MITAC Desktop Board PH13FEI
Product Guide

Desktop Board Features

This chapter briefly describes the features of Desktop Board PH13FEI. Table 1 summarizes the major features of the Desktop Board.

Feature Summary

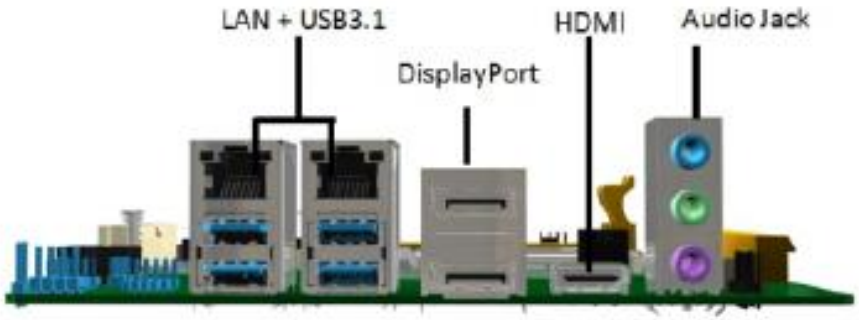
Form Factor	Mini-ITX (170mm x 170mm)	
Processor	CPU Type : Intel 8th Desktop platform CPU Core : Dual Core / Quad Core / Hexa core Socket : Socket LGA1151 TDP : Support up to 95W CPU types	
Chipset	Chipset Series : Intel Q370 Chipset Chipset Series : Intel H310 Chipset	
Memory	Memory Type: DDR4 @ 1.2V, 2666/2400MHz (Unbuffered Non-ECC) Memory Channel: Dual Channel Memory Capacity : Support total up to 32 GB ECC Support : No	
	Memory Socket: 260-pin So-DIMM socket	2
Display	DisplayPort & HDMI connector 40P Embedded LVDS/(colay eDP)	
Audio	Codec: HD audio codec, Realtek ALC662 1 x front audio Header (Mic/HP) 1 x stack port (line in, line out, min in) 1 x audio header to support system stereo speaker	
Expansion Capability	PCIe 3.0 x 16 slot	1
	M.2 2280 M key (Q370: PCIexX2, SATA) (H310: SATA)	1
	M.2 2230 E key (PCIe, USB)	1
Internal IO	USB 2.0 ports / USB3.0 ports	2 / 2 (Q370) 2 / 0 (H310)
	Serial ports	4
	SATAIII 6Gb/s	3 (H310) 4 (Q370)
Legacy I/O	Nuvoton NCT6116D	
LAN Support	Intel® I219 Gigabit (10/100/1000 Mb/s) LAN Intel® I211 Gigabit (10/100/1000 Mb/s) LAN	
BIOS	Support for Advanced Configuration and Power Interface (ACPI) setting	
Instantly Available PC Technology	Suspend to RAM support Wake on LAN, and USB ports	

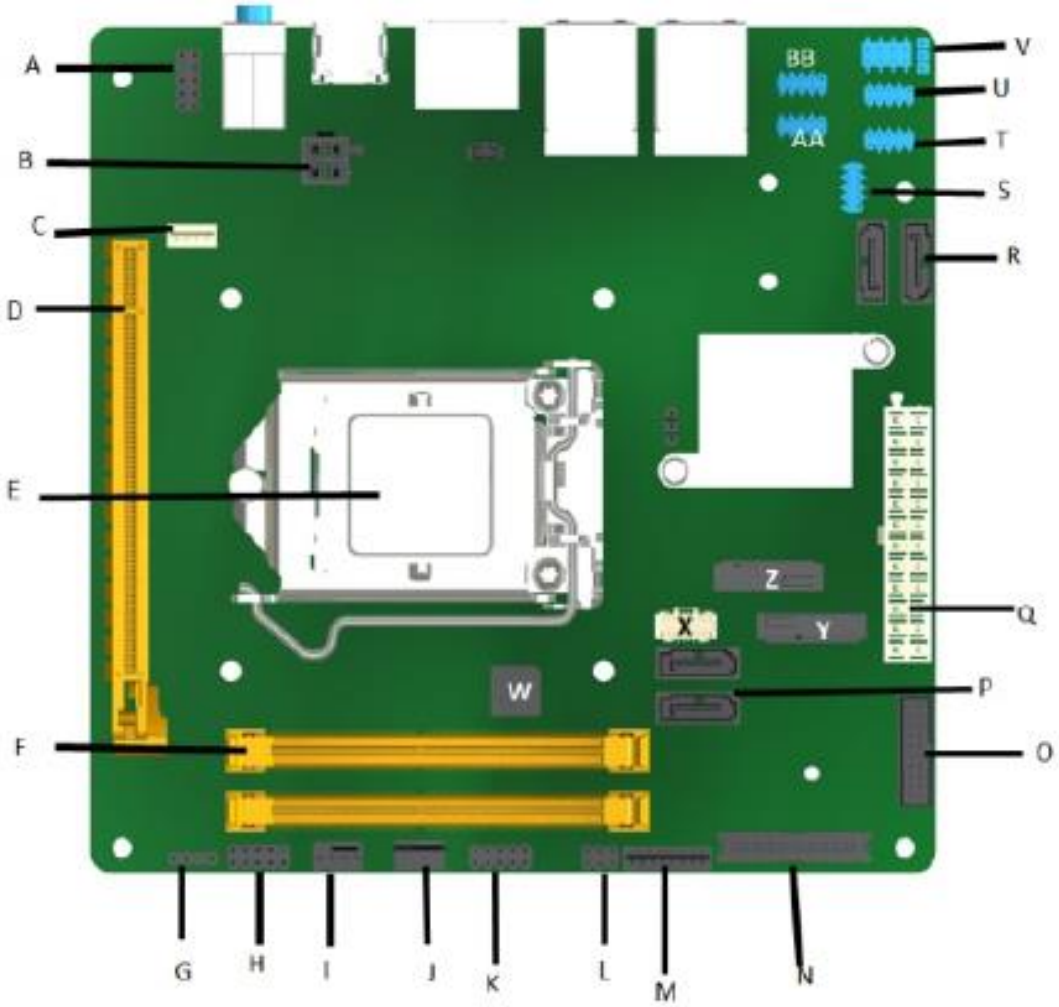
Hardware Monitor Subsystem	Hardware monitoring through the Nuvoton6116D legacy I/O controller, including: Remote thermal sensor Speed control for 4-pin system fan header and 4-pin CPU fan header
Power Requirement	ATX 24pin power + ATX 4pin Power (5VSB)
Environment	Operating Temperature: 0 °C to +60 °C Storage Temperature: -20°C to +70°C
Safety	CE FCC

TABLE 1. MITAC DESKTOP BOARD PH13FEI FEATURES

Desktop Board Components

Figure 1 shows the approximate location of the major components on the top side of MITAC Desktop Board PH13FEI.





A	Front Audio Header
B	ATX4P
C	Internal speaker header
D	PCIEx16 slot
E	LGA 1151 CPU socket
F	DDR4 SODIMM slot
G	SPDIF Header
H	Front I/O Header
I	System FAN Header
J	CPU FAN Header
K	Dual USB2.0 Header
L	Panel Power selection Header
M	Backlight Header
N	LVDS Header
O	USB3.1 Header
P	SATA
Q	ATX 24pin
R	SATA
S	LPC Header
T	COM Port Header (RS232)
U	COM Port Header (RS232/422/485)
V	AT/ATX mode Header
W	Buzzer
X	MiAPI Header
Y	M.2 E key 2230
Z	M.2 M key 2260/2280
AA	COM Port Header (RS232)
BB	COM Port Header (RS232)

TABLE 2. MITAC DESKTOP BOARD PH13FEI COMPONENTS (SHOWN IN FIGURE 1)

Processor

The board supports 8th generation Intel Core processors. Other processors may be supported in the future. This board supports processors with a maximum wattage of 95 W Thermal Design Power (TDP).

NOTE

This board has specific requirements for providing power to the processor. Additional power required will depend on configurations chosen by the integrator.

System Memory

NOTE

To be fully compliant with all applicable DDR SDRAM memory specifications, the board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. This allows the BIOS to read the SPD data and program the chipset to accurately configure memory settings for optimum performance. If non-SPD memory is installed, the BIOS will attempt to correctly configure the memory settings, but performance and reliability may be impacted or the DIMMs may not function under the determined frequency.

The Desktop Board has two 260-pin DDR4 SO-DIMM sockets with gold-plated contacts.

Connecting to the Internal Headers and Connectors

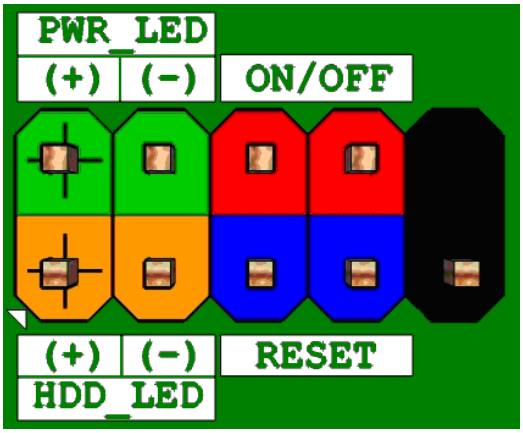


Figure 1 : Front Panel Connector

Pin	Signal Name	Description	Pin	Signal Name	Description
1	HDD_POWER_LED	Pull-up resistor (750) to +5V	2	POWER_LED_MAIN	[Out] Front panel LED (main color)
3	HDD_LED#	[Out] Hard disk activity LED	4	POWER_LED_ALT	[Out] Front panel LED (alt color)
5	GROUND	Ground	6	POWER_SWITCH#	[In] Power switch
7	RESET_SWITCH#	Reset switch	8	GROUND	Ground
9	+5V_DC	Power	10	KEY	No pin

Table 1: Front Panel Connector

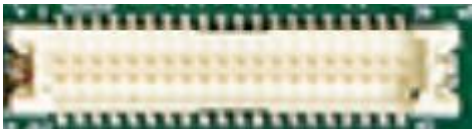


Figure 2: LVDS Connector

Joint Tech / maker P/N : A1252WV-SF-2X20PD01

(alternative Xianyi / maker P/N : W2631-40P-R3211)

LVDS(40pin)			
Pin	Net Name	Pin	Net Name
1	VCC3	21	LVDS1_LINK1_CON_DP
2	Panel Power	22	LVDS1_LINK0_CON_DP
3	VCC3	23	LVDS1_LINK1_CON_DN
4	Panel Power	24	LVDS1_LINK0_CON_DN
5	LVDS_DDC_SCL	25	GND
6	LVDS_DDC_SDA	26	GND
7	GND (CABLE_ID1)	27	LVDS1_LINK3_CON_DP
8	GND	28	LVDS1_LINK2_CON_DP
9	LVDS0_LINK1_CON_DP	29	LVDS1_LINK3_CON_DN
10	LVDS0_LINK0_CON_DP	30	LVDS1_LINK2_CON_DN
11	LVDS0_LINK1_CON_DN	31	GND
12	LVDS0_LINK0_CON_DN	32	GND
13	GND	33	LVDS1_CLK_CON_DP
14	GND	34	LVDS0_CLK_CON_DP
15	LVDS0_LINK3_CON_DP	35	LVDS1_CLK_CON_DN
16	LVDS0_LINK2_CON_DP	36	LVDS0_CLK_CON_DN
17	LVDS0_LINK3_CON_DN	37	GND
18	LVDS0_LINK2_CON_DN	38	GND
19	GND	39	+12V
20	GND	40	+12V

Table 2: 40-pin LVDS data header pin-out reference

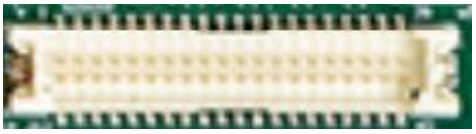


Figure 3: eDP Connector

Joint Tech / maker P/N : A1252WV-SF-2X20PD01

(Alternative Xianyi / maker P/N : W2631-40P-R3211)

eDP(40pin)			
Pin	Net Name	Pin	Net Name
1	VCC3	21	PCH_BL_EN
2	Panel Power	22	PCH_BACKLIGHT_PWM
3	VCC3	23	NC
4	Panel Power	24	NC
5	EDP_CPU_AUXN	25	GND
6	EDP_CPU_AUXP	26	GND
7	GND (CABLE_ID1)	27	NC
8	HPD	28	NC
9	eDP1_DP	29	NC
10	eDP0_DP	30	NC
11	eDP1_DN	31	GND
12	eDP0_DN	32	GND
13	GND	33	NC
14	GND	34	NC
15	eDP3_DP	35	NC
16	eDP2_DP	36	NC
17	eDP3_DN	37	GND
18	eDP2_DN	38	GND
19	GND	39	+12V
20	GND	40	+12V

Table 3: 40-pin eDP data header pin-out reference

Figure 4: LVDS inverter power header pin-out

Grand tech / maker P/N: RWA-411087-R00

(Alternative Aqua tech /maker P/N: L-WA108083R74)

Pin	Signal Name	Description
1	LVDS_BKTEN_R	Backlight enable
2	LVDS_PWM	Backlight PWM control
3	12V/19V	Inverter power
4	12V/19V	Inverter power
5	GND	Ground
6	GND	Ground
7	BRIGHT_UP-	BRIGHTNESS UP
8	BRIGHT_DOWN-	BRIGHTNESS DOWN

Table 4: 8-pin LVDS inverter power header signals

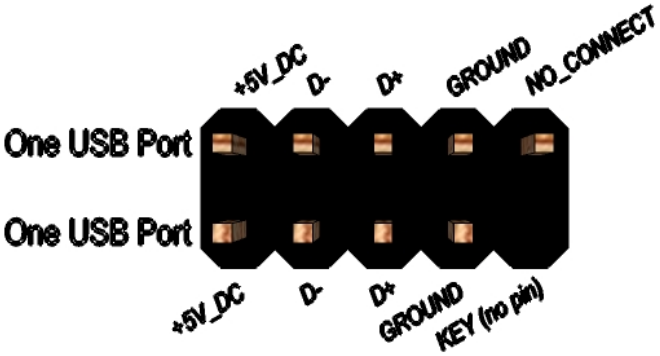


Figure 5: Dual USB2.0 pin-out (pitch 2.54mm)

Pin	Signal	Pin	Signal
1	5V_USB	2	5V_USB
3	Data (negative)	4	Data (negative)
5	Data (positive)	6	Data (positive)
7	Ground	8	Ground
9	Key (no pin)	10	No Connect

Table 5 Dual USB 2.0 Header

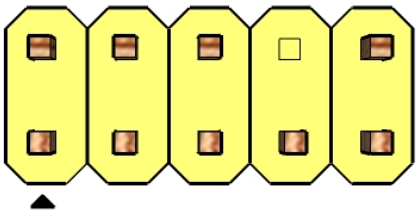


Figure 6: FP Audio pin-out (pitch 2.54mm)

Pin	Signal Name	Description
1	MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	MIC_BIAS	Microphone power / additional MIC input for stereo microphone support
4	Presence	Active low signal that signals bios that an audio dongle is connected to the analog header
5	FP_OUT_R	Right channel audio signal to front panel
6	AUD_GND	Ground used by analog audio circuits
7	Reserved	reserved
8	Key	No pin
9	FP_OUT_L	Left channel audio signal to front panel
10	AUD_GND	Ground used by analog audio circuits

Table 6: FP Audio Header

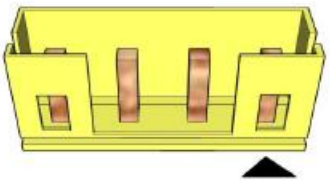


Figure 7: Internal speaker pin-out

Aquatech / maker P/N : L-WA104044Y74

(alternative Grand-tek Tech / maker P/N : HWA-411047-Y00)

Pin	Signal Name
1	Front_L-
2	Front_L+
3	Front_R+
4	Front_R-

Table 7: Internal header signals

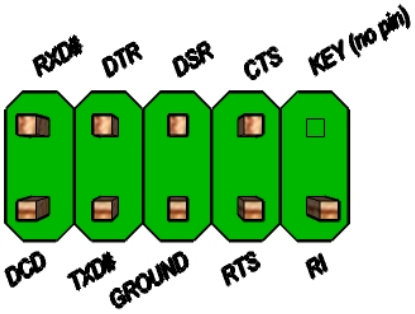


Figure 8: Serial port header pin-out (pitch 2.0mm)

Pin	Signal Name
1	DCD
2	RXD#
3	TXD#
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI
10	Key

Table 8 Serial port header pin-out

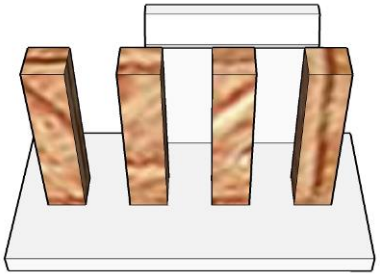


Figure 9 Processor fan header pin-out

Pin	Signal
1	Ground
2	+12V
3	CPU_FAN_TACH
4	CPU_FAN_CTRL

Table 9 fan header signals

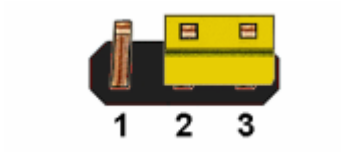


Figure 10: CMOS Clear Header

CMOS Clear

1-2	Clear CMOS
2-3	Normal

Table 10: CMOS Clear behavior

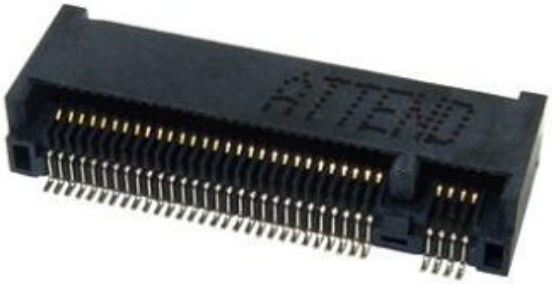


Figure 11: M.2 M key slot For Storage pin-out

74	3.3Vaux	GND	75
72	3.3Vaux	GND	73
70	3.3Vaux	GND	71
68	SUSCLK(32kHz)(O)(0/3.3V)	PEDET(OC-PCIe/GND-SATA)	69
	Connector Key	N/C	67
	Connector Key	Connector Key	
	Connector Key	Connector Key	
	Connector Key	Connector Key	
58	N/C	Connector Key	
56	N/C	GND	57
54	PEWake#(IO){0/3.3V}or N/C	REFCLKP	55
52	PERST#(O)(0/3.3V) or N/C	REFCLKN	53
50	PERST#(O)(0/3.3V) or N/C	GND	51
48	N/C	PETp0/SATA-A+	49
46	N/C	PETn0/SATA-A-	47
44	N/C	GND	45
42	N/C	PERp0/SATA-B-	43
40	N/C	PERn0/SATA-B+	41
38	DEVSLP(O){0/3.3V}	GND	39
36	N/C	PETp1	37
34	N/C	PETn1	35
32	N/C	GND	33
30	N/C	PERp1	31
28	N/C	PERn1	29
26	N/C	GND	27
24	N/C	N/C	25

22	N/C	N/C	23
20	N/C	GND	21
18	3.3Vaux	N/C	19
16	3.3Vaux	N/C	17
14	3.3Vaux	GND	15
12	3.3Vaux	N/C	13
10	DAS/DSS#(I){OD}	N/C	11
8	N/C	GND	9
6	N/C	N/C	7
4	3.3Vaux	N/C	5
2	3.3Vaux	GND	3
		GND	1

Table 11: M.2 M key slot For Storage signals

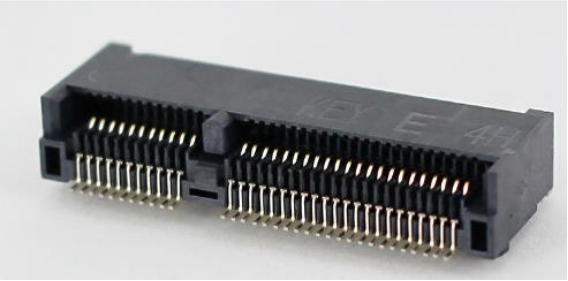


Figure 12: M.2 E key slot For wireless pin-out

	Standard M.2 Key E	LcP Signals	LcP Signals	Standard M.2 Key E	
			GND		75
74	+V3P3A		WT_CLKP	REFCLKN1	73
72	+V3P3A		WT_CLKN	REFCLKP1	71
70	PEWake 1# (IO)(0/3.3V)		GND		69
68	CLKREQ1# (IO)(0/3.3V)		WT_D0P	PERn1	67
66	PERST1# (O)(0/3.3V)		WT_D0N	PERp1	65
64	RESERVED	REFCLK0 (I)(1V@38.4MHz)	GND		63
62	ALERT# (I)(0/1.8)	A4WP_IRQ#	WT_D1P	PETn1	61
60	I2C_CLK (O)(0/1.8V)	A4WP_I2C_CLK	WT_D1N	PETp1	59
58	I2C_DATA (IO)(0/1.8)	A4WP_I2C_DATA	GND		57
56	W_DISABLE1# (O)(0/3.3V)		PEWake0# (IO)(0/3.3V)		55
54	W_DISABLE2# (O)(0/3.3V)		CLKREQ0# (IO)(0/3.3V)		53
52	PERST0# (O)(0/3.3V)		GND		51
50	SUSCLK(32kHz) (O)(0/3.3V)	C_P32K (3.3V Tolerant)	REFCLKN0		49
48	COEX_TXD (O)(0/1.8V)		REFCLKP0		47
46	COEX_RXD (O)(0/1.8V)		GND		45
44	COEX3 (IO)(0/1.8V)		PERn0		43
42	CLink CLK		PERp0		41
40	CLink DATA		GND		39
38	CLink RESET (O)(0/3.3V)		PETn0		37
36	LPSS UART RTS (O)(0/1.8V)	/ BRI_DT (MUX'd in PCH/SoC)	PETp0		35
34	LPSS UART CTS (I)(0/1.8V)	/ RGI_RSP (MUX'd in PCH/SoC)	GND		33
32	LPSS UART Tx (O)(0/1.8V)	/ RGI_DT (MUX'd in PCH/SoC)	Connector Key		E
E	Connector Key		Connector Key		
	Connector Key		Connector Key		
	Connector Key		Connector Key		
	Connector Key		WGR_CLKP	SDIO Reset#(O)(0/1.8V)	23
22	LPSS UART Rx (I)(0/1.8V)	/ BRI_RSP (MUX'd in PCH/SoC)	WGR_CLKN	SDIO Wake#(I)(0/1.8V)	21
20	UART Wake# (I)(0/3.3V)		GND	SDIO DAT3(IO)(0/1.8V)	19
18	GND	GND/LNA_EN (LcP Production)	WGR_D0P	SDIO DAT2(IO)(0/1.8V)	17
16	LED2# (I)(OD)		WGR_D0N	SDIO DAT1(IO)(0/1.8V)	15
14	PCM_OUT (O)(0/1.8V)	/ CLKREQ0 (MUX'd in PCH/SoC)	GND	SDIO DAT0(IO)(0/1.8V)	13
12	PCM_IN (I)(0/1.8V)		WGR_D1P	SDIO CMD(IO)(0/1.8V)	11
10	PCM_SYNC (OI)(0/1.8V)	/RF_RESET_B (MUX'd in PCH/SoC)	WGR_D1N	SDIO CLK(O)(0/1.8V)	9
8	PCM_CLK (OI)(0/1.8V)		GND		7
6	LED1# (I)(OD)		USB_D-		5
4	+V3P3A		USB_D+		3
2	+V3P3A		GND		1

Table 12: M.2 E key slot For wireless signals

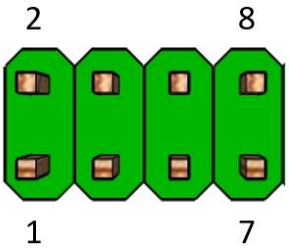


Figure 13: RS422/RS485 termination mode connector Header pin-out (pitch 2.0mm)

Pin	Net name	Pin	Net name
1	RX	2	RXC-PU VCC
3	DCD	4	DCDC- PD
5	TX	6	TXC-PU VCC
7	DTR	8	DTRC-PD

Table 13: RS422/RS485 termination mode Header signals

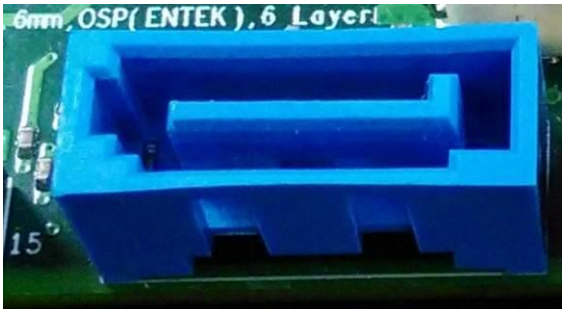


Figure 14: SATA Header pin-out

Pin	Signal Name	Description
1	GND	Ground
2	SATAHDR_TXP0_C	SATA DATA Transmit(positive)
3	SATAHDR_TXN0_C	SATA DATA Transmit(negative)
4	GND	Ground
5	SATAHDR_RXN0_C	SATA DATA Receive(negative)
6	SATAHDR_RXP0_C	SATA DATA Receive(positive)
7	GND	Ground
8	G1	NC
9	G2	NC

Table 14: SATA Header signals

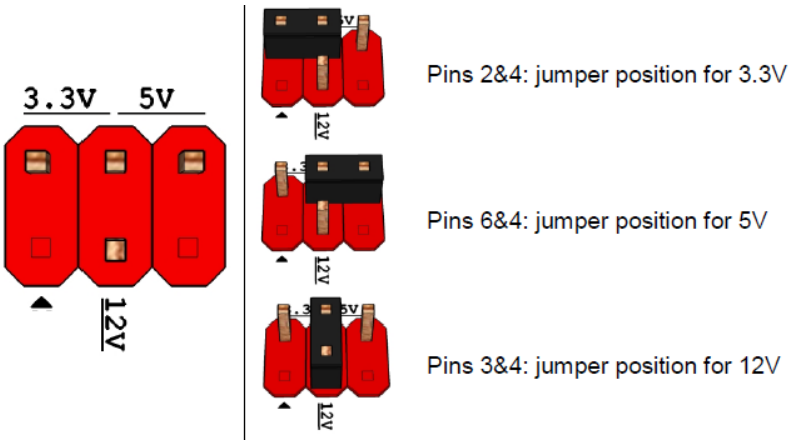


Figure 15: Panel power Header pin-out

Pin	Signal Name	Description
1	Key	No pin
2	3.3V	3.3V option (default)
3	12V	12V option
4	LCD_VCC	Send voltage to connector
5	Key	No pin
6	5V	5V option

Table 15: Panel power Header signal

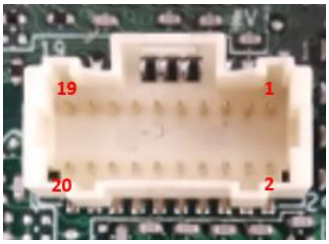


Figure 16: MiAPI Header

Pin	Net name	Pin	Net name
1	MAPI_GPIO1	2	VCC
3	MAPI_GPIO2	4	MAPI_GPIO6
5	MAPI_GPIO3	6	MAPI_GPIO7
7	MAPI_GPIO4	8	MAPI_GPIO8
9	MAPI_GPIO5	10	MAPI_GPIO9
11	WD_Time	12	MAPI_GPIO10
13	Power Button	14	SMBUS_DATA
15	UART_TX	16	SMBUS_CLK
17	UART_RX	18	5VSB
19	GND	20	NA

Table 16: MiAPI Header signal

Figure 17: SPDIF Header

Pin	Net name
1	GND
2	SPDIF-OUT
4	Power(5V)

Table 17: SPDIF Header signal

Figure 18: RS422/RS485 termination mode Header (pitch 2.54mm)

Pin	Net name	Pin	Net name
1	RX	2	RXC-PU VCC
3	DCD	4	DCDC- PD
5	TX	6	TXC-PU VCC
7	DTR	8	DTRC-PD

Table 18: RS422/RS485 termination mode Header signal

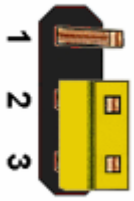


Figure 19: AT/ATX mode Header

1-2	AT Mode
2-3	ATX Mode

Table 19: AT/ATX mode Header

MITAC Desktop Board PH13FEI

BIOS Specification

1. MAIN PAGE

Main	Advanced	Chipset	Security	Boot	Save & Exit

BIOS Information		**Item help**
BIOS Vender	American Megatrends	
Core Version	5.13	
Compliancy	UEFI 2.7 ; PI 1.6	
BIOS Version	D8010A01	
Build Date	06/19/2018	
ME FW Version	12.0.2.1087	
Processor Information		
Intel(R) CORE(TM) i5-8500 CPU @ 3.00GHz		
Memory Information		
Total Memory	4096 MB	
DIMM#1	4096 MB (DDR4)	
DIMM#2	0 MB (DDR4)	
Memory Frequency	2400 MHz	→←: Select Screen
SATA Devices		
SATA1	Empty	↑↓: Select Item
SATA2	Empty	Enter: Select
SATA3	Empty	+/- : Change Opt.
SATA4	Empty	F1: General Help
SATA(M.2)	Empty	F2: Previous Values
		F3: Optimized Defaults
System Date	[Www mm/dd/yyyy]	F4: Save & Reset
System Time	[hh:mm:ss]	ESC: Exit

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Field Name	**BIOS Vender**
Default Value	American Megatrends
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Core Version**
Default Value	5.13
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Compliancy**
Default Value	UEFI 2.7 ; PI 1.6
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**BIOS Version**
Default Value	Display the version of the BIOS
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Build Date**
Default Value	Display build date of the BIOS
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**ME FW Version**
Value	ME Firmware Version.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Processor Information**
Value	Display the installed CPU brand.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Total Memory**
Value	Display the installed memory size.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**DIMM#[1:2]**
Help	Memory in the DIMM.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Memory Frequency**
Value	Display the installed memory frequency.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**SATA Devices**
Value	Display the installed SATA port device.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**System Date**
Default Value	[Www mm/dd/yyyy]
Possible Value	Www : Mon/Tue/Wed/Thu/Fri/Sat/Sun mm : 1-12 dd : 1-31 yyyy : 1998-9999
Help	Set the Date. Use Tab to switch between Date elements.

Field Name	**System Time**
Default Value	[hh :mm :ss]
Possible Value	hh : 0-23 mm : 0-59 ss : 0-59
Help	Set the Time. Use Tab to switch between Time elements.

2. ADVANCED PAGE

Main	Advanced	Chipset	Security	Boot	Save & Exit

►CPU Configuration	**Item help**
►Trusted Computing	
►ACPI Settings	
►SMART Settings	
►Super IO Configuration	
►Hardware Monitor	**→←: Select Screen**
►S5 RTC Wake Settings	**↑↓: Select Item**
►NVMe Configuration (Available in SKU D with NVMe device)	**Enter: Select**
►Network Stack Configuration	**+/- : Change Opt**
►Intel(R) Rapid Storage Technology (Available in Intel RST mode)	**F1: General Help**
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Reset
	ESC: Exit

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Field Name	**CPU Configuration**
Help	CPU Configuration Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Trusted Computing**
Help	Trusted Computing Settings
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**ACPI Settings**
Help	System ACPI Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**SMART Settings**
Help	System SMART Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Super IO Configuration**
Help	System Super IO Chip Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Hardware Monitor**
Help	Monitor hardware status
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**S5 RTC Wake Settings**
Help	Enable system to wake from S5 using RTC alarm.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**NVMe Configuration**
Help	NVMe Device Options Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Network Stack Configuration**
Help	Network Stack Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Intel(R) Rapid Storage Technology**
Help	This format allows the user to manage RAID volumes on the Intel(R) RAID Controller.
Comment	Press Enter when selected to go into the associated Sub-Menu.

2.1 CPU CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

CPU Configuration		Item help
Type	Intel(R) Core(TM) i5-8500 CPU@ 3.00 GHz	
ID	0x906EA	
Speed	3000 MHz	
L1 Data Cache	32 KB x 6	
L1 Instruction Cache	32 KB x 6	
L2 Cache	256 KB x 6	
L3 Cache	9 MB	
L4 Cache	N/A	
VMX	Supported	
SMX/TXT	Supported	
Intel Trusted Execution Technology	[Disabled]	→←: 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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Field Name	**Type**
Default Value	[Intel CPU Brand String]
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**ID**
Default Value	Displays CPU Signature
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Speed**
Default Value	Displays the CPU Speed
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**L1 Data Cache**
Default Value	L1 Data Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**L1 Instruction Cache**
Default Value	L1 Code Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**L2 Cache**
Default Value	L2 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**L3 Cache**
Default Value	L3 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**L4 Cache**
Default Value	L4 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**VMX**
Default Value	VMX Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**SMX/TXT**
Default Value	SMX/TXT Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Intel Trusted Execution Technology** **(Available when enable dTPM module.)**
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Enables utilization of additional hardware capabilities provided by Intel (R) Trusted Execution Technology. Changes require a full power cycle to take effect.

2.2 TRUSTED COMPUTING

Main	Advanced	Chipset	Security	Boot	Save & Exit

		Item help
TPM20 Device Found		
Firmware Version:	**1.3**	
Vender :	**NTC**	
Security Device Support	[Enable]	
Pending operation	[None]	→←: Select Screen
TPM2.0 UEFI Spec Version	[TCG_2]	↑↓: Select Item
		Enter: Select
		+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Security Device SUPPORT**
Default Value	[Enable]
Possible Value	Enable Disable
Help	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Field Name	**Pending operation**
Default Value	[None]
Possible Value	None TPM Clear
Help	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

Field Name	**TPM2.0 UEFI Spec Version**
Default Value	[TCG_2]
Possible Value	TCG_1_2 TCG_2
Help	Select the TCG2 Spec Version Support,TCG_1_2: the Compatible mode for Win8/Win10,TCG_2: Support new TCG2 protocol and event format for Win10 or later.

2.3 ACPI SETTINGS

Main	Advanced	Chipset	Security	Boot	Save & Exit

ACPI Settings		Item help
Enable ACPI Auto Configuration	[Disabled]	→←: Select Screen
		↑↓: Select Item
Enable Hibernation	[Enabled]	Enter: Select
ACPI Sleep State	[S3 (Suspend to RAM)]	+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Enable ACPI Auto Configuration**
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Enables or Disables BIOS ACPI Auto Configuration.

Field Name	**Enable Hibernation**
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some operating systems.

Field Name	**ACPI Sleep State**
Default Value	[S3 (Suspend to RAM)]
Possible Value	Suspend Disabled S3 (Suspend to RAM)
Help	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

2.4 SMART SETTINGS

Main	Advanced	Chipset	Security	Boot	Save & Exit

SMART Settings		Item help
SMART Self Test	[Disabled]	→←: 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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Field Name	**SMART Self Test**
Default Value	[Disabled]
Possible Value	Disabled Enabled
Help	Run SMART Self Test on all HDDs during POST.

2.5 SUPER IO CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

SIO Configuration	Item help
►Serial Port 1 Configuration ►Serial Port 2 Configuration ►Serial Port 3 Configuration ►Serial Port 4 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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Field Name	**Serial Port 1 Configuration**
Help	Set Parameters of Serial Port 1 (COMA)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Serial Port 2 Configuration**
Help	Set Parameters of Serial Port 2 (COMB)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Serial Port 3 Configuration**
Help	Set Parameters of Serial Port 3 (COMC)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Serial Port 4 Configuration**
Help	Set Parameters of Serial Port 4 (COMD)
Comment	Press Enter when selected to go into the associated Sub-Menu.

2.5.1 Serial Port 1 Configuration

Main	Advanced	Chipset	Security	Boot	Save & Exit

Serial Port 1 Configuration

		Item help
Serial Port	[Enabled]	→←: Select Screen
Device Settings	IO=3F8h; IRQ=4;	↑ ↓ : Select Item
		Enter: Select
Change Settings	[Auto]	+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Serial Port**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	**Device Settings**
Default Value	Device Super IO COM1 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Change Settings**
Default Value	[Auto]
Possible Value	Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

2.5.2 Serial Port 2 Configuration

Main	Advanced	Chipset	Security	Boot	Save & Exit

Serial Port 2 Configuration

		Item help
Serial Port	[Enabled]	→←: Select Screen
Device Settings	IO=2F8h; IRQ=3;	↑ ↓ : Select Item
		Enter: Select
Change Settings	[Auto]	+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Serial Port**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	**Device Settings**
Default Value	Device Super IO COM2 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Change Settings**
Default Value	[Auto]
Possible Value	Auto IO=2F8h; IRQ=3; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

2.5.3 Serial Port 3 Configuration

Main	Advanced	Chipset	Security	Boot	Save & Exit

Serial Port 3 Configuration		Item help
Serial Port	[Enabled]	→←: Select Screen
Device Settings	IO=3E8h; IRQ=7;	↑ ↓ : Select Item
		Enter: Select
Change Settings	[Auto]	+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Serial Port**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	**Device Settings**
Default Value	Device Super IO COM3 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Change Settings**
Default Value	[Auto]
Possible Value	Auto IO=3E8h; IRQ=7; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

2.5.4 Serial Port 4 Configuration

Main	Advanced	Chipset	Security	Boot	Save & Exit

Serial Port 4 Configuration

Serial Port	[Enabled]
Device Settings	IO=2E0h; IRQ=7;
Change Settings	[Auto]
Mode Configuration	[3T/5R RS232]

Item help

→←: 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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Field Name	**Serial Port**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	**Device Settings**
Default Value	Device Super IO COM4 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	**Change Settings**
Default Value	[Auto]
Possible Value	Auto IO=2F0h; IRQ=7; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

Field Name	**Mode Configuration**
Default Value	[3T/5R RS232]
Possible Value	1T/1R RS422 3T/5R RS232 1T/1R RS485 TX ENABLE Low Active

	1T/1R RS422 with termination resistor 1T/1R RS485 with termination resistor TX ENABLE Low Active Disabled
Help	Configure serial port as RS232/RS422/RS485.

2.6 HARDWARE MONITOR

Main	Advanced	Chipset	Security	Boot	Save & Exit

PC Health Status		Item help
Hardware Monitor Alert Enable	[Disabled]	
System Fan Enable	[Disabled]	
CPU temperature	: xx ˚C	→←: Select Screen
CPU VR temperature	: xx ˚C	↑↓: Select Item
DIMM VR temperature	: xx ˚C	Enter: Select
CPU Fan Speed	: xxxx RPM	+/- : Change Opt
System Fan Speed	: xxxx RPM	
CPU Vcore	: x.xxx V	F1: General Help
3VSB	: x.xxx V	
System Memory	: x.xxx V	F2: Previous Values
12V	: x.xxx V	F3: Optimized Defaults
VBAT	: x.xxx V	F4: Save & Reset
VCCST	: x.xxx V	
		ESC: Exit

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Field Name	**Hardware Monitor Alert Enable**
Default Value	[Disabled]
Possible Value	Disabled Enabled
Help	If Enabled, POST monitors voltage, temperature, and fan status. If these values are out of range, BIOS display warning message and turn on beep sound.

Field Name	**System Fan Enable** **(Available when Hardware Monitor Alert Enable enabled.)**
Default Value	[Disabled]
Possible Value	Disabled Enabled
Help	If Enabled, POST monitors system fan status. If this value is out of range, BIOS display warning message and turn on beep sound.

Temperature Type	**Range**
CPU Temperature	-20~(By processor Tjmax)°C
CPU VR Temperature	-20~120°C

DIMM VR Temperature	-20~120°C
Fan Type	**Range**
CPU Fan Speed	There are many kinds of the fans could be installed into the system. So we could only set 0 RPM for the failed fan speed, and there is also no high RPM limitation.
System Fan Speed	
Voltage Type	**Range**
CPU Vcore	0~1.52V
3VSB	3.135~3.465V
System Memory	1.14~1.26V
12V	11.4~12.6V
VBAT	2.85~3.15V
VCCST	0.09975~1.1025V

2.7 S5 RTC WAKE SETTINGS

Main	Advanced	Chipset	Security	Boot	Save & Exit

Wake system from S5	[Disabled]	**Item help**
Wake up hour	0	
Wake up minute	0	
Wake up second	0	

→←: 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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Field Name	Wake system from S5
Default Value	[Disabled]
Possible Value	Disabled Fixed Time
Help	Enabler or disable System wake on alarm event, Select FixedTime, system will wake on the hr::min::sec specified.

Field Name	Wake up hour(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0-23
Help	Select 0-23 For example enter 3 for 3am and 15 for 3pm

Field Name	Wake up minute(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0-59
Help	Select 0 – 59 for Minute.

Field Name	Wake up second(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0 - 59
Help	Select 0 – 59 for Second.

2.8 NETWORK STACK CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

		Item help
Network Stack	[Disabled]	→←: Select Screen
Ipv4 PXE Support	[Enabled]	↑↓: Select Item
Ipv6 PXE Support	[Enabled]	Enter: Select
		+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**Network Stack**
Default Value	[Disabled]
Possible Value	Disabled Enabled
Help	Enable/Disable UEFI Network Stack.

Field Name	**Ipv4 PXE Support** **(Available when Network Stack enabled.)**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable/Disable Ipv4 PXE Boot Support. If disabled, IPv4 PXE boot support will not be available.

Field Name	**Ipv6 PXE Support** **(Available when Network Stack enabled.)**
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable/Disable Ipv6 PXE Boot Support. If disabled, IPv6 PXE boot support will not be available.

2.9 NVME CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

NVMe Configuration	Item help
►(Device)	→←: 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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Field Name	**(Device)**
Comment	Press Enter when selected to go into the associated Sub-Menu.

2.10 INTEL(R) RAPID STORAGE CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

Intel(R) RST 16.5.0.53439 RAID Driver	Item help
►Create RAID Volume	→←: Select Screen
	↑↓: Select Item
RAID Volumes:	Enter: Select
►Raid Volume	+/- : Change Opt
	F1: General Help
Non-RAID Physical Disks:	F2: Previous Values
►HDD	F3: Optimized Defaults
	F4: Save & Reset
	ESC: Exit

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Field Name	**Create RAID Volume**
Help	This page allows you to create a RAID volume.

Field Name	**Raid Volume**
Help	Select to see more information about the RAID Volume.

Field Name	**HDD**
Help	Select to see more information about the disk.

3. CHIPSET PAGE

Main	Advanced	Chipset	Security	Boot	Save & Exit

►System Agent (SA) Configuration ►PCH-IO Configuration	**Item help** **→←: 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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Field Name	**System Agent (SA) Configuration**
Help	System Agent (SA) Parameters
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**PCH-IO Configuration**
Help	PCH Parameters
Comment	Press Enter when selected to go into the associated Sub-Menu.

3.1 SYSTEM AGENT (SA) CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

System Agent (SA) Configuration

►Graphics Configuration

Item help

→←: 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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Field Name	**Graphics Configuration**
Help	Graphics Configuration
Comment	Press Enter when selected to go into the associated Sub-Menu.

3.1.1 Graphics Configuration

Main	Advanced	Chipset	Security	Boot	Save & Exit

Graphics Configuration		Item help
DVMT Pre-Allocated	[64M]	→←: Select Screen
DVMT Total Gfx Mem	[256M]	↑↓: Select Item
		Enter: Select
		+/- : Change Opt
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**DVMT Pre-Allocated**
Default Value	[64M]
Possible Value	64M/ (32M/F7)/ 36M/ 40M/ 44M/ 48M/ 52M/ 56M/ 60M
Help	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

Field Name	**DVMT Total Gfx Mem**
Default Value	[256M]
Possible Value	128MB / 256MB / MAX
Help	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

3.2 PCH-IO CONFIGURATION

Main	Advanced	Chipset	Security	Boot	Save & Exit

PCH-IO Configuration

		Item help
►SATA And RST Configuration		
►HD Audio Configuration		→←: Select Screen
		↑↓: Select Item
DeepSx Power Policies	[Enabled in S4-S5]	Enter: Select
Wake On LAN	[Enabled]	+/- : Change Opt
State After G3	[S5 State]	F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Reset
		ESC: Exit

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Field Name	**SATA And Configuration**
Help	SATA Device Options Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**HD Audio Configuration**
Help	HD Audio Subsystem Configuration Settings
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**DeepSx Power Policies**
Default Value	[Enabled in S4-S5]
Possible Value	Enabled in S4-S5 Disabled
Help	configure the DeepSx Mode configuration.

Field Name	**Wake On LAN**
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	Enabled/Disabled integrated LAN to wake the system. If DeepSx is Enabled, WOL from S4-S5 is Disabled.

Field Name	**State After G3**
Default Value	[S5 State]
Possible Value	S0 State S5 State

Help	Specify what state to go to when power is re-applied after a power failure (G3 state).

3.2.1 SATA And RST Configuration

Main	Advanced	Chipset	Boot	Security	Save & Exit

SATA And RST Configuration		Item help
SATA Mode Selection	[AHCI]	
PCIe Storage Dev On Port 9	[Not RST Controlled]	→←: 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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Field Name	**SATA Mode Selection**
Value	[AHCI]
Possible Value	AHCI / Intel RST Premium With Intel Optane System Acceleration
Help	Determines how SATA controller(s) operate. This PCH SKU doesn't support RST feature.(Display this string in SKU B)

Field Name	**PCIe Storage Dev On Port 9** **(Available when SATA Mode Selection set to "Intel RST Premium With Intel Optane System Acceleration.")**
Value	[Not RST Controlled]
Possible Value	RST Controlled / Not RST Controlled
Help	Enable/Disable RST Pcie Storage Remapping.

3.2.2 HD Audio Configuration

Main	Advanced	Chipset	Boot	Security	Save & Exit

HD Audio Subsystem Configuration Settings

HD Audio [Enable]

Item help

→←: 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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Field Name	**HD Audio**
Value	[Enable]
Possible Value	Enable / Disable
Help	Control Detection of HD-Audio device. Disabled = HDA will be unconditionally disabled Enable = HDA will be unconditionally enabled

4. SECURITY PAGE

Main	Advanced	Chipset	Security	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:

Minimum length	3
Maximum length	20

Administrator Password
User Password

HDD Security Configuration:
HDD Security drive

►Secure Boot
►BIOS Update

Item help

→←: 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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Field Name	**Administrator Password**
Help	Set Administrator Password

Field Name	**User Password**
Help	Set User Password.

Field Name	**HDD Security drive**
Help	HDD Security Configuration for selected drive
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Secure Boot**
Help	Secure Boot Configuration
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**BIOS Update**
Help	BIOS Update support
Comment	Press Enter when selected to go into the associated Sub-Menu.

4.1 HDD SECURITY

Main Advanced Chipset Security Boot Save & Exit

HDD Password Description :

Allows Access to Set, Modify and Clear
Hard Disk User Password
and Master Password.
User Password is mandatory to Enable HDD Security.
If Master password is installed (optional),
it can also be used to unlock the HDD.
If the 'Set User Password' option is hidden,
do power cycle to enable the option again.

HDD PASSWORD CONFIGURATION:

Security Supported	:	Yes
Security Enabled	:	No
Security Locked	:	No
Security Frozen	:	No
HDD User Pwd Status	:	NOT INSTALLED

Set User Password

Item help

→←: 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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Field Name	**Set User Password**
Help	Set HDD User Password. *** Advisable to Power Cycle System after Setting Hard Disk Passwords ***. Discard or Save changes option in setup does not have any impact on HDD when password is set or removed. If the 'Set HDD User Password' option is hidden, do power cycle to enable the option again

4.2 SECURE BOOT

Main	Advanced	Chipset	Security	Boot	Save & Exit

System Mode	Setup	**Item help**
Secure Boot	[Disabled] Not Active	**→←: Select Screen** **↑↓: Select Item**
		Enter: Select
Secure Boot Mode	[Custom]	**+/- : Change Opt**
► Restore Factory Keys		**F1: General Help**
► Reset To Setup Mode		**F2: Previous Values**
		F3: Optimized Defaults
►Key Management		**F4: Save & Reset**
		ESC: Exit

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Field Name	**Secure Boot**
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset

Field Name	**Secure Boot Mode**
Default Value	[Custom]
Possible Value	Standard Custom
Help	Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication

Field Name	**Restore Factory Keys**
Help	Force System to User Mode. Install factory default Secure Boot key databases

Field Name	**Reset to Setup Mode**
Help	Delete all Secure Boot key databases from NVRAM

Field Name	**Key Management**
Help	Enables expert users to modify Secure Boot Policy variables without full authentication
Comment	Press Enter when selected to go into the associated Sub-Menu.

4.2.1 Key Management

Main	Advanced	Chipset	Security	Boot	Save & Exit

Vender keys			Not Modified	**Item help**
Factory Key Provision			[Disabled]	
► Restore Factory Keys				
► Reset To Setup Mode				
► Export Secure Boot variables				
► Enroll Efi Image				
Device Guard ready				
► Remove 'UEFI CA' from DB				→←: Select Screen
► Restore DB defaults				↑↓: Select Item
				Enter: Select
Secure Boot variable	Size	Keys	Key Source	+/- : Change Opt.
► Platform Key(PK)	0	0	No Keys	F1: General Help
► Key Exchange Keys	0	0	No Keys	F2: Previous Values
► Authorized Signatures	0	0	No Keys	F3: Optimized Defaults
► Forbidden Signatures	0	0	No Keys	F4: Save & Reset
► Authorized TimeStamps	0	0	No Keys	ESC: Exit
► OsRecovery Signatures	0	0	No Keys	

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Field Name	**Factory Key Provision**
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Install factory default Secure Boot keys after the platform reset and while the System i in Setup mode

Field Name	**Restore Factory Keys**
Help	Force System to User Mode. Install factory default Secure Boot key databases

Field Name	**Reset to Setup Mode**
Help	Delete all Secure Boot key databases from NVRAM

Field Name	**Export Secure Boot variables**

Help	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device

Field Name	**Enroll Efi Image**
Help	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db)

Field Name	**Remove 'UEFI CA' from DB**
Help	Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db)

Field Name	**Restore DB defaults**
Help	Restore DB variable to factory defaults

Field Name	**Platform Key(PK)**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu "Key Management".

Field Name	**Key Exchange Keys**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Authorized Signature**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST

	b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Forbidden Signature**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**Authorized TimeStamps**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**OsRecovery Signatures**
Default Value	Size:0, Keys:0, Key Source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

4.3 BIOS UPDATE

Main	Advanced	Chipset	Security	Boot	Save & Exit

►Path for ROM Image Notice : ROM Image must in the root folder of storage device. File name must match with current BIOS project.	**Item help** **→←: 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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Field Name	**Path for ROM Image**
Help	Enter the path to the BIOS update option

5. BOOT PAGE

Main	Advanced	Chipset	Security	Boot	Save & Exit

Boot Configuration		Item help
Setup Prompt Timeout	1	
Bootup NumLock State	[On]	
FIXED BOOT ORDER Priorities		→←: Select Screen
Boot Option #1	[USB Floppy]	↑↓: Select Item
Boot Option #2	[CD/DVD]	Enter: Select
Boot Option #3	[USB CD/DVD]	+/- : Change Opt.
Boot Option #4	[Hard Disk]	F1: General Help
Boot Option #5	[USB Key]	F2: Previous Values
Boot Option #6	[USB Hard Disk]	F3: Optimized Defaults
Boot Option #7	[Network]	F4: Save & Reset
		ESC: Exit
▶UEFI USB Floppy Drive BBS Priorities		
▶UEFI CDROM/DVD Drive BBS Priorities		
▶UEFI USB CDROM/DVD Drive BBS Priorities		
▶UEFI Hard Disk Drive BBS Priorities		
▶UEFI USB Key Drive BBS Priorities		
▶UEFI USB Hard Disk Drive BBS Priorities		
▶UEFI Network Drive BBS Priorities		

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Field Name	**Setup Prompt Timeout**
Default Value	1
Possible Value	1~65535
Help	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Field Name	**Bootup NumLock State**
Default Value	[On]
Possible Value	On Off
Help	Select the keyboard NumLock state

Field Name	**Boot Option #1**
Default Value	[USB Floppy]

Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #2**
Default Value	[CD/DVD]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #3**
Default Value	[USB CD/DVD]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #4**
Default Value	[Hard Disk]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #5**
Default Value	[USB Key]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #6**
Default Value	[USB Hard Disk]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**Boot Option #7**
Default Value	[Network]
Possible Value	Hard Disk, USB Hard Disk, CD/DVD, USB CD/DVD, USB Key, USB Floppy , Network, Disabled
Help	Sets the system boot order

Field Name	**UEFI USB Floppy Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available USB Floppy Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI CDROM/DVD ROM Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available CDROM/DVD Drives.

Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI USB CDROM/DVD ROM Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available USB CDROM/DVD Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI USB Hard Disk Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available USB Hard Disk Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI USB KEY Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available USB Key Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI Hard Disk Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available Hard Disk Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	**UEFI NETWORK Drive BBS Priorities**
Help	Specifies the Boot Device Priority sequence from available NETWORK Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

5.1 (LIST BOOT DEVICE TYPE) DRIVE BBS PRIORITIES

Main	Advanced	Chipset	Security	Boot	Save & Exit

Boot Option #1	[Boot Device Name 1]	**Item help**
Boot Option #2	[Boot Device Name 2]	**→←: 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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Field Name	**Boot Option #1**
Default Value	
Possible Value	Boot Device Name 1 of this type, Disable
Help	Sets the system boot order

Field Name	**Boot Option #2**
Default Value	
Possible Value	Boot Device Name 2 of this type, Disable
Help	Sets the system boot order

6. SAVE & EXIT PAGE

Main	Advanced	Chipset	Security	Boot	Save & Exit	
Save Options						**Item help**
Discard Changes and Exit						
Save Changes and Reset						
Discard Changes and Reset						
Restore Defaults						**→←: 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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Field Name	**Discard Changes and Exit**
Help	Exit system setup with without saving any changes.

Field Name	**Save Changes and Reset**
Help	Reset the system after saving the changes.

Field Name	**Discard Changes and Rest**
Help	Reset system setup without saving any changes.

Field Name	**Restore Defaults**
Help	Restore/Load Default values for all the setup options.

7. RECOVERY PAGE (ACTIVE FOR 4.3 SECURE FLASH UPDATE ONLY)

Main Advanced Chipset Security Boot Save & Exit	Recovery
Please select block you want to update	**Item help**
Reset NVRAM [Disabled]	
►Process with flash update	
	→←: 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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Field Name	**Reset NVRAM**
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Set this option to reset NVRAM to default values

Field Name	**Process with flash update**
Help	Select this to start flash update