();	i
1	void F81966_LPC_Set_WDT_Enable(BYTE byteValue);	i
1	void F81966_LPC_Set_WDT_Disable();	į
	void EntryLPC();	į
	void ExitLPC();	į
		į

Digital Input / Output test

Note when using the following boards: 2I110D CIO1 needs to be controlled by CIO3

	Digital output Low Byte		Digital iutput Low Byte		
	Do	0	Di	0	
0.01	Do	1	Di	1	
	Do	2	Di	2	
	Do	3	Di	3	
	Do	4	Di	4	
	Do	5	Di	5	
	Do	6	Di	6	
	Do	7	Di	7	

	Digital output High Byte		Digital iutput High Byte		
	Do	8	Di	8	
CIO2	Do	9	Di	9	
003	Do	10	Di	10	
	Do	11	Di	11	
	Do	12	Di	12	
CI04	Do	13	Di	13	
0104	Do	14	Di	14	
	Do	15	Di	15	

sample code

Set CIO1 CIO2 Digital Output all high F81966_LPC_Digital_Write_LOW(256);	
Set CIO1 CIO2 Digital Output all low F81966_LPC_Digital_Write_LOW(0);	
Set CIO1 Digital Output bit 4 high F81966_LPC_Digital_Write_LOW(16);	
Set CIO2 Digital Output bit 10 high F81966_LPC_Digital_Write_HIGH(4);	
 Read Din value = F81966_LPC_Digital_Read_LOW();	

Watch Dog test

sample code			
Set WDT 10 sec F81966_LPC_Set_WD)T_Enable(10);	 	
Disable WDT F81966_LPC_Set_WD)T_Disable();	 	
3-6 USB Interface

CU1~CU3: USB 3.0 Type A Connector

PIN NO.	Description	PIN NO.	Description
1	VBUS	5	SS_RX-
2	D-	6	SS_RX+
3	D+	7	GND
4	GND	8	SS_TX-
		9	SS_TX+

Note:

1. The power supply 0.9A for each USB 3.0 respect specification.

2. CU1, CU2, CU3 support wake up for option.



• CU5~CU10: USB 2.0 port 1x4 pin (1.25mm) Wafer

PIN NO.	Description			
1	+5V			
2	DATA-			
3	DATA+			
4	GND			
	J5 CU6 CU7 (CU8	CU9CU10	

3-7 LAN Interface

CL1 / CL2 / CL3 / CL4: LAN RJ45 Connector

PIN NO.	Description	PIN NO.	Description
1	MDI0+	5	MDI2-
2	MDI0-	6	MDI1-
3	MDI1+	7	MDI3+
4	MDI2+	8	MDI3-

• CL1: LAN RJ45 Connector for 1Giga LAN LAN LED

Speed	10Mbps		100Mbps		1000Mbps				
Indicate	Back	Side	Front Side	Back	Side	Front Side	Back	Side	Front Side
	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light	Х	Orange	Orange	Green	Orange	Orange	Red	Orange	Orange

• CL2 / CL3 / CL4: LAN RJ45 Connector for 2.5Giga LAN LAN LED

Speed	10Mbps			100Mbps		
Back		Side	Front Side	Back Side		Front Side
Indicate	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light	Х	Orange	Orange	Green	Orange	Orange
Speed	1000Mb		Mbps	2500Mbps		
Indiaata	Back Side		Front Side	E	Back Side	Front Side
Indicate	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light	Х	Orange	Orange	Green	Orange	Orange



3-8 CO1: SMBus 1x4 pin (1.25mm) Wafer

PIN NO.	Description
1	+3.3V
2	GND
3	SMBus Clock
4	SMBus DATA



3-9 Display Interface

HDMI1: HDMI Type A Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TMDS DATA2+	2	GND
3	TMDS DATA2-	4	TMDS DATA1+
5	GND	6	TMDS DATA1-
7	TMDS DATA0+	8	GND
9	TMDS DATA0-	10	TMDS CLK+
11	GND	12	TMDS CLK-
13	NC	14	NC
15	DDC CLOCK	16	DDC DATA
17	GND	18	+5V
19	H.P. Detect		



• EDP1: eDP Panel 2x10 pin (1.25mm) Wafer

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Lane-0-DATA-	2	+12V or +5V
3	Lane-0-DATA+	4	+12V or +5V
5	Lane-1-DATA-	6	GND
7	Lane-1-DATA+	8	GND
9	Backlight Enable	10	GND
11	PWM dimming for eDP	12	GND
13	I2C Clock	14	+LCD (5V or 3.3V)
15	I2C Data	16	+LCD (5V or 3.3V)
17	eDP Aux+	18	+LCD (5V or 3.3V)
19	eDP Aux-	20	EDP_HPD

Note:

- 1. eDP interface support 2 lanes.
- 2. JVL1: eDP panel +5V / +3.3V (default) Voltage select.
- 3. eDP1 pin9 for panel backlight enable. +3.3V Level
- 4. eDP1 pin11 for panel backlight SOC dimming control 5. eDP1 pin2, 4 backlight power default set +12V



3-10 CPI1: DC Power input (2x4 pin 2.0mm Wafer) (Red)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	DC-IN	4	DC-IN
5	DC-IN	6	DC-IN
7	GND	8	GND

Note: 1. Very important check DC-in Voltage.



3-11 CPO1: DC +5 / +12V output 1x4 pin (2.0mm) Black Wafer

PIN NO.	DESCRIPTION
1	+5V
2	GND
3	GND
4	+12V

Note: Attention! Check Device Power in spec



3-12 CPU FAN1: CPU Fan 1x4 pin (2.54mm) Wafer (option)

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	CPU FAN-IN
4	CPU FAN-OUT

Note: DC in +12V by switch to FAN power +12V, so DC in need stable +12V input



3-13 SATA Interface

• SATA1: SATA port connectors 7pin

PIN NO.	Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

Note: 1. CPO1 provides SATA-HDD power +12V, GND, +5V



3-14 NGFF1 M.2 NGFF card B key sockets 75 pin

• NGFF1: size 3042 (H=8.5)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CFG3_USB3_PCIE_N	2	+3.3V
3	GND	4	+3.3V
5	GND	6	FULL_CARD_PWR_N
7	USB2_P4_DP	8	W_DISABLE_1_N
9	USB2_P4_DN	10	M2_LED_N
11	GND		
	BI	KEY	
21	GND	20	NC
23	NC	22	NC
25	NC	24	NC
27	GND	26	W_DISABLE_2_N
29	M2_PERn1_U3Rn	28	NC
31	M2_PERp1_U3Rp	30	SIM_RST_M2
33	GND	32	SIM_CLK_M2
35	M2_PETn1_U3Tn	34	SIM_DATA_M2
37	M2_PETp1_U3Tp	36	SIM_PWR_M2
39	GND	38	NC
41	M2_PERn0	40	NC
43	M2_PERp0	42	NC
45	GND	44	NC
47	M2_PETn0	46	NC
49	M2_PETp0	48	NC
51	GND	50	M2_PRST_N
53	REFCLK_N	52	SRCCLKREQ_N
55	REFCLK_P	54	NC
57	GND	56	NC
59	NC	58	NC
61	NC	60	NC

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
63	NC	62	NC
65	NC	64	NC
67	MD_RESET_N	66	SIM_DET
69	NC	68	NC
71	GND	70	+3.3V
73	GND	72	+3.3V
75	CFG2 power select	74	+3.3V

Note: 1. WWAN Module For 3.7V by OEM



3-15 NGFF2 M.2 NGFF card M key sockets 75 pin

• NGFF2: size 2242 (H=8.5)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PCIE4_Rn3	6	NC
7	PCIE4_Rp3	8	NC
9	GND	10	M2_LED_N
11	PCIE4_Tn3	12	+3.3V
13	PCIE4_Tp3	14	+3.3V
15	GND	16	+3.3V
17	PCIE4_Rn2	18	+3.3V
19	PCIE4_Rp2	20	NC
21	GND	22	NC
23	PCIE4_Tn2	24	NC
25	PCIE4_Tp2	26	NC
27	GND	28	NC
29	PCIE4_Rn1	30	NC
31	PCIE4_Rp1	32	NC
33	GND	34	NC
35	PCIE4_Tn1	36	NC
37	PCIE4_Tp1	38	NC
39	GND	40	NC
41	PCIE4_Rn0_MSRp	42	NC
43	PCIE4_Rp0_MSRn	44	NC
45	GND	46	NC
47	PCIE4_Tn0_MSTn	48	NC
49	PCIE4_Tp0_MSTp	50	M2_PRST_N
51	GND	52	SRCCLKREQ_N
53	CLK_SRC0_DN	54	NC

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
55	CLK_SRC0_DP	56	NC
57	GND	58	NC
	Μ	KEY	
67	NC	68	NC
69	PCIe_SATA#_DET	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

Note:

1. NGFF2 support mSATA / PCIe Auto detect.

2. NGFF2 support PCIe x4 GEN4 NVMe device.



3-16 SIM1: Nano SIM card socket

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	GND
2	RST	6	NC
3	CLK	7	DATA
4	NC	8	DET

Note: 1. NGFF1 Pin 30, 32, 34, 36, 66 for SIM card reader use.



3-17 Connector wafer of Compatible Brand and part number list

Location	CKTS	PITCH	Brand Name	Mating connector	Cable housing
CC1~CC2	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CFP1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CIO1	2x5 10Pin	2.0mm	JST	B10B-PHDSS	PHDR-10VS
CPI1	2x4 8Pin	2.0mm	JST	B8B-PHDSS	PHDR-08VS
CPO1	1x4 4Pin	2.0mm	JST	B4B-PH-KL	PHR-4
CO1	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CU5~CU10	1x4 4Pin	1.25mm	MOLEX	53047-0410	51021-0400
CBT1	1x2 2Pin	1.25mm	MOLEX	53047-0210	51021-0200
EDP1	2x10 20Pin	1.25mm	HIROSE	DF13-20DS-1.25C	DF13-20DP-1.25V

Chapter-4

Introduction of BIOS

The BIOS is a program located in the Flash Memory on the motherboard.

This program is a bridge between motherboard and operating system.

When you start the computer, the BIOS program gains control.

The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

Press <Esc> to quit the BIOS Setup.

Press $\uparrow\downarrow \leftarrow \rightarrow$ (up, down, left, right) to choose the option you want to confirm or modify. Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.

Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

4-1 Enter Setup

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

4-2 BIOS Menu Screen & Function Keys

BIOS Information		Set the Date. Use Tab to
BIOS Vendor	American Megatrends	switch between Date elements.
Core Version	5.19	Default Ranges:
Compliancy	UEFI 2.7; PI 1.6	Yean: 1998-9999
BIOS Version	2I110D A1	Months: 1-12
Build Date and Time	06/15/2022 14:04:25	Days: Dependent on month Range of Years may vary.
Processor Information		
Name	TigerLake ULT	
Type	11th Gen Intel(R)	
	Core(TM) 17-1185GRE 0	
	2.80GHz	
Stepping	BO	
Number of Processors	4Core(s) / 8Thread(s)	++: Select Screen
Total Memory	16384 MB	11: Select Item
Memory Speed	2667 MT/s	Enter: Select
		+/-: Change Opt.
PCH Information	mana serain nana	F1: General Help
Name	TGL PCH-LP	F2: Previous Values
PCH SKU	LP IOT SKU	F3: Optimized Defaults
Stepping	BO	F4: Save & Reset
	fued on (17 (2002)]	ESC: EXIT
System Date	[11:49:06]	
SARIE LINE	[11:43:20]	

In the above BIOS Setup main menu of, you can see several options.

We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press >< (right, left) to select screen
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<-> or <F5>/<F6> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous values.
- [F3]: Optimized defaults.
- [F4]: Save & Reset.
- Press <Esc> to quit the BIOS Setup.

4-3 Getting Help

BIOS Information BIOS Vendor Core Version		American Megatrends 5.19	Set the Date. Use Tab to switch between Date elements. Default Ranges:
Compliancy	-	UEFI 2.7: PI 1.6	Year: 1998-9999
BIOS Version		General Help	ns: 1-12
Processor Information	†∔+ + Enter	: Move : Select	of Years may vary.
Name	+/-	; value	
igpe	F1 F2	: EXIT : General Help : Previous Values	
Stepping	F3	: Optimized Defaults	
Number of Processors	F4	: Save & Reset System	lect Screen
Total Memory	<65	: Scroll help area upwards	lect Item
Memory Speed	<m></m>	: Scroll help area downward	is Select
PCH Information			neral Help
PCH SKI		<u> </u>	timized Defaults
Stepping			ve & Reset
0.00pp.1.0			ESC: Exit
System Date		[Wed 03/17/2022]	
System Time		[15:38:58]	

Status Page Setup Menu / Option Page Setup Menu

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

4-4 Menu Bars

There are six menu bars on top of BIOS screen: Main To change system basic configuration Advanced To change system advanced configuration Chipset To change PCH IO configuration Security Password settings Boot Quiet boot or boot from USB selected. Save & Exit Save setting, loading and exit options. User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

4-5 Main

Main Advanced Chioset Securit	Aptio Setup – AMI 9 Boot Save & Exit	
BIOS Information BIOS Vendor Core Version Compliancy BIOS Version	American Megatrends 5.19 UEFI 2.7: PI 1.6 2I110D A1	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999 Months: 1-12
Build Date and Time	06/15/2022 14:04:25	Days: Dependent on month Range of Years may vary.
Name	Tideolaka III T	
Туре	11th Gen Intel(R) Core(TM) 17-1185GRE 0 2.80GHz	
Stepping	BO	
Number of Processors	4Core(s) / 8Thread(s)	++: Select Screen
Total Memory	16384 MB	14: Select Item
Memory Speed	2667 MT/s	Enter: Select +/-: Change Opt.
PCH Information		F1: General Help
Name	TGL PCH-LP	F2: Previous Values
PCH SKU	LP IOT SKU	F3: Optimized Defaults
Stepping	B0	F4: Save & Reset ESC: Exit
System Date	[Hed 03/17/2022]	Second
System Time	[11:43:26]	
Versio	n 2.21.1278 Sepuright (C) 20	22 AHI

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.

System Date

Set the Date. Please use [Tab] to switch between data elements.

System Time

Set the Time. Please use [Tab] to switch between data elements.

4-6 Advanced

Main Advanced Chioset Secu	Aptio Setup – AMI Vity Boot Save & Exit			
Turbo Boost Config TDP > PCH-FW Configuration > AMT Configuration > Trusted Computing > ACPI Settings > FB1966 Super IO Configuration > Hardware Monitor > USB Configuration > Network Stack Configuration > NVMe Configuration	[Disabled] [Disabled]	Enable/Disable Processor Turbo Boost.		
Version 2.21.1278 Sopyright (C) 2022 AMI				

Turbo Boost

To turn on turbo boost or not, default is disabled.

Hain Advanced Chioset Secur	Aptio Setup – AMI Ity Boot Save S Exit			
Turbo Boost Config TDP CTDP Level PCH-FH Configuration AHT Configuration Trusted Computing ACPI Settings F81966 Super IO Configuration Hardware Monitor USB Configuration Network Stack Configuration NVMe Configuration	[Disabled] [Enabled] [CTDP Up]	Enabled/Disabled cTDP Finction. Disabled = 15W. Enabled = 28W/12W. **: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		
Version 2.21.1278 Sopyright (C) 2022 AMI				

Config TDP

Enabled to change the TDP up or TDP down, default is disabled.



cTDP Level

To change the TDP up(28W) or TDP down(12W), default is TDP(15W)

PCH-FW Configuration

Please refer section 4-6-1 **AMT Confinguration** Please refer section 4-6-2 **Trusted Computing** Please refer section 4-6-3 **ACPI Settings** Please refer section 4-6-4 F81966 Super IO Configuration Please refer section 4-6-5 Hardware Monitor Please refer section 4-6-6 **USB** Configuration Please refer section 4-6-7 **Network Stack Configuration** Please refer section 4-6-8 **NVMe Configuration** Please refer section 4-6-9

4-6-1 PCH-FW Configuration

Main Advanced Chioset Secu	Aptio Setup – AMI mity Boot Save & Exit	
Turbo Boost Config TDP P PCH-FH Configuration AMT Configuration Trusted Computing ACPI Settings F B1966 Super ID Configuration Handware Honitor USB Configuration Network Stack Configuration NVMe Configuration	[Disabled] [Disabled]	Configure Management Engine Technology Parameters **: Select Screen 11: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Mar	sion 2-21 1278 Conveight	(C) 2022 ANT

Advanced	Aptio Setup - AMI	
ME Firmware Version ME Firmware Mode ME Firmware SKU ME Firmware Status 1 ME Firmware Status 2 ME State	15.0.35.1951 Normal Mode Corporate SKU 0x90000255 0x30858106 [Enabled]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Ver	sion 2.21.1278 Suppright (C) 2022 AHI

4-6-2 AMT Configuration

Aptio Setu	p - AMI
▶ OEM Flags Settings ▶ MEBx Resolution Settings	Configure OEM Flags **: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.21.1278 Sep	gright (C) 2022 AMI

OEM Flags Settings Please refer section 4-6-2-1

MEBx Resolution Settings

Please refer section 4-6-2-2

4-6-2-1 ► OEM Flags Settings

Advanced	Aptio Setup – AMI	
MEEx hotkey Pressed MEEx Selection Screen Hide Unconfigure WE Confirmation Prompt	(Disabled) (Disabled) (Disabled)	OEMFLag Bit 1: Enable automatic MEBx hotkey press. **: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version	2.21.1278 Sopyright (C) 2022 AHI

To enable Intel® Management Engine BIOS Extension settings, default is Disabled.

4-6-2-2 ► MEBx Resolution Settings



4-6-3 Trusted Computing

Advanced	Aptio Setup – AMI	
TPM 2.0 Device Found Firmware Version: Vendor:	600.7 INTC	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and
Security Device Support Active PCR banks Available PCR banks	[Enable] SHA256 SHA-1,SHA256,SHA384,SM3	INT1A interface will not be available.
SHA-1 PCR Bank SHA256 PCR Bank SHA384 PCR Bank SM3_256 PCR Bank	(Disabled) [Enabled] [Disabled] [Disabled]	
Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarchy TPM 2.0 UEFI Spec Version Physical Presence Spec Version TPM 2.0 InterfaceType Device Select	[None] [Enabled] [Enabled] [TCG_2] [1.3] [CRB] [Auto]	<pre> ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
	2 24 4278 Copuright (2) 0054	
Version	2.21.12/0 Cobduigut (C) 2021	. HIL

Security Device Support

To enable BIOS support security device or not, default is Enabled.

4-6-4 ACPI Settings

Advanced	Aptio Setup – AMI	
ACPI Settings		Select the highest ACPI sleep
ACPI S3 Support	[Enabled]	<pre>state the system will enter when the SUSPEND button is pressed. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values E2: Optimized Defaulte</pre>
		F4: Save & Reset ESC: Exit
	Version 2.21.1278 Copyright (C)	2021 AMI

ACPI S3 Support

To enable BIOS support security device or not, default is Enabled.

4-6-5 F81966 Super IO Configuration



Serial Port 1 Configuration

Please refer section 4-6-5-1

Serial Port 2 Configuration

Please refer section 4-6-5-2

Power Failure

Please refer section 4-6-5-3

4-6-5-1 ► Serial Port 1 Configuration

Advanced	Aptio Setup — AMI	
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	
Change Settings Serial Mode	[Auto] [RS232]	
		<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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To Enable Serial port or not, default is Enabled.



Change Settings, default is Auto.



To select the Serial port to RS232 / RS422 / RS485, default is RS232.

4-6-5-2 ► Serial Port 2 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 2 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2F8h; IRQ=3;	(604)
Change Settings Serial Mode	[Auto] [RS232]	
		↔+: Select Screen ↑↓: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Reset ESC: Exit
Version 2.21.1278 Copyright (C) 2021 AMI		

To Enable Serial port or not, default is Enabled.



Change Settings, default is Auto.



To select the Serial port to RS232 / RS422 / RS485, default is RS232.

4-6-5-3 ► Power Failure

Advanced	Aptio Setup - AMI	
 F81966 Super IO Configuration Super IO Chip Serial Port 1 Configuration Serial Port 2 Configuration Power Failure 	F81966 [Keep last state]	Set Power Fail as [Keep last state], [Always on] or [Always off] mode.
	Power Failure Keep last state Always on Always off	<pre>+*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Versio		

To select the power behavior after power fail, default is Keep last state.

4-6-6 Hardware Monitor

Advanced	Aptio Setup – AMI	
Pc Health Status		Smart Fan Configuration.
 Smart Fan Configuration CPU Temperature SYSTEM Temperature CPU Fan VCCIN VCCIN AUX VDOQ VCC3V VSB3V VSB5V VBAT 	: +44 C : +37 C : N/A : +1.288 V : +1.808 V : +1.200 V : +3.248 V : +3.312 V : +5.064 V : +3.168 V	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Vers	ion 2.21.1278 Copyright (C) 20	021 AMI
Advanced	Aptio Setup - AMI	
---	--------------------------------	--
Smart Fan Configuration CPU Fan Mode Duty	[Manual] 255	Fan Mode Selection: Manual, Auto.
	CPU Fan Mode Manual Auto	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Press [Enter] to view PC health status.

This section shows the status of your CPU, Fan, and overall system.

This is only available when there is Hardware Monitor function onboard.

4-6-7 USB Configuration

Advanced	Aptio Setup – AMI	
USB Configuration		Mass storage device emulation
USB Controllers:		devices according to their
2 XHCIs USB Devices:		media format. Optical drives
1 Drive, 1 Keyboard, 1 Mouse		drives with no media will be
		emulated according to a drive
Mass Storage Devices:		(Sho (
KingstonDT 101 II PMAP		
		++: Select Screen
		↑↓: Select Item
		Enter: Select
		F1: General Help
		F2: Previous Values
		F4: Save & Reset
		ESC: Exit

4-6-8 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack **: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Versio	n 2.21.1278 Copyright (C) 2021	LAMI

To enable the Network stack or not, default is Disabled.

4-6-9 NVMe Configuration

Aptio Setup - AMI Advanced	
NVMe Configuration	
No NVME Device Found	
	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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To detect NVMe storage automatically.

4-7 Chipset

Main Advance	ed Chipset Security	Aptio Setup Boot Save & E	– AMI Exit	
▶ System Agent ▶ PCH-IO Config	(SA) Configuration uration			System Agent (SA) Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
	version	2.21.1278 Copyr	'igni (C) 2021	HIJ

System Agent (SA) Configuration. Please refer section 4-7-1

PCH-IO Configuration. Please refer section 4-7-2

4-7-1 System Agent (SA) Configuration

Aptio Setup – AMI Chipset	
System Agent (SA) Configuration	Graphics Configuration
▶ Graphics Configuration	
	↑↓: Select Item Enter: Select +/-: Change Ont
	F1: General Help F2: Previous Values
	F3: Uptimized Defaults F4: Save & Reset ESC: Exit
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Graphics Configuration.

Please refer section 4-7-1-1

4-7-1-1 ► Graphics Configuration

Chipset	Aptio Setup – AMI	
Graphics Configuration Primary Display Internal Graphics Aperture Size	[IGFX] [Enabled] [256MB]	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select HG for Hybrid Gfx.
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit

Primary Display

Primary display. The optional settings are: Auto, IGFX, PCH PCI

Internal Graphics

Graphics Translation Table Size. The optional settings are: Auto, Disabled, Enabled

Aperture Size

The optional settings are: 256MB (default), 512MB, 1024MB

4-7-2 PCH-IO Configuration

Aptio Setup - AMI Chipset	
PCH-IO Configuration	PCI Express Configuration settings
 ► FOI EXPress Configuration ► SATA And RST Configuration 	
	++: Select Screen ↑↓: Select Item
	Enter: Select +/−: Change Opt. F1: General Help
	F2: Previous Values F3: Optimized Defaults F4: Save & Reset
	ESC: Exit
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PCI Express Configuration. Please refer section 4-7-2-1

SATA And RST Configuration.

Please refer section 4-7-2-2

4-7-2-1 ► PCI Express Configuration

Aptio Setup – AMI <mark>Chipset</mark>	
PCI Express Configuration	PCI Express Root Port Settings.
 PCI Express Root Port 05 M.2 B-Key x2 PCI Express Root Port 08 LAN2 PCI Express Root Port 09 LAN3 PCI Express Root Port 10 LAN4 	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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The optional settings are: Enabled(default), Disabled.



To select PCI Express port speed. The optional settings are: Auto(default), Gen1, Gen2, Gen3

4-7-2-2 ► SATA And RST Configuration

Chipset	Aptio Setup – AMI	
SATA And RST Configuration		Enable/Disable SATA Device.
SATA Controller(s)		
Serial ATA Port O Port O Serial ATA Port 1 Port 1	Empty [Enabled] Empty [Enabled]	
		<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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SATA Controller

Use this item to Enable or Disable SATA Device.

4-8 Security

Aptio Setup – AMI Main Advanced Chipset <mark>Security</mark> Boot Save & Exit		
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range:	Set Administrator Password	
Minimum length Maximum length Administrator Password User Password	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>	
Version 2.21.1278 Copyright (C) 2021	AMI	

Administrator Password User Password To set up an Administrator or an User password

4-9 Boot

Main Advanced Chipset	Aptio Setup – AMI Security <mark>Boot</mark> Save & Exit	
Boot Configuration Bootup NumLock State Quiet Boot	[On] [Enabled]	Select the keyboard NumLock state
Boot Option Priorities Boot Option #1	[UEFI: KingstonDT 101 II PMAP, Partition 1 (KingstonDT 101 II PMAP)]	
Fast Boot	[Disabled]	
Wake On USB	[Disabled]	
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Bootup NumLock State

To select Power-on state for NumLock, default is <On>

Quiet Boot

The optional settings are: Enabled(default), Disabled.

Wake-Up From USB 3.0

The optional settings are: Enabled, Disabled(default).

4-10 Save & Exit

Aptio Setup – AMI Main Advanced Chipset Security Boot <mark>Save & Exit</mark>	
Save Options Save Changes and Reset Discard Changes and Reset	Reset the system after saving the changes.
Default Options Restore Defaults	
Boot Override UEFI: KingstonDT 101 II PMAP, Partition 1 (KingstonDT 101 II PMAP)	
	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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Save Change and Reset

Save configuration and reset

Discard Changes and Reset

Reset without saving the changes

Restore Defaults

To restore the optimal default for all the setup options

4-11 How to update Insyde BIOS

Under DOS Mode

STEP 1. Prepare a bootable disc.

(Storage device could be USB FDD or USB pen drive.)

- STEP 2. Copy utility program to your bootable disc. You may download it from our website.
- STEP 3. Copy the latest BIOS for your LEX motherboard from our website to your bootable disc.
- STEP 4. (Here take 2I110D as an example, please enter your motherboard's name) Insert your bootable disc into X: (X could be C:, A: or others. It depends on which type of storage device you use.)

Start the computer and type

X:\: H2OFFT-D.EXE 2I110DA2.ROM -BIOS -ALL

2I110DA2.ROM is the file name of the latest BIOS.

It may be 2I110DWA1.ROM or 2I110DWA2.ROM, etc.

Please leave one space between .ROM & -BIOS -ALL

By Bay Trail series mainboard, please type

X:\: H2OFFT-D.EXE 2I110DWA2.ROM -BIOS -ALL

-BIOS : Flash BIOS region

-ALL : Flash all

STEP 5. Press ENTER and the BIOS will be updated, Computer will restart automatically.

Appendix B: Resolution list

640 x 480 x (256 / 16bit / 32bit)
800 x 600 x (256 / 16bit / 32bit)
1024 x 768 x (256 / 16bit / 32bit)
1152 x 864 x (256 / 16bit / 32bit)
1280 x 600 x (256 / 16bit / 32bit)
1280 x 720 x (256 / 16bit / 32bit)
1280 x 768 x (256 / 16bit / 32bit)
1280 x 800 x (256 / 16bit / 32bit)
1280 x 960 x (256 / 16bit / 32bit)
1280 x 1024 x (256 / 16bit / 32bit)
1400 x 1050 x (256 / 16bit / 32bit)
1440 x 900 x (256 / 16bit / 32bit)
1600 x 900 x (256 / 16bit / 32bit)
1600 x 1200 x (256 / 16bit / 32bit)
1680 x 1050 x (256 / 16bit / 32bit)
1920 x 1080 x (256 / 16bit / 32bit)
1920 x 1200 x (256 / 16bit / 32bit)