www.darveen.com



SPC-9150 User's Manual



Table of Contents

Chapter 1. A	bout this Manua	1
1.1Revision F	listory	4
1.2Copyright		4
1.3Disclaimer	٢	4
1.4Conventio	ns	4
1.5Preface		4
Chapter 2. Ir	ntroducing the Motherboard	5
2.1Introductio	אר	5
2.2Motherboa	ard specification	5
2.3Main-boar	d Physical Image	6
2.4Front and	Rear View	7
2.5System I/0	O:	7
2.6System Int	formation	7
Chapter 3. J	umper and Installation11	1
3.1Safety Pre	ecautions1	1
3.2Schematic	Diagram of Interface Location1	1
3.3Installatior	۲2 Steps12	2
3.4Memory Ir	nstallation12	2
3.5Jumper Fu	unction Settings12	2
3.6Display Int	terface1;	3
3.7Storage po	orts14	4
3.8Expansion	14 Slot	4
3.9USB interf	ace14	4
3.10USB inte	rface1	5
3.11Serial po	rt	5
3.12GPIO (sil	k screen: GPIO)	6
3.13Mainboa	rd power supply (silk screen printing: PWR2)16	6
3.14Power or	n/off button/indicator light pin (silk screen: JPOWER)17	7
3.15Audio inte	erface (silk screen: AUDIO, JAUD)17	7

3.16Hardware call auto start (screen printing: JAT)	17
3.17Hardware call auto start (screen printing: JAT)	
4.Chapter 4. System Utilities	20
4.1BIOS Basic Function Settings	
4.2MIAN Menu (BIOS information and time date)	22
4.3Advance (Advanced Menu Settings)	23
4.4Power & Configuration	24
4.5CPU-Power Management Control	25
4.6GT-Power Management Control	27
4.7Thermal Configuration	
4.8ACPI Settings	29
4.9IT8786 Super IO Configuration(IT8786 Super IO 设置)	
4.10Hardware Monitor	
4.11USB Configuration	
4.12Chipset	
4.13State After G3	34
4.14Security	35
4.15Boot	
4.16Save & Exit	
Chapter 5. Machine Disassembly and Replacement	39
Chapter 6. Standard Assembly Process	41
6.1 LCD Assemble	41
6.2 Assemble the M/B	42
Chapter 7. Appendix	44
7.1 Material List	

Chapter 1. About this Manual

1.About this Manual

1.1 Revision History

Date	Version	Chapter	Updates
2024/10/9	First Draft		

1.2 Copyright

This publication, including all photographs, illustrations and software, is protected, under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without written consent of the author.

1.3Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents here of and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. The manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

1.4Conventions

The following conventions are used in this manual:

SCREEN MESSAGES	Denotes actual messages that appear on screen.
NOTE	Gives bits and pieces of additional information related to the current topic.
WARNING	Alerts your to any damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problem.
IMPORTANT	Reminds you to do specific actions relevant to the accomplishment of procedures.

1.5 Preface

Before using this information and the product it supports, please read the following general information.

This service guide provides you with all technical information relating to the basic configuration decided for Darveen's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office may have decided to extend the functionality of a machine (e.g. Add-on card, WLAN card, SSD card, com card or extra memory capability). These localized features will not be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

Chapter 2. Introducing the Motherboard

2. Introducing the Motherboard

2.1 Introduction

Thank you for choosing the SPC-9150 industrial all-in-one machine, which uses the INTEL EHL-35 motherboard, The HL35 motherboard is a 3.5 "SBC (Single Board Computer) based on the Intel Elkhart Lake platform, featuring a small size, Characteristics of low power consumption and high efficiency

2.2 Motherboard specification

CPU: Intel Celeron J6412- quad core four thread, 2.0GHz main frequency, 2.6GHz turbo frequency, TDP 10W

Memory: 1 SO-DIMM DDR4-3200 slot, supports single channel, maximum memory capacity 32GB

Graphics card: CPU integrated display core, providing 1 HDMI 2.0b interface, 1 DP1.4 interface, and 1 LVDS interface (optional) Optional as EDP

Storage: 1 mSATA interface or 4G module (choose one of these interfaces), 1 SATA3.0 interface

USB: 4 USB 3.2 Gen2 ports, 4 USB 2.0 ports

Network card: 2 Gigabit Ethernet cards (Realtek 8111H)

Sound card: equipped with high-resolution audio chip, supporting 1 2-in-1 audio interface (supporting Line_out, Mic_in)

Serial ports: 6 RS232 serial ports (COM5, COM6 can optionally support RS485)

Other ports: 1 M.2 slot Key E, supports 2230 WIFI and BT, 1 switch pin (JPOWER), 1 SIM Card slot, 1 set of GPIO

Size: 146mm x 102mm

Power supply: Supports the use of a 12V DC adapter for power supply

Working temperature: -20 °C ~60 °C

2.3 Main-board Physical Image



2.4 Front and Rear View



2.5 System I/O :



2.6 System Information

Display		
Size	15 inch	
Touch Type	5-wire resistive touch/Projected capacitive multi touch (optional)	
Transmittance	87% (capacitive) / 80% (resistive)	
Control Interface	USB	
Surface Hardness	≥7H/≥3H	
Resolution	1024 x 768	
Luminance	350 nits	
Contrast Ratio	1000: 1	
View Angles	89 (left), 89 (right), 89 (up), 89 (down)	

LED Lifetime	50,000 hrs	
Color	16.7M	
System	1	
CPU	Intel [®] Celeron [®] J6412(2.0 GHz) processor	
Memory	1x SO-DIMM DDR4-2600MHz, up to 16GB	
Storage	1x 2.5" SATA HDD/SSD (optional) 1x full length Mini PCIe for mSATA SSD	
I/O Ports		
USB	4x USB 2.0 M12	
Serial	2x COM (supports RS-232) M12	
Ethernet	2x GbE LAN M12	
Expansion Slot		
Mini PCIe	1x full length Mini PCIe for Wi-Fi 1x full length Mini PCIe for mSATA	
RF Communication	1	
Wi-Fi	Mini PCIe expansion (optional)	
Cellular	Mini PCIe expansion (optional)	
Bluetooth	Mini PCIe expansion (optional)	
Power		
Bution	YES	
DC Input	9-36VDC	
Power Connector	3-pin M12	
Power Consumption	23W	
Power Adaptor	AC-DC, 12V@5A, 60W	
Operating System		
Windows	Windows 10, Windows 11	
Mechanical		
Dimensions (W x D x H)	362 x 286 x 52 mm (14.26 x 11.26 x 2.04 inches)	
Weight (N.W.)	5.7 kg (12.57 lbs)	
Mounting	Wall mount bracket VESA 100	

Material	Stainless Steel	
Environment		
Operating Temperature	-10 to 50°C (14 to 122°F)	
Storage Temperature	-20 to 60°C (-4 to 140°F)	
Relative Humidity	10% to 95% @ 40°C (104°F), non-condensing	
Vibration	5-500Hz, 0.026 G ² /Hz, 2.16 Grms, X, Y, Z, 1 hour per axis	
IP Rating	IP66 compliant (for front panel)	
Certification		
EMC	CE, FCC	
Packing List		
Packing	1x SPC-9150 1x AC-DC power adapter 1x warranty card	

Chapter 3. Jumper and Installation Instructions

3. Jumper and Installation instructions

3.1 Safety Precautions

- 1. Follow these safety precautions when installing the motherboard
- 2. Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- 3. Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- 4. Leave components in the static-proof bags they came in
- 5. Hold all circuit boards by the edges. Do not bend circuit boards Attention:
- 6. Please make sure to choose appropriate screws and use the correct installation method, otherwise it may damage the motherboard.
- 7. How to identify the first pin of the jumper or interface, observe the text mark next to the plug and socket, which will be represented by a triangle symbol or "1" or bold lines; Look at the solder pad on the back. The square solder pad is the first pin. When inserting the device and connecting wires, pay attention to distinguishing the first pin, otherwise it may damage the motherboard

3.2 Schematic Diagram of Interface Location



Reminder:

The working voltage of LVDS screen supports 3.3V, 5V, and 12V voltage outputs, with a default value of 3.3V. Before using LVDS, please understand its required rated working voltage before setting it.

Reminder:

How to identify alarm sounds: (A long beep indicates a system memory error; a short 'beep' indicates a power on sound).

3.3 Installation Steps

Please follow these steps to assemble your computer:

- 1. Refer to the user manual and adjust all Jumpers on the EHL35 correctly.
- 2. Install other expansion cards.
- 3. Connect all signal lines, cables, panel control lines, and power supplies.
- 4. Start the computer and complete the setup of the BIOS program.

3.4 Memory Installation

This motherboard is equipped with 1x SO-DIMM slots. Please note the following two points when installing a memory module:

During installation, align the notch of the memory module with the notch of the slot and then firmly insert it.

When selecting a memory module, you must select a memory module that supports the specifications of this motherboard.

3.5 Jumper Function Settings

Before installing hardware devices, please set the corresponding jumpers according to the table below according to your needs.

Tip: How to identify the first pin of the jumper or interface, observe the text mark next to the plug and socket, and use "1" or add

Thick lines or triangular symbols represent; Look at the solder pad on the back, the square solder pad is the first pin; All jumper pins There is a white arrow on either side.

3.6 Display Interface

Equipped with one HDMI 2.0b interface (supporting HDCP2.3) and one DP1.4 interface on the board, supporting up to 4K 60Hz; one

Supports LVDS pins with a maximum resolution of 1920x1080 24 bits (this pin can be optionally used as EDP).

LVDS (silk screen printing: EDP/LVDS, L-BKL, L_VCC/BKL)

When configured with LVDS function, the "EDP/LVDS" pin transmits LVDS signals, and the "L-BKL" pin is used for backlight adjustment,

The "L_VCC/BKL" pin is used to regulate the working voltage of the screen

signal	Pin	Pin	signal
VCC	1	2	VCC
VCC	3	4	GND
GND	5	6	GND
A_DATA0_DN	7	8	A_DATA0_DP
A_DATA1_DN	9	10	A_DATA1_DP
A_DATA2_DN	11	12	A_DATA2_DP
GND	13	14	GND
A_CLK_DN	15	16	A_CLK_DP
A_DATA3_DN	17	18	A_DATA3_DP
B_DATA0_DN	19	20	B_DATA0_DP
B_DATA1_DN	21	22	B_DATA1_DP
B_DATA2_DN	23	24	B_DATA2_DP
GND	25	26	GND
B_CLK_DN	27	28	B_CLK_DP
B_DATA3_DN	29	30	B_DATA3_DP

LVDS data pin (silk screen: EDP/LVDS)

LVDS backlight pin (silk screen: L-BKL)

Pin	signal
1	GND
2	GND
3	LCD_BKL_ADJ
4	LCD_BKL_ON
5	12V
6	12V

0		
Interface	setting	function
1-3 short circuit	Close	VCC(+3.3V)
3-5 short circuit	Close	VCC(+5V)
2-4 short circuit	Close	REV (Backlight Control Flip)
4-6 short circuit	Close	STD (Backlight Control Forward)

LVDS working mode pin (silk screen: L VCC/BKL)

Attention: The LVDS screen power supply is made into a jumper, which can be flexibly adjusted between 5V/3.3V. Customer Root

According to the voltage parameters of the LVDS screen, use jumper caps to short-circuit the voltage pins that meet the requirements (it is strictly prohibited to short-circuit different voltages at the same time)

Insert the pin).

3.7 Storage ports

The board supports one mSATA interface, which also supports 4G modules and comes with a standard Micro SIM card slot; 1 SATA

Interface and provide one PWSATA power socket (with a spacing of 2.0mm).

Pin	signal
1	5V
2	GND
3	GND
4	12V

SATA power supply definition (silk screen: PWSATA):

3.8 Expansion Slot

Provide 1 M.2 slot Key E on the board, supporting 2230

3.9 USB interface

Equipped with 4 USB 3.2 Gen2 sockets and 4 USB 2.0 pins (spaced 2.0mm apart) on the board

signal	Pin	Pin	signal
VCC 5V	1	2	VCC 5V
USB DATA-	3	4	USB DATA-
USB DATA+	5	6	USB DATA+
GND	7	8	GND
NC	9	10	/

Built in USB 2.0 pins (silk screened: USB 20, USB 21)

3.10 USB interface

The motherboard adopts high-performance Gigabit Ethernet control chip Raeltek 8111H, providing 2 RJ45 ports and supporting network

Awakening (Magic packet wake up); LAN1 also supports PCIe network booting.

Port LED status indicator:

LILED (green) status	function	ACTLED (orange) status	function
Always on	network link	flashing	Perform data transmission

3.11 Serial port

The board is equipped with built-in serial port pins (2.0mm spacing), providing 6 RS232 serial ports (COM5, COM6 can be optionally equipped with RS485);

The serial port (silk screen COM14) is live and carries the same voltage as the input voltage of the motherboard.

RS232 serial port (silk screen: COM14):

signal	Pin	Pin	signal
DCD#	1	2	RXD
TXD	3	4	DTR#
GND	5	6	DSR#
RTS#	7	8	CTS#
RI#	9	10	VCC
DCD#	11	12	RXD
TXD	13	14	DTR#
GND	15	16	DSR#
RTS#	17	18	CTS#
RI#	19	20	VCC
DCD#	21	22	RXD
TXD	23	24	DTR#
GND	25	26	DSR#
RTS#	27	28	CTS#
RI#	29	30	VCC
DCD#	31	32	RXD
TXD	33	34	DTR#
GND	35	36	DSR#
RTS#	37	38	CTS#
RI#	39	40	VCC

signal	Pin	Pin	signal
NC	1	2	NC
RX5	3	4	RX6
GND	5	6	GND
TX5	7	8	TX6
NC	9	10	(NC)

COM5-6 default RS232 definition (silk screen: COM5-6)

COM5-6 default RS232 definition (silk screen: COM5-6)

signal	Pin	Pin	signal
COM5_DATA-	1	2	COM6_DATA-
COM5_DATA+	3	4	COM6_DATA+
GND	5	6	GND
NC	7	8	NC
NC	9	10	(NC)

3.12 GPIO (silk screen: GPIO)

The board provides a 2x5Pin GPIO pin (2.0mm spacing) with a total of 8 programmable input/output ports.

GPIO (screen printing: GPIO)

signal	Pin	Pin	signal
SIO_GP70	1	2	3.3V
SIO_GP71	3	4	SIO_GP74
SIO_GP72	5	6	SIO_GP75
SIO_GP73	7	8	SIO_GP76
GND	9	10	SIO_GP

3.13 Mainboard power supply (silk screen printing: PWR2)

The motherboard provides one DC power interface (5.5mm * 2.5mm) and one 1 * 4PIN power interface; Support the use of 12V

Powered by a DC adapter.

PWR2 (silk screen printing: PWR2)

Pin	signal
1	VCC
2	VCC
3	GND
4	GND

3.14 Power on/off button/indicator light pin (silk screen: JPOWER)

The motherboard provides one set of switch buttons with 2.0mm spacing pins, which can be connected to one power on/off button and one system reset button, 1 hard disk read/write indicator light, 1 power on indicator light.

signal	Pin	Pin	signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
RSTBTN-	5	6	PWR_ON+
RSTBTN+	7	8	PWR_ON-
NC	9	10	NC

JPOWER (silk screen printing: JPOWER)

3.15 Audio interface (silk screen: AUDIO, JAUD)

Using Realtek audio control chip, providing one 3.5mm Line_out/MIC_in 2-in-1 jack (CTIA) American standard), 1 built-in dual channel amplifier output socket for connecting passive speakers.

2-in-1 headphone jack:



Amplifier output socket (silk screen: JAUD):

Pin	signal
1	L+
2	L-
3	R-
4	R+

3.16 Hardware call auto start (screen printing: JAT)

JAT (silk screen printing: JAT)

SET	JAT
Close	Hardware call auto start

It should be noted that this jumper function is similar to the "State After G3" function in BIOS, when the latter is set to

When set to "S0 State", the host will also start automatically when powered on after power off

3.17 Hardware call auto start (screen printing: JAT)

CMOS is powered by button batteries on the board. Clearing CMOS will permanently erase previous system settings and reset them to their original state

(Factory settings) System settings.

Step:

(1) Turn off the computer and disconnect the power supply;

(2) Press and hold the CLR_CMOS button for about 10 seconds, then disconnect;

(3) When starting the computer, press thekey to enter the BIOS, load the optimal default values, and save the exit settings.

CMOS (screen printing: CLR_CMOS)

SET	CLR_CMOS
Close	Clear CMOS content

Please do not clear the CMOS when the computer is powered on to avoid damaging the motherboard.

Chapter 4. System Utilities

4.System Utilities

BIOS (Basic Input and Output System) records the setting parameters of various hardware devices in the system through the CMOS chip on the motherboard BIOS includes a BIOS setup program for users to set system parameters as needed to ensure that the motherboard functions properly or performs specific functions

The relevant settings modified through the BIOS Setup program (except for date and time) are saved in the flash memory of the system. The power required to memorize CMOS data is supplied by the battery on the motherboard. Therefore, when the system power is turned off, these data will not be lost. When the power is turned on again, the system can read these set data When unable to access the Setup interface due to incorrect operation, to restore factory settings, please short circuit JBAT1 2 and 3 pins to clear CMOS content

Attention! The BIOS settings directly affect the performance of the computer. Setting incorrect parameters can cause damage to the computer and even prevent it from turning on. Please use the built-in default values in the BIOS to restore normal system operation

Due to the slight differences in the settings interface between different products of our company, the following screen is for your reference and may not be completely the same as the BIOS setup program you are currently using

4.1 BIOS Basic Function Settings

4.1.1 Enter the BIOS interface

Follow these steps to enter the BIOS interface

1. Turn on the power and the display screen will display a POST interface

2. When the prompt "Pressor<ESC>to enter setup" appears on the screen, pressor

<ESC>key to enter the BIOS setup program

4. Use the arrow keys and<Enter>key to modify the value of the selected item. Press Enter to select the BIOS option and modify it

5. Use<Esc>to exit the main menu without saving changes, submenu to exit the current page and return to the main menu

6. <Page Up/+>Add numerical values or change

<Page Down/->Reduce numerical values or change

<F1>Settings submenu help

<F9>Set to default value (optimized to factory settings)

<F10>Save BIOS settings

Note: 1. For BIOS that supports hard disk UEFI mode, hard disk information cannot be seen in BBS, but it can be viewed in SATA Configure in BIOS to access the hard disk information. The following are the details



2. After installing the UEFI system, you can view the system boot information ex: Windows Boot Manager (hard disk information) in BBS

Please select boot device: UEFI: Built-in EFI Shell Windows Boot Manager Enter Setup ↑ and ↓ to move selection ENTER to select boot device ESC to boot using defaults

4.2 MIAN Menu (BIOS information and time date)

Main Advanced Chinset	Aptio Setup - AMI Security Boot Save & Exit	
indian increased chapset		
BIOS Information		A
BIOS Vendor	American Megatrends	
BIOS Version	EHL35T101	
Build Date and Time	05/06/2022 09:48:31	
Access Level	Administrator	
Compute Die Information		
Name	ElkhartLake ULX	
Туре	Intel(R) Celeron(R)	
	J6412 @ 2.00GHz	
Speed	2000 MHz	
ID	0x90661	
Stepping	BO	
Package	Not Implemented Yet	++: Select Screen
Number of Processors	4Core(s) / 4Thread(s)	1↓: Select Item
Microcode Revision	15	Enter: Select
GT Info	GT2 (0×4555)	+/-: Change Opt.
		F1: General Help
Total Memory	32768 MB	F2: Previous Values
Memory Data Rate	2667 MTPS	F9: Optimized Defaults
		F10: Save & Exit
PCH Information		ESC: Exit
Name	EHL PCH	
PCH SKU	MCC SKU O	
Stepping	81	•

- 1. BIOS ID: BIOS version
- 2. Build Date and Time: BIOS time date
- 3. System Date:
- 4. Set the current date. Expressed in month/day/year format. The setting range is: Month/Month (Jan. Dec.),
- 5. Date/day (01-31), Year/year (up to 2099), Week/week (Mon. to Sun.). System Time:
- 6. Set the current time. Represented in hours/minutes/seconds format. The setting range is: Hour/hour (00-23), Minute/minute (00-59), Second/second (00-59).

4.3Advance (Advanced Menu Settings)

Main Advanced Chipset Security	Aptio Setup - AMI Boot Save & Exit	
 CPU Configuration Power & Performance PCH-FW Configuration Thermal Configuration Trusted Computing ACPI Settings IT8786 Super IO Configuration Hardware Monitor Smart Fan Function Hatch Dog Configuration SS RTC Hake Settings AHI Graphic Output Protocol Policy USB Configuration Network Stack Configuration NVMe Configuration TIs Auth Configuration 		CPU Configuration Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

- 1) Power & Configuration:
- 2) PCH-FW Configuration:
- 3) Thermal Configuration:
- 4) Trusted Computing:
- 5) ACPI settings:
- 6) IT8786 Super IO Configuration:
- 7) Hardware Monitor:
- 8) Smart Fan Function:
- 9) Watch Dog Configuration:
- 10) S5 RTC Wake Settings:
- 11) AMI Graphic Output Protocol Policy:
- 12) USB Configuration:
- 13) Network Stack Configuration:
- 14) NVME Configuration:
- 15) TIs Auth Configuration:

4.4Power & Configuration

Advanced Advanced	Setup - AHI
Power & Performance > CPU - Power Hanagement Control > GT - Power Management Control	CPU - Power Management Control Options
	<pre>++: Select Screen T4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.22.1282	Copyright (C) 2022 AMI

- 1) CPU-Power Management Control:
- 2) GT-Power Management Conteol:

4.5 CPU-Power Management Control

Advanced	Aptio Setup - AHI	
CPU – Power Management Control		▲ Select the performance state that the BIOS will set
PO Fused Max Core Ratio	N/A	starting from reset vector.
P1 Fused Max Core Ratio	N/A	
P2 Fused Max Core Ratio	NZA	
P3 Fused Max Core Ratio	N/A	
Boot performance mode		
<pre>Intel(R) SpeedStep(tm)</pre>	[Enabled]	
Race To Halt (RTH)	[Enabled]	
Intel(R) Speed Shift Technology	[Enabled]	
Hup Autonomous EPP Grouping	[Enabled]	
EPB override over PECI	[Disabled]	
HwP Fast MSR Support	[Enabled]	++: Select Screen
HDC Control	[Enabled]	11: Select Item
Turbo Mode	[Enabled]	Enter: Select
View/Configure Turbo Options		+/-: Change Opt.
CPU VR Settings		F1: General Help
Platform PL1 Enable	[Disabled]	F2: Previous Values
Platform PL2 Enable	[Disabled]	F9: Optimized Defaults
Power Limit 4 Override	[Disabled]	F10: Save & Exit
C states	[Enabled]	ESC: Exit
Enhanced C-states	[Enabled]	
C-State Auto Demotion	[C1]	
C-State Un-demotion	[01]	
o orace on democran		

Intel's CPU automatically adjusts voltage and harmonics based on usage to reduce power consumption and heat generation

SpeedStep, a dynamic voltage frequency switching technology proposed by Intel, can dynamically adjust the operation of processors

Frequency and voltage can reduce system power consumption and processor operating temperature when processor load is low

When the load on the processor is high, it runs at full speed to provide all performance, and is turned on by default (Enabled).

3) Turbo Mode

TurboMode is the Turbo mode acceleration, referring to the "Integrated PowerGate" power source management based on Nehalem

Technology. This mode allows certain cores to be turned off and power to other cores to operate at a higher frequency

Okay, the capacity of the entire CPU remains unchanged, which can optimize the efficiency of the

CPU. It is enabled by default.

4) C states

C-States starts from C0, which is the normal operating mode of the CPU and the CPU is in a 100% running state. The number after C

The higher it is, the deeper the CPU sleeps, the more the power consumption of the CPU is reduced, and it takes more time to return to C0 mode,

C1 to C3 cut off the internal clock of the CPU, while C4 to C6 modes reduce the voltage of the CPU by default (Enabled)

Open it.

5) Enhanced C states

C1 to C3 cut off the internal clock of the CPU, while C4 to C6 modes reduce the voltage of the CPU. Both methods are used for the 'Enhanced' mode, which is enabled by default.

4.6 GT-Power Management Control



1) Maximum GT frequency:

The maximum limit frequency of the graphics card is set to the default maximum

2) Disable Turbo GT frequency:

Disable the turbo mode of the graphics card by default (Disabled)

4.7 Thermal Configuration

Advanced	Aptio Setup - AMI	
Thermal Configuration Enoble All Thermal Functions • CPU Thermal Configuration • Platform Thermal Configuration • DPTF Configuration	(Cisabiliti)	Enable All Thermal Functions" is Enabled it Enables 'Memory Thermal Management', 'Active Trip Points', 'Critical Trip Points'.Set to disabled for Manual Configuration
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version	2.22.1282 Convright (C) 2022	AMI

1) Enable All Thermal Functions: Enable all thermal function options

2) CPU Thermal Configuration: CPU Thermal Configuration

This unlocks the temperature wall, where Tcc Activation Offset is the temperature wall modification option, with the highest temperature

It is 105 $^{\circ}$ C, and the modified number is a subtraction (for example: filling in 0 is 105-0 to set the 105 $^{\circ}$ C temperature wall; filling in 20 is...)

- 105-20 setting 85 °C temperature wall)
- 3) Platform Thermal Configuration: Platform Thermal Settings
- 4) DPTF Configuration: DPTF Settings

4.8 ACPI Settings

Aptio Setup - AMI Advanced		
ACPI Settings		Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation ACPI Sleep State	[Enabled] [S3 (Suspend to RAM)]	
		the Select Separa
		11: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F9: Optimized Defaults
		F10: Save & Exit ESC: Exit

1) Enable ACPI Auto Configuration: The meaning of allowing ACPI auto configuration, disabled by default

close

2) Enable Hibernation: Enable hibernation

3) ACPI Sleep State: Set the power-saving mode of the ACPI function in conjunction with the operating system, and configure different sleep functions

4.9 IT8786 Super IO Configuration (IT8786 Super IO 设置)

Aptio Setup -	АМІ
IT8786 Super IO Configuration Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Serial Port 5 Configuration Serial Port 6 Configuration	Set Parameters of Serial Port 1 (COMA)
	++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1282 Copyris	(C) 2022 AMI

Serial Port 1-6 Configuration: Serial Port 1-6 Configuration

Serial Port: Enable or disable the motherboard serial port

Device Setting (read-only): displays interrupts and addresses of the serial port

Change Setting: This option is used to change the serial port settings. It is recommended to select Auto by def

4.10 Hardware Monitor

Advanced	Aptio Setup - AMI	
Pc Health Status		
CPU temperature System temperature VCOre VDDQ 3.3V 5V	: +35 °C : +26 °C : +1.661 V : +1.210 V : +3.287 V : +5.004 V	<pre>**: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
	Version 2.22.1282 Copyright (C)	2022 AMI

Hardware security detection status

PC Health Status

Hardware security detection, displaying the current system temperature, CPU temperature, fan speed, and other related voltage values. above

The parameters have a certain range, and the system cannot operate beyond these ranges

- 1) CPU temperature: CPU temperature
- 2) System temperature: System temperature
- 3) Vcore: Core voltage
- 4) VDDQ: Memory Voltage
- 5) +3.3V: 3.3V voltage
- 6) +5V: 5V voltage

4.11 USB Configuration

Advanced	Aptio Setup - AMI	
USB Configuration		Enables Legacy USB support.
USB Module Version	25	support if no USB devices are connected. DISABLE option will
USB Controllers: 1 XHCI		keep USB devices available
USB Devices: 1 Keyboard, 1 Mouse		
Legacy USB Support		
XHCI Hand-off	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		++: Select Screen
USB transfer time-out	[20 sec]	14: Select Item
Device reset time-out	[20 sec]	Enter: Select
Device power-up delay	[Auto]	+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit
Vancion	2 22 1202 Conuniabt (c) 202	ANT

1) Legacy USB Support

This item is used to set USB interface support. If USB devices such as USB drives and USB keys need to be supported under UEFI

For disks, set this option to [Enabled], otherwise select [Disabled]

2) XHCI Hand-off

Is the USB XCHI transfer protocol enabled

3) USB Mass Storage Driver Support

USB mass storage devices support switches, set to enabled

4) USB transfer time-out

USB transfer timeout: Set timeout times for control, batch, and interrupt transfers, default is 20 seconds

5) Device reset time-out

Device reset timeout: Set the timeout time for the startup command of the large capacity USB drive. The default is 20 second

6) Device Power-up Delay

Device power on delay: Set the maximum delay time for USB devices to report to the main controller

4.12 Chipset

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit	
 System Agent (SA) Configuration PCH-IO Configuration 	System Agent (SA) Parameters
	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.22.1282 Copyright (C)	2022 AMI

- 1) System Agent (SA) Configuration
- 2) PCH-IO Configuration

4.13 State After G3



1. 1) State After G3 is set to: S0 State (power on self start), default S5 State (power on shutdown)

4.14 Security

Main Advanced Chipset Secur	Aptio Setup - AM ity Boot Save & Exit	I
Password Description If ONLY the Administrator's pas then this only limits access to only asked for when entering Se If ONLY the User's password is is a power on password and must boot or enter Setup. In Setup t have Administrator rights. The password length must be in the following range: Minimum length	sword is set, Setup and is tup. set, then this be entered to he User will 1	Set Administrator Password
Maximum length Administrator Possword User Password Secure Boot	20	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

- 1) Administrator Password
- 2) User Password
- 3) Secure Boot

4.15 Boot

Main Advanced Chipset Security	Aptio Setup - AMI Boot Save & Exit	
Boot Configuration Setup Promot Timeout Bootup NumLock State Show Full Logo	<mark>1</mark> [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
FIXED BOOT ORDER Priorities Boot Option #1	[Hard Disk:Windows Boot Manager (PO: KINGSTON RBUSNS4180536461)]	
Boot Option #2 Boot Option #3 Boot Option #4	[CD/DVD] [SD] [USB Device:UEFI: KingstonDataTraveler 2 01 00 Partition 1]	++: Select Screen
Boot Option #5 Boot Option #6	[Network] [UEFI AP:UEFI: Built-in EFI Shell]	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values
 UEFI Hard Disk Drive BBS Priorities UEFI USB Drive BBS Priorities UEFI Application Boot Priorities 		F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version	2.22.1282 Copyright (C) 2	D22 AMT

1) Setup Prompt Timeout: Set the screen wait time for startup and prompt the wait time for pressing the Delete shortcut key,

If the Delete shortcut key is not pressed within the set time, continue to start

2) Bootup NumLock State: This feature allows the activation of the numeric lock function on the keypad after the system is powered on to the DOS system.

The default value is On, which means the system is in digital lock mode when starting up; Set to Off, the keypad is in cursor control mode when starting

- 3) Show Full Logo: Display the complete logo (Disabled is off, Enabled is on)
- 4) Boot Options # 1~# 6: Startup Item Sequence 1~6
- 5) UEFI Hard Disk Drive BBS priorities: UEFI hard disk drive boot priority settings
- 6) UEFI USB Drive BBS priorities: UEFI USB device boot priority settings
- 7) UEFI Application Boot Priorities: UEFI application boot priorities

4.16 Save & Exit

Aptio Setup - AMI Main Advanced Chipset Security Boot Save & Exit	
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Discard Changes Discard Changes Discard Changes Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Override Windows Boot Manager (PO: KINGSTON RBUSNS4180S3646J) UEFI: KingstonDataTraveler 2.01.00, Partition 1 (KingstonDataTraveler 2.01.00) UEFI: Built-in EFI Shell Launch EFI Shell from filesystem device	Exit system setup after saving the changes.
Version 2.22.1282 Copyright (C) 2022 AMI

1) Save Changes and Exit: Save BIOS changes and exit the settings interface to continue booting the computer

2) Discard change and Exit: Discard BIOS changes and exit the settings interface to continue booting the computer

3) Save changes and reset: Save BIOS changes and restart

4) Discard changes and Reset: Discard BIOS changes and restart

5) Boot Override: Select the specified boot device, such as SATA hard drive, USB flash drive, EFI Shell, PXE, etc,

Directly start

6) Press F11 to directly select the specified device for startup

Chapter 5. Machine Disassembly and Replacement

5.Machine Disassembly and Replacement

- 1. To disassemble the computer, you need the following tools:
- 2. Wrist grounding strap and conductive mat for preventing electrostatic discharge.
- 3. Wire cutter.
- 4. Phillips screwdriver (may require different size).

NOTE: The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatches when putting back the components.

Chapter 6. Standard Assembly Process

6.Standard Assembly Process

6.1 LCD Assemble

6.1.1 Assemble the LCD bracket



6.2 Assemble the M/B





Chapter 7. Appendix

7.Appendix

7.1 Material List

CATEGORY	PARTNAME	PART NO.
Structure		
	SPC-9150-Front Frame	A.03.001.002065
	SPC-9150-LCD Bracket	A.03.002.000937
	SPC-9150-Motherboard Bracket	A.03.002.000938
	SPC-9150-Thermal Block	A.03.002.000939
	SPC-9150-Rear Cover	A.03.001.002066



CATEGORY	PARTNAME	ACER PART NO.		
SDD/ MEMORY				
	SSE128GTLC9-SB	C.02.002.000183		
	DDR4,8G	C.02.002.000230		

CATEGORY	PARTNAME	ACER PART NO.		
POWER SUPPLY/ POWER CORD				
	3CZ01029276,220VAC Input, 24VDC/3.75A 90.W Output, Huntkey HKA12024038-7B,M12 Connector	C.02.009.000175		
	POWER Cable	C.02.099.000010		



Darveen Co., Ltd. Email: sales@darveen.com www.darveen.com Darveen Co., Ltd. All Rights Reserved