TECHNICAL MANUAL

Of

Intel H310/H370 Express Chipset

Based Mini-ITX M/B

NO. G03-NF893-F

Revision: 3.0

Release date: October 1, 2019

Trademark:

* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.
Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.
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Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 40 centigrade is the suitable temperature. (The temperature comes from the request of the chassis and thermal solution)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots’ that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.
USER’S NOTICE

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Manual Revision Information

Reversion Revision History Date
3.0 Third Edition October 1, 2019

Item Checklist
☑ Motherboard
☑ Cable(s)
Chapter 1

Introduction of the Motherboard

1-1 Feature of Motherboard

- Intel® H310/H370 express chipset
- LGA 1151 CPU socket supports Intel® Coffee Lake-S series processor (TDP ≤65 W).
- Support 2* DDR4 2400MHz SO-DIMM up to 32GB and dual channel function
- Support 1 * Intel i219-V Gigabit Ethernet LAN chip
- Support USB 3.1 data transport demand
- Support 2 * SATAIII (6Gb/s) ports
- Support 1* PCIE x1 slot, 1* M.2 E-key 2230 PCIe slot and 1* M.2 M-key 2242/2260/2280 slot
- Support 1 * HDMI + 1 * DP + 1* LVDS (option with eDP)
- Support 1 * COM, optional 4/6 * USB 3.1 & 4 * USB 2.0 for rich IO expansion
- Support Smart FAN function
- Supports ACPI S3 Function
- Compliance with ErP Standard
- Support Watchdog Timer Technology
## 1-2 Specification

<table>
<thead>
<tr>
<th>Spec</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td>● Thin mini-ITX form factor; PCB size: 17.0x17.0cm</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>● Intel H310/H370 Express Chipset</td>
</tr>
</tbody>
</table>
| **CPU Socket** | ● Intel® LGA 1151 Socket for Coffee Lake-S series processors  
  *Note: for detailed CPU support information please visit our website* |
| **Memory Slot** | ● 2*DDR4 SO-DIMM slot  
  ● Support DDR4 2400/2666 MHz SO-DIMM up to 32GB  
  ● Support dual channel function |
| **Expansion Slot** | ● 1* PCIE x1 slot (PCI-E)  
  ● 1* M.2 PCIE slot (M2E, 2230 E-key PCIE interface) |
| **Storage**  | ● 2*SATAIII 6G/s port (SATA1/2)  
  ● 1* M.2 M-key slot, type-2242/2260/2280 with SATA interface (M2M,  
  *SATA/PCIE interface)  
  *Note: PCIE signal is supported by NF893-H370 series only.* |
| **LAN Chip** | ● Integrated with 1* Intel i219-V Gigabit PCI-E LAN chip  
  ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps  
  Ethernet data transfer rate |
| **Audio Chip** | ● Realtek ALC662-VD 4-channel Audio Codec integrated  
  ● Audio driver and utility included |
| **BIOS**     | ● AMI Flash ROM                                                             |
| **Rear Panel I/O:** | 1*19V DC-in Power Jack  
  4* USB 3.1 (Gen.1) port (Optional for NF893-H310 Series)  
  4* USB 3.1 (Gen.2) port (Optional for NF893-H370 Series)  
  1* HDMI port  
  1* DP port  
  1* RJ-45 LAN port  
  1* Line-out port  
  1* MIC port |
| **Multi I/O** | **Internal I/O Connectors & Headers:**  
  1*2-pin 19V internal power connector  
  1* CPUFAN connector & 1* SYSFAN connector  
  1* SATA Power-out connector  
  1* MON_SW connector |
1-3 Layout Diagram

**Rear IO Diagram**

- 1* Front panel header
- 1* PS/2 keyboard & mouse header
- 1* Serial port header
- 1* GPIO header
- 2* 9-Pin USB 2.0 header for 4* USB 2.0 ports
- 1* 19-Pin USB 3.1 (Gen.2) header for 2* USB 3.1 (Gen.2) ports (*Optional for NF893-H370 Series*)
- 1* Front panel audio header
- 1* DMIC_CON digital microphone header
- 1* Speaker header
- 1* PN_LED header (for LAN activity LED/ Blue tooth activity LED/ WIFI activity LED)
- 1* LVDS connector (Default) or 1* EDP connector (Optional by order)
- 1* Inverter header

---

*Note: NF893-H310 series come with 4* USB 3.1 (Gen.1) ports which supports 5Gps data transfer rate; NF893-H370 series come with 4* USB 3.1 (Gen.2) ports which supports 10Gps data transfer rate*
**Motherboard Internal Diagram-Front**

**NF893-H310 Series:**

- **19V DC-IN Power Jack**
- **USB 3.1 (Gen.1) Ports**
- **Display Port**
- **HDMI Port**
- **RJ-45 LAN Port**
- **Line-Out Port**
- **MIC Port**
- **Front Panel Audio Header**
- **Serial Port Header**
- **GPIO Header**
- **PS2KBMS Header**
- **MON_SW Header**
- **USB 2.0 Port Header**
- **DMIC CON Header**
- **PN LED Header**
- **SPEAK_CON Header**
- **PCIE X1 Slot (PCI-E)**
- **M.2 M-Key Slot (M2M)**
- **M.2E-Key Slot (M2E)**
- **Front Panel Header**
- **H310 Chipset**
- **Internal 19V DC-IN Power Connector**
- **SYSFAN Connector**
- **CPUFAN Connector**
- **SATAIII Ports (SATA1/2)**
- **DDR4 SODIMM Slots (SODIMM1/2)**
- **19V DC-IN Power Jack**
- **19V DC-IN Power Connector**
- **LGA 1151 CPU Socket**
- **Inverter**
- ***LVDS Connector (Optional with EDP)**

---

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*Note: The product diagrams are for illustration purpose only and mostly come from Model NF893-H370, unless otherwise noted.
*Note: The default board comes with LVDS connector. EDP connector is only optional by order. Only one of them comes with a board.
Motherboard Jumper Position:

*Note: 1. JPTEST is for manufacture usage only; 2. The product diagram above is from Model NF893-H310.
## Connectors

<table>
<thead>
<tr>
<th>P/N</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCIN</td>
<td>19V DC-IN Power Jack</td>
</tr>
<tr>
<td>USB1/USB2 (For NF893-H310)</td>
<td>USB 3.1 (Gen.1) Port Connector X4</td>
</tr>
<tr>
<td>USB1/USB2 (For NF893-H370)</td>
<td>USB 3.1 (Gen.2) Port Connector X4</td>
</tr>
<tr>
<td>DP</td>
<td>Display Port Connector</td>
</tr>
<tr>
<td>HDMI</td>
<td>HDMI Port Connector</td>
</tr>
<tr>
<td>LAN</td>
<td>RJ-45 LAN Connector</td>
</tr>
<tr>
<td>FP_HP</td>
<td>Audio Line-out Connector</td>
</tr>
<tr>
<td>FP_MIC</td>
<td>Audio MIC Connector</td>
</tr>
<tr>
<td>ATX2P</td>
<td>Internal 19V Power Connector</td>
</tr>
<tr>
<td>SYSFAN</td>
<td>System Fan Connector</td>
</tr>
<tr>
<td>CPUFAN</td>
<td>CPUFAN Connector</td>
</tr>
<tr>
<td>SATA1/SATA2</td>
<td>SATAIII Connector X 2</td>
</tr>
<tr>
<td>SATAPWR</td>
<td>SATA Power-out Connector</td>
</tr>
<tr>
<td>SPEAK_CON</td>
<td>3W Amplifier Connector</td>
</tr>
<tr>
<td>MON_SW</td>
<td>Monitor Switch Connector</td>
</tr>
<tr>
<td>LVDS</td>
<td>LVDS Port Connector</td>
</tr>
<tr>
<td>EDP(Optional)</td>
<td>EDP Port Connector</td>
</tr>
<tr>
<td>INVERTER</td>
<td>Flat Panel Backlight Inverter</td>
</tr>
</tbody>
</table>

## Headers & Wafer

<table>
<thead>
<tr>
<th>P/N</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JW_FP</td>
<td>Front Panel Header(PWR LED/ HD LED/Power Button /Reset)</td>
<td>9-pin Block</td>
</tr>
<tr>
<td>PS2KBMS</td>
<td>PS2 Keyboard &amp; Mouse Header</td>
<td>6-pin Block</td>
</tr>
<tr>
<td>COM</td>
<td>Serial Port Header</td>
<td>9-pin Block</td>
</tr>
<tr>
<td>GPIO</td>
<td>GPIO Port Header</td>
<td>10-pin Block</td>
</tr>
<tr>
<td>FP_USB3 (For NF893-H370)</td>
<td>USB 3.1 (Gen.2) Port Header</td>
<td>19-pin Block</td>
</tr>
<tr>
<td>FP_USB1/ FP_USB2</td>
<td>USB 2.0 Port Header</td>
<td>9-pin Block</td>
</tr>
<tr>
<td>FP_AUDIO</td>
<td>Front Panel Audio Header</td>
<td>9-pin Block</td>
</tr>
<tr>
<td>Jumper</td>
<td>P/N</td>
<td>Name</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>JBAT</td>
<td>Pin (1-2): Clear CMOS RAM Settings</td>
<td>6-pin Block</td>
</tr>
<tr>
<td></td>
<td>Pin (3-4): Flash Descriptor Override</td>
<td>6-pin Block</td>
</tr>
<tr>
<td></td>
<td>Pin (5-6): PWROK Override</td>
<td>6-pin Block</td>
</tr>
<tr>
<td>AT_COPEN</td>
<td>Pin (1-2): AT Mode Select</td>
<td>4-pin Block</td>
</tr>
<tr>
<td></td>
<td>Pin (3-4): Case Open Display Select</td>
<td>4-pin Block</td>
</tr>
<tr>
<td>JP1</td>
<td>LCD Panel VCC Select</td>
<td>4-pin Block</td>
</tr>
<tr>
<td>JP2</td>
<td>LCD Backlight Select</td>
<td>4-pin Block</td>
</tr>
</tbody>
</table>

Chapter 2
Hardware Installation

2-1 Jumper Setting

*Pin 1&2 of JBAT (6-pin): Clear CMOS RAM Setting*

Pin 1&2 of JBAT → Clear CMOS

1-2 Open: Normal(Default);

1-2 Closed: Clear CMOS(One Touch).
Pin 3&4 of JBAT (6-pin): Flash Descriptor Override Select

Pin 3&4 of JBAT → Flash Descriptor Override

3-4 Open: Normal (Default);
3-4 Closed: Disable Flash Descriptor Security (override).

Pin 5&6 of JBAT (6-pin): PWROK Override Select

Pin 5&6 of JBAT → PWROK Override

5-6 Open: Normal (Default);
5-6 Closed: PWROK Override.

*Note: PWROK override is for manufacturing test only.
Pin 1&2 of AT_COPEN (4-pin): AT Mode Select

*ATX Mode Selected: Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

Pin 3&4 of AT_COPEN (4-pin): Case Open Message Display Function Select

Pin (3&4) short: When Case open function pin short to GND, the Case open function was detected. When used, needs to enter BIOS and enable ‘Case Open Detect’ function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.
JP1 (4-pin): LCD Panel VCC Select

JP1 → LCD VCC Select

2-4 Closed: VCC=3.3V; 3-4 Closed: VCC=5V; 4-6 Closed: VCC=12V.

JP2 (3-pin): LCD Inverter Backlight VCC Select

JP2 → INVERTER Backlight VCC

1-2 Closed: Inverter backlight VCC=12V; 2-3 Closed: Inverter backlight VCC=19V.
## 2-2 Connectors, Headers and Wafers

### 2-2-1 Connectors

*(1) Rear Panel Connectors*  
*Refer to Page-3 Rear IO Diagram.*

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>19V DC-in Power Connector</td>
<td>For user to connect compatible power adapter to provide power supply for the system.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td><em>NF893-H310 Series: USB 3.1(Gen.1)Port</em></td>
<td>To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.1 (Gen.1) ports supports up to 5Gbps data transfer rate.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td><em>NF893-H370 Series: USB 3.1(Gen.2)Port</em></td>
<td>To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.1 (Gen.2) ports supports up to 10Gbps data transfer rate.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon" /></td>
<td>Display Port</td>
<td>To the system to corresponding display device with compatible display port cable.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Icon" /></td>
<td>HDMI Port</td>
<td>To connect display device that support HDMI specification.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Icon" /></td>
<td>RJ-45 LAN Port</td>
<td>This connector is standard RJ-45 LAN jack for Network connection.</td>
</tr>
<tr>
<td><img src="image7.png" alt="Icon" /></td>
<td>Line-Out Connector</td>
<td>For user to connect external speaker, earphones, etc to transfer system audio output.</td>
</tr>
<tr>
<td><img src="image8.png" alt="Icon" /></td>
<td>MIC Connector</td>
<td>User can connect microphone device to this port.</td>
</tr>
</tbody>
</table>
(2) ATX2P (2-pin block): Internal 19V power connector

![Diagram of ATX2P connector]

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+19V</td>
</tr>
</tbody>
</table>

(3) CPUFAN/SYSFAN (4-pin): Fan Connector

![Diagram of CPUFAN/SYSFAN connector]

+12V Fan Power
Fan Speed Control
GND
Pin1
(4) SATA1/SATA2 (7-pin): SATA III Port connector
SATA1&SATA2 are high-speed SATAIII port that supports 6 GB/s transfer rate.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>TXP</td>
</tr>
<tr>
<td>3</td>
<td>TXN</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>RXN</td>
</tr>
<tr>
<td>6</td>
<td>RXP</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
</tbody>
</table>

(5) SATAPWR (15-pin block): SATA power connector

<table>
<thead>
<tr>
<th>Pin NO.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 2</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 3</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 4</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 5</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 6</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 7</td>
<td>+5V</td>
</tr>
<tr>
<td>Pin 8</td>
<td>+5V</td>
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<tr>
<td>Pin 9</td>
<td>+5V</td>
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<tr>
<td>Pin 10</td>
<td>GND</td>
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<tr>
<td>Pin 11</td>
<td>NC</td>
</tr>
<tr>
<td>Pin 12</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 13</td>
<td>+12V</td>
</tr>
<tr>
<td>Pin 14</td>
<td>+12V</td>
</tr>
<tr>
<td>Pin 15</td>
<td>+12V</td>
</tr>
</tbody>
</table>
(6) **SPEAK_CON (4-pin block): Speaker Connector**

![Speaker Connector Diagram]

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L-</td>
</tr>
<tr>
<td>2</td>
<td>L+</td>
</tr>
<tr>
<td>3</td>
<td>R+</td>
</tr>
<tr>
<td>4</td>
<td>R-</td>
</tr>
</tbody>
</table>

(7) **MON_SW (2-Pin): Monitor Switch Connector**

Mon_SW is for LVDS or EDP display switch.

![Monitor Switch Connector Diagram]
(8) LVDS(40-pin): 48-bit LVDS Connector

![LVDS Connector Diagram]

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin Define</th>
<th>Pin No.</th>
<th>Pin Define</th>
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</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>LVDSA_DATAP3</td>
<td>Pin 2</td>
<td>LVDSA_DATAN3</td>
</tr>
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<td>Pin 3</td>
<td>LVDSA_DATAP2</td>
<td>Pin 4</td>
<td>LVDSA_DATAN2</td>
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<tr>
<td>Pin 5</td>
<td>LVDSA_DATAP1</td>
<td>Pin 6</td>
<td>LVDSA_DATAN1</td>
</tr>
<tr>
<td>Pin 7</td>
<td>LVDSA_DATAP0</td>
<td>Pin 8</td>
<td>LVDSA_DATAN0</td>
</tr>
<tr>
<td>Pin 9</td>
<td>LVDSB_DATAP3</td>
<td>Pin 10</td>
<td>LVDSB_DATAN3</td>
</tr>
<tr>
<td>Pin 11</td>
<td>LVDSB_DATAP2</td>
<td>Pin 12</td>
<td>LVDSB_DATAN2</td>
</tr>
<tr>
<td>Pin 13</td>
<td>LVDSB_DATAP1</td>
<td>Pin 14</td>
<td>LVDSB_DATAN1</td>
</tr>
<tr>
<td>Pin 15</td>
<td>LVDSB_DATAP0</td>
<td>Pin 16</td>
<td>LVDSB_DATAN0</td>
</tr>
<tr>
<td>Pin 17</td>
<td>GND</td>
<td>Pin 18</td>
<td>LCD_VCC</td>
</tr>
<tr>
<td>Pin 19</td>
<td>LCD_VCC</td>
<td>Pin 20</td>
<td>LCD_VCC</td>
</tr>
<tr>
<td>Pin 21</td>
<td>NC</td>
<td>Pin 22</td>
<td>EDID_3V3 Option</td>
</tr>
<tr>
<td>Pin 23</td>
<td>GND</td>
<td>Pin 24</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 25</td>
<td>GND</td>
<td>Pin 26</td>
<td>LVDS_CLKAP</td>
</tr>
<tr>
<td>Pin 27</td>
<td>LVDS_CLKAN</td>
<td>Pin 28</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 29</td>
<td>GND</td>
<td>Pin 30</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 31</td>
<td>LVDS_DDC_CLK</td>
<td>Pin 32</td>
<td>LCD_BKLT_EN</td>
</tr>
<tr>
<td>Pin 33</td>
<td>LCD_BKLT_PWM</td>
<td>Pin 34</td>
<td>LVDS_CLKBP</td>
</tr>
<tr>
<td>Pin 35</td>
<td>LVDS_CLKBN</td>
<td>Pin 36</td>
<td>LVDS_BKLT_PWR option</td>
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<tr>
<td>Pin 37</td>
<td>LVDS_BKLT_PWR option</td>
<td>Pin 38</td>
<td>LVDS_BKLT_PWR option</td>
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<tr>
<td>Pin 39</td>
<td>NC</td>
<td>Pin 40</td>
<td>LVDS_DDC_DATA</td>
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(9) EDP(40-pin): EDP Connector

*EDP connector is optional by order.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin Define</th>
<th>Pin No.</th>
<th>Pin Define</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin 1</td>
<td>NC</td>
<td>Pin 2</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 3</td>
<td>EDP_DATA3N</td>
<td>Pin 4</td>
<td>EDP_DATA3P</td>
</tr>
<tr>
<td>Pin 5</td>
<td>GND</td>
<td>Pin 6</td>
<td>EDP_DATA2N</td>
</tr>
<tr>
<td>Pin 7</td>
<td>EDP_DATA2P</td>
<td>Pin 8</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 9</td>
<td>EDP_DATA1N</td>
<td>Pin 10</td>
<td>EDP_DATA1P</td>
</tr>
<tr>
<td>Pin 11</td>
<td>GND</td>
<td>Pin 12</td>
<td>EDP_DATA0N</td>
</tr>
<tr>
<td>Pin 13</td>
<td>EDP_DATA0P</td>
<td>Pin 14</td>
<td>GND</td>
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<td>Pin 15</td>
<td>EDP_AUXP</td>
<td>Pin 16</td>
<td>EDP_AUXN</td>
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<td>Pin 17</td>
<td>GND</td>
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<td>LCD_VCC</td>
</tr>
<tr>
<td>Pin 19</td>
<td>LCD_VCC</td>
<td>Pin 20</td>
<td>LCD_VCC</td>
</tr>
<tr>
<td>Pin 21</td>
<td>LCD_VCC</td>
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<td>GND</td>
<td>Pin 26</td>
<td>GND</td>
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<tr>
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<td>EDP_HPD</td>
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<td>GND</td>
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<td>Pin 29</td>
<td>GND</td>
<td>Pin 30</td>
<td>GND</td>
</tr>
<tr>
<td>Pin 31</td>
<td>GND</td>
<td>Pin 32</td>
<td>LCD_BKLT_EN</td>
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<td>Pin 33</td>
<td>LCD_BKLT_PWM</td>
<td>Pin 34</td>
<td>NC</td>
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<td>NC</td>
<td>Pin 36</td>
<td>LVDS_BKLT_PWR Option</td>
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<td>LVDS_BKLT_PWR Option</td>
<td>Pin 38</td>
<td>LVDS_BKLT_PWR Option</td>
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<tr>
<td>Pin 39</td>
<td>LVDS_BKLT_PWR Option</td>
<td>Pin 40</td>
<td>NC</td>
</tr>
</tbody>
</table>
(10) INVERTER (8-pin): LVDS Inverter Connector

Warning! Find Pin-1 location of the inverter and make sure that the installation direction is correct! Otherwise serious harm will occur to the board/display panel!!

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Backlight Enable</td>
</tr>
<tr>
<td>2</td>
<td>Backlight Duty</td>
</tr>
<tr>
<td>3</td>
<td>PVCC</td>
</tr>
<tr>
<td>4</td>
<td>PVCC</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>Brightness up</td>
</tr>
<tr>
<td>8</td>
<td>Brightness down</td>
</tr>
</tbody>
</table>
2-2-2 Headers & Wafers

(1) JW_FP (9-pin): Front Panel Header

(2) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header
(3) COM (9-Pin): RS232/RS422/RS485 Serial Port Header

*Notice: COM header can function as RS232/422/485 port header. In normal settings COM functions as RS232 header. With compatible COM cable COM can function as RS422 or RS485 header. User also needs to go to BIOS to set ‘Transmission Mode Select’ (refer to Page-33) at first, before using specialized cable to connect different pins of this port.

(4) GPIO (10-pin): GPIO Header
(5) FP_USB3(19-pin): USB 3.1 (Gen.2) Port Wafer

*Note: FP_USB3 header is optional for Model NF893-H370.

(6) FP_USB1/FP_USB2 (9-pin): USB 2.0 Port Header
(7) **FP_AUDIO (9-pin): Line-Out, MIC-In Header**
This header connects to Front Panel Line-out, MIC-In connector with cable.

(8) **DMIC_CON (4-Pin): Digital Microphone Header**
(9) PN_LED (6-pin): LED Header
Chapter 3
Introducing BIOS

Notice! The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version from our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain 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 device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

3-1 Entering Setup
Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <Del> to enter Setup.
3-2  BIOS Menu Screen

The following diagram show a general BIOS menu screen:

![BIOS Menu Screen Image]

3-3  Function Keys

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 ←→ (left, right) 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.
3-3 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 chipset configuration
- **Security**
  - Password settings
- **Boot**
  - To change boot settings
- **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.
3-6  Main Menu
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 time elements.
3-7 Advanced Menu

- CPU Configuration
  Press [Enter] to view current CPU configuration and make settings for the following sub-items:
  
  **Hyper-Threading**
  The optional settings: [Disabled]; [Enabled].
  When set as [Disabled] only one thread per enabled core is enabled.
  **[Enabled]**: for Windows and Linux (OS optimized for Hyper-Threading Technology).
  **[Disabled]**: for other OS (OS optimized not for Hyper-Threading Technology).
  *Note: ‘Hyper-Threading’ item may or may not show up, depending on different CPU.

- Intel (VMX) Virtualization Technology
  The optional settings: [Enabled]; [Disabled].
  When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Intel(R) SpeedStep(tm)
This item allows more than two frequency ranges to be supported.
The optional settings: [Disabled]; [Enabled].

**C states**
Use this item to enable or disable CPU power management.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], it allows CPU to go to C states when it is not 100% utilized.

**Turbo Mode**
Use this item to enable or disable Turbo Mode.
*Note: This item might not be available depending on configuration.*

- **SATA Configuration**
Press [Enter] to make settings for the following sub-items:

  - **SATA Configuration**
  - **SATA Controller(s)**
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:

  - **SATA Mode Selection**
  - For NF893-H310 series: the optional setting is: [AHCI].
  - For NF893-H370 series: the optional settings are: [AHCI], [RAID].

- **M.2 (M2M)**
  - **Port**
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable M2M port.

- **SATA1/SATA2**
  - **Port**
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable device connected respective port.

- **Hot Plug**
The optional settings: [Disabled]; [Enabled].

- **PCH-FW Configuration**
Press [Enter] to view ME information and make settings in the following sub-item:
  - **Firmware Update Configuration**
Use this item to configure Management Engine Technology parameters.
Press [Enter] to make settings for ‘ME FW Image RE-Flash’.

**ME FW Image Re-Flash**
Use this item to enable or disable ME FW Image Re-Flash function.
The optional settings: [Disabled]; [Enabled].

* In the case that user needs to update ME firmware, user should set ‘ME FW Image Re-Flash’ as [Enabled], save the settings and exit. The system will turn off and reboot after 4 seconds. If the user goes to BIOS screen again will find this item is set again as [Disabled], but user can still re-flash to update firmware next time.

- **Trusted Computing**
Press [Enter] to enable or disable ‘Security Device Support’.

**Security Device Support**
Use this item to enable or disable BIOS support for security device.
The optional settings: [Disabled]; [Enabled].
*When set as [Enabled], user can make further settings in the following items:

**Pending Operation**
Use this item to schedule an operation for the security device. Your computer will reboot during restart to change state of device.
The optional settings: [None]; [TPM Clear].

**TPM2.0 UEFI Spec Version**
Use this item to select the TCG2 Spec Version supported.
The optional settings: [TCG_1_2]; [TCG_2].

- **ACPI Settings**
Press [Enter] to make settings for the following sub-items:

**ACPI Settings**

**ACPI Sleep State**
Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.
The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].

- **Wake-up Function Settings**
Press [Enter] to make settings for the following sub-items:
Wake-up System with Fixed Time
Use this item to enable or disable system wake on alarm event. 
The optional settings: [Disabled]; [Enabled]. 
When set as [Enabled], system will wake on the hour/min/sec specified.

Wake-up System with Dynamic Time
Use this item to enable or disable system wake on alarm event. 
System will wake on the current time + Increase minute(s). 
The optional settings: [Disabled]; [Enabled]. 
When set as [Enabled], system will wake on the current time + increased minute(s).

PS2 KB/MS Wake-up
Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5. 
The optional settings: [Enabled]; [Disabled].
*Note: This function is supported when ‘ERP Support’ is set as [Disabled].

USB S3/S4 Wake-up
Use this item to enable or disable USB S3/S4 wakeup. This function is only supported when ERP function is disabled. 
The optional settings: [Enabled]; [Disabled].
*Note: This function is supported when ‘ERP Support’ is set as [Disabled].

USB S5 Power
Use this item to enable or disable USB power after power shutdown. 
The optional settings: [Enabled]; [Disabled].
*Note: This function is supported when ‘ERP Support’ is set as [Disabled].

Internal USB Port S5 Power
Use this item to enable or disable USB power after power shutdown. 
The optional settings: [Enabled]; [Disabled].
*Note: This function is supported when ‘ERP Support’ is set as [Disabled].

- Super I/O Configuration
  Press [Enter] to make settings for the following sub-items:
Super I/O Configuration

ERP Support
The optional settings: [Disabled]; [Auto].
*Note: This item should be set as [Disabled] if you wish to have all active wake-up functions.

- Serial Port 1 Configuration
  Press [Enter] to make settings for the following items:
  - Serial Port
    Use this item to enable or disable serial port (COM).
  - Change Settings
    Use this item to select an optimal setting for super IO device. Changing setting may conflict with system resources.
  - Transmission Mode Select
    The optional settings are: [RS422]; [RS232]; [RS485].
  - Mode Speed Select
    The optional settings are: [RS232/RS422/RS485=250kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].
  - WatchDog Reset Timer
    Use this item to enable or disable WDT reset function. When set as [Enabled], the following sub-items shall appear:
    - WatchDog Reset Timer Value
      User can select a value in the range of [10] to [255] seconds when ‘WatchDog Reset Timer Unit’ set as [Sec]; or in the range of [1] to [255] minutes when ‘WatchDog Reset Timer Unit ’ set as [Min].
    - WatchDog Reset Timer Unit
      The optional settings are: [Sec.]; [Min.].
  - ATX Power Emulate AT Power
    This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select ‘AT or ATX Mode’ on MB jumper at first (refer to Page 11, Pin 1&2 of AT_COPEN jumper for ATX Mode & AT Mode Select).
  - Case Open Detect
    Use this item to detect case has already open or not, show message in POST.
    The optional settings: [Disabled]; [Enabled].
    When set as [Enabled], system will detect if COPEN has been short or not (refer to Page 11, Pin 3&4 of AT_COPEN jumper for case open detection); if COPEN is
short, system will show Case Open Message during POST.

- **Serial Port Console Redirection**
  
  **COM1**
  
  **Console Redirection**
  The optional settings: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear:

  - **Console Redirection Settings**
    The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
    
    Press [Enter] to make settings for the following items:

    - **Terminal Type**
      The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].
      Emulation: [ANSI]: Extended ASCII char set; [VT100]: ASCII char set; [VT100+]: Extends VT100 to support color, function keys, etc.; [VT-UTF8]: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

    - **Bits per second**
      Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
      The optional settings: [9600]; [19200]; [38400]; [57600]; [115200].

    - **Data Bits**
      The optional settings: [7]; [8].

    - **Parity**
      A parity bit can be sent with the data bits to detect some transmission errors.
      The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].
      [Even]: parity bit is 0 if the num of 1’s in the data bits is even; [Odd]: parity bit is 0 if num of 1’s in the data bits is odd; [Mark]: parity bit is always 1; [Space]: Parity bit is always 0; [Mark] and [Space] Parity do not allow for error detection.

    - **Stop Bits**
      Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
The optional settings: [1]; [2].

**Flow Control**
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

The optional settings: [None]; [Hardware RTS/CTS].

**VT-UTF8 Combo Key Support**
Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

The optional settings: [Disabled]; [Enabled].

**Recorder Mode**
With this mode enable only text will be sent. This is to capture Terminal data.

The optional settings: [Disabled]; [Enabled].

**Resolution 100x31**
Use this item to enable or disable extended terminal resolution.

The optional settings: [Disabled]; [Enabled].

**Putty Keypad**
Use this item to select FunctionKey and Keypad on Putty.

The optional settings: [VT100]; [Linux]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

**Legacy Console Redirection**

- **Legacy Console Redirection Settings**
  Press [Enter] to make settings for the following item:

**Legacy Console Redirection Settings**

**Redirection COM Port**
For user to select a COM port to display redirection of legacy OS and Legacy OPROM messages.

The optional settings are: [COM1]; [COM1(Pci Bus0, Dev0, Func0) (Disabled)].

**Resolution**
This item is for user to select the number of Rows and Columns supported redirection.

The optional settings are: [80x24]; [80x25].
Redirect After POST
The optional settings are: [Always Enable]; [Bootloader].
When [Bootloader] is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When [Always Enabled] is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to [Always Enabled].

Serial Port for Out-of-Band Management/
Windows Emergency Management Services (EMS)

Console Redirection
The optional settings: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear:

- **Console Redirection Settings**
  The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
  Press [Enter] to make settings for the following items:

  - **Out-of-Band Mgmt Port**
    The optional settings: [COM1]; [COM1(Pci Bus0, Dec0, Func0) (Disabled)].

  - **Terminal Type**
    The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].
    [VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is [VT100+] and then [VT100]. See above, in Console Redirection Settings page, for more help with Terminal Type/Emulation.

  - **Bits per second**
    Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
    The optional settings: [9600]; [19200]; [57600]; [115200].

  - **Flow Control**
    Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
The optional settings: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

**Data Bits**
The default setting is: [8].
*This item may or may not show up, depending on different configuration.*

**Parity**
The default setting is: [None].
*This item may or may not show up, depending on different configuration.*

**Stop Bits**
The default setting is: [1].
*This item may or may not show up, depending on different configuration.*

- **PC Health Status**
  Press [Enter] to view current hardware health status, make further settings in ‘SmartFAN Configuration’ and set value in ‘Shutdown Temperature’.

  - **SmartFAN Configuration**
    Press [Enter] to make settings for SmartFan Configuration:

    **SmartFAN Configuration**

    **CPUFAN / SYSFAN Smart Mode**
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

    **CPUFAN / SYSFAN Full-Speed Temperature**
Use this item to set CPUFAN/SYSFAN full speed temperature. Fan will run at full speed when above this pre-set temperature.

    **CPUFAN / SYSFAN Full-Speed Duty**
Use this item to set CPUFAN/SYSFAN full-speed duty. Fan will run at full speed when above this pre-set duty.

    **CPUFAN / SYSFAN Idle-Speed Temperature**
Use this item to set CPUFAN /SYSFAN idle speed temperature. Fan will run at idle speed when below this pre-set temperature.

    **CPUFAN / SYSFAN Idle-Speed Duty**
Use this item to set CPUFAN/SYSFAN idle speed duty. Fan will run at idle speed when below this pre-set duty.
**Shutdown Temperature**
Use this item to select system shutdown temperature.
The optional settings are: [Disabled]; [70°C/158°F]; [75°C/167°F]; [80°C/176°F]; [85°C/185°F]; [90°C/194°F].

- **USB Configuration**
  Press [Enter] to make settings for the following sub-items:
  - **USB Configuration**
    - **Legacy USB Support**
      The optional settings are: [Enabled]; [Disabled]; [Auto].
      - [Enabled]: To enable legacy USB support.
      - [Disabled]: to keep USB devices available only for EFI specification,
      - [Auto]: To disable legacy support if no USB devices are connected.
  - **XHCI Hand-off**
    This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
    The optional settings are: [Enabled]; [Disabled].
  - **USB Mass Storage Driver Support**
    The optional settings are: [Disabled]; [Enabled].

- **USB hardware delay and time-out:**

  - **USB Transfer time-out**
    Use this item to set the time-out value for control, bulk, and interrupt transfers.
    The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].
  - **Device reset time-out**
    Use this item to set USB mass storage device start unit command time-out.
    The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].
  - **Device power-up delay**
    Use this item to set maximum time the device will take before it properly reports itself to the host controller. ‘Auto’ uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor. The optional settings: [Auto]; [Manual]. Select [Manual] you can set value for the following sub-item: **Device Power-up delay in seconds**, the delay range in from 1 to 40 seconds, in one second increments.
Network Stack Configuration
Press [Enter] to go to ‘Network Stack’ screen to make further settings.

Network Stack
Use this item to enable or disable UEFI Network Stack.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

IPv4 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable IPv4 PXE Boot Support. When set as [Disabled], IPv4 boot option will not be created.

IPv6 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable IPv6 PXE Boot Support. When set as [Disabled], IPv6 boot optional will not be created.

PXE boot wait time
Use this item to set wait time to press [ESC] key to abort the PXE boot.

Media Detect Count
Use this item to set number of times presence of media will be checked.

CSM Configuration
Press [Enter] to make settings for the following sub-items:

CSM Support
Use this item to enable or disable CSM Support
The optional settings are: [Disabled]; [Enabled].

Option ROM execution

Network
This option controls the execution of UEFI and Legacy PXE OpROM.
The optional settings are: [Do not launch]; [Legacy].

Storage
This option controls the execution of UEFI and Legacy Storage OpROM.
The optional settings are: [Do not launch]; [UEFI]; [Legacy].

Other PCI devices
This item is for PCI devices other than Network, Mass storage or video defines which OpROM to launch.
The optional settings are: [Do not launch]; [UEFI]; [Legacy].

- **NVMe Configuration**
  Press [Enter] to check NVMe controller and driver information.

- **Intel(R) Ethernet Connection (7) I219-V- XX:XX:XX:XX:XX**
  This item shows current network brief information.

### 3-8 Chipset Menu

- **System Agent (SA) Configuration**
  Press [Enter] to make settings for the following sub-items:
  - **VT-d**
    The optional settings are: [Enabled]; [Disabled].

  - **Memory Configuration**
    Press [Enter] to view brief information for the working memory module.

  - **Graphics Configuration**
    Press [Enter] to make further settings for Graphics Configuration.

**Graphics Configuration**
Primary IGFX Boot Display
Use this item to select the video device which will be activated during POST. This has no effect if external graphics present.
The optional settings are: [VBIOS Default]; [DP]; [HDMI]; [LVDS].

*Note: In the case that the ‘Primary IGFX Boot Display’ is select as [DP], [HDMI], or [LVDS], user can make further settings in ‘Secondary IGFX Boot Display’:

Secondary IGFX Boot Display
Use this item to select the secondary Display device.
The optional settings are: [Disabled]; [DP]; [HDMI].

Aperture Size
Use this item to select the Aperture Size. Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.
The optional settings are: [128MB]; [256MB]; [512MB]; [1024MB]; [2048MB].

DVMT Pre-allocated
Use this item to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
The optional settings are: [32M]; [64M].

DVMT Total Gfx Mem
Use this item to select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.
The optional settings are: [128M]; [256M]; [MAX].

Backlight Control
Use this item to select Back Light Control settings.
The optional settings are: [PWM Inverted]; [PWM Normal].

*Note: This function is supported when ‘Primary IGFX Boot Display’ is set as [LVDS].

Panel Type
Use this item to manually select LCD panel type.
The optional setting are: [800x 480 18bit Single]; [800x 600 18bit Single]; [800x 600 24bit Single]; [1024 x 600 18bit Single]; [1024 x 768 18bit Single]; [1024 x 768 24bit Single]; [1280 x 768 24bit Single]; [1280 x 800 18bit Single]; [1280 x 800
24bit Single]; [1366 x 768 18bit Single]; [1366 x 768 24bit Single]; [1440 x 900 18bit Dual]; [1440 x 900 24bit Dual]; [1280 x 1024 24bit Dual]; [1680 x 1050 24bit Dual]; [1920 x 1080 24bit Dual].

*Note: This function is supported when ‘Primary IGFX Boot Display’ is set as [LVDS].

LVDS FW Write Protect
Use this item to enable or disable support LVDS FW update/Protect.
The optional settings are: [Enabled]; [Disabled].

*Note: This function is available when ‘Primary IGFX Boot Display’ is set as [LVDS].

▶ PCH-IO Configuration
Press [Enter] to make settings for the following sub-items:

PCH-IO Configuration

HD Audio
This item controls detection of the HD-Audio device.
The optional settings are: [Disabled]; [Enabled].
[Disabled]: HDA will be unconditionally disabled.
[Enabled]: HAD will be unconditionally enabled.

Onboard Lan Controller
Use this item to enable or disable corresponding onboard NIC device or controller.
The optional settings are: [Disabled]; [Enabled].

*When set as [Enabled], the following sub-items shall appear:
  Wake on LAN Enable
  Use this item to enable or disable integrated LAN to wake the system.
The optional settings are: [Disabled]; [Enabled].

PCI-E Slot
Use this item to enable or disable PCI-E slot PCI Express root port function.
The optional settings are: [Disabled]; [Enabled].

  Speed
  Use this item to configure PCIe speed.
The optional settings are: [Auto]; [Gen1]; [Gen2].

M2E Slot
Use this item to enable or disable M2E slot PCI Express root port function. The optional settings are: [Disabled]; [Enabled].

*M2M Slot*
Use this item to enable or disable M2M slot PCI Express root port function. The optional settings are: [Disabled]; [Enabled].

*Note: ‘M2M Slot’ is only available for NF893-H370 series.*

State After G3
Use this item to specify what state to go to when power re-applied after a power failure (G3 state).
The optional settings are: [Always On]; [Always Off]; [Former State].

3-9 Security Menu

Security menu allow users to change administrator password and user password settings.

Administrator Password
If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to
verify old password then to clear/change password. Press again to confirm the new administrator password.

User Password
If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

- Secure Boot
  Press [Enter] to make customized secure settings:
  - Secure Boot
    The optional settings are: [Disabled]; [Enabled].
    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.
  - Secure Boot Mode
    The optional settings are: [Standard]; [Custom].
    Set UEFI Secure Boot Mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode.
    In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
    *When set as [Custom], user can make further settings in the following items that show up:
      - Restore Factory Keys
        Use this item to force system to User Mode, to install factory default Secure Boot key databases.
      - Reset To Setup Mode
        Use this item to delete all Secure Boot Key databases from NVRAM.
      - Key Management
        This item enables experienced users to modify Secure Boot variables, which includes the following items:
        - Factory Key Provision
          This item is for user to install factory default secure boot keys after the platform
reset and while the system is in Setup mode.
The optional settings are: [Disabled]; [Enabled].

- **Restore Factory Keys**
  Use this item to force system into User Mode. Install factory default Secure Boot Key databases.

- **Reset to Setup Mode**
  Use this item to delete all Secure Boot key databases from NVRAM.

- **Export Secure Boot variables**
  Use this item to copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

- **Enroll Efi Image**
  This item allows the image to run in Secure Boot Mode.
  Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

**Device Guard Ready**

- **Remove ‘UEFI CA’ from DB**
  Device Guard ready system must not list ‘Microsoft EFI CA’ Certificate in Authorized Signature database (db).

- **Reset DB defaults**
  Use this item to restore DB variable to factory defaults.

**Secure Boot Variable/Size/Keys/Key Source**

- **Platform Key (PK)/Key Exchange Keys/Authorized Signature/Forbidden Signature/ Authorized TimeStamps/OS Recovery Signatures**
  Use this item to enroll Factory Defaults or load the keys from a file with:
  1. Public Key Certificate in:
     a) EFI_SIGNATURE_LIST
     b) EFI_CERT_X509 (DER encoded)
     c) EFI_CERT_RSA2048 (bin)
     d) EFI_CERT_SHA256 (bin)
  2. Authenticated UEFI Variable
  3. EFI PE/COFF Image (SHA256)
  Key Source: Factory, External, Mixed.
3-10 Boot Menu

**Boot Configuration**

Setup Prompt Timeout  
Use this item to set number of seconds to wait for setup activation key.

Bootup NumLock State  
Use this item to select keyboard numlock state.  
The optional settings are: [On]; [Off].

Quiet Boot  
The optional settings are: [Disabled]; [Enabled].

**Boot Option Priorities**

Boot Option #1/ Boot Option #2…  
Use this item to decide system boot order from available options.
3-11 Save & Exit Menu

**Save Options**
**Save Changes and Reset**
This item allows user to reset the system after saving the changes.

**Discard Changes and Reset**
This item allows user to reset the system without saving any changes.

**Default Options**
**Restore Defaults**
Use this item to restore /load default values for all the setup options.

**Save as User Defaults**
Use this item to save the changes done so far as user defaults.

**Restore User Defaults**
Use this item to restore the user defaults to all the setup options.

**Boot Override**
**UEFI: Built-in EFI Shell**
Press this item and a dialogue box shall appear to ask if user wish to save configuration and reset.