Micro ATX Intel Atom D410/D510 Mainboard

User's Manual

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CONTENTS

CHAPTER 1  PACKAGE CONTENTS .................................................................................. 2
CHAPTER 2  INTRODUCTION ................................................................................... 3
CHAPTER 3  MAINBOARD LOCATIONS ................................................................... 4
CHAPTER 4  INSTALLATION .................................................................................... 5
  4.1 Jumper Setting and Slot .................................................................................. 5
  4.2 Memory Installation ....................................................................................... 6
  4.3 PCI-E x16 Display Card Installation ............................................................... 6
  4.4 Other Device Installation .............................................................................. 6
CHAPTER 5  DRIVER INSTALLATION ....................................................................... 8
  5.1 Installation Directory .................................................................................... 8
  5.2 Intel Chipset Software Setup .......................................................................... 8
  5.3 DirectX9.0C Setup ....................................................................................... 10
  5.4 Sound Driver Setup ..................................................................................... 12
  5.5 VGA Driver Setup ....................................................................................... 14
  5.6 LAN Driver Setup ....................................................................................... 16
CHAPTER 6  BIOS SETUP ........................................................................................ 17
  6.1 Main menu ..................................................................................................... 18
  6.2 Standard BIOS Features ............................................................................... 19
  6.3 Advanced BIOS Features ............................................................................ 19
  6.4 Advanced Chipset Features ......................................................................... 20
  6.5 Integrated Peripherals .................................................................................. 20
  6.6 Power Management Setup ........................................................................... 21
  6.7 PNP/ PCI Configuration ................................................................................ 21
  6.8 PC Health Status ......................................................................................... 26
  6.9 Frequency/Voltage Control .......................................................................... 22
  6.10 NO DISK(PXE/DOL) .................................................................................. 26
  6.11 Load Optimal Defaults ............................................................................... 22
  6.12 BIOS Security Features .............................................................................. 22
  6.13 Save Changes and Exit & Discard Changes and Exit .................................. 23
Chapter 1  Package Contents

Your mainboard package contains the following items:

1  One micro-ATX mainboard
2  SATA data cable (optional)
3  One 4-pin SATA power cable (optional)
4  Driver installation CD
5  One user's manual
6  One I/O shield
Chapter 2  Introduction

Key Features:

- Chipset  : Intel D410 / D510 + NM10

- CPU  : A onboard low-power INTEL Atom® processor, main frequency D410 or D510 (dual-core) as 1.66GHZ, 1 MB L2 cache, FSB 667MHZ, supports Hyper-Threading technology,

- Memory  : Supports DDRII 667/800 Single Channel Mode

  Provides Two 240 pin DDR2 slots

- I/O  : four SATA 300 channels (speed up to 3GB/S)

  One serial port

  One VGA port

  Eight USB ports

  One PS/2 Keyboard port

  One PS/2 Mouse port

- AUDIO  : Supports six channel sound Output

  Supports 16 bit ADC (Analog Digital Converter)

  Supports multiple stereo input mixer

  Provides Mic In, Line In, Line Out jack

- LAN:  10/100/1000* Mbps RJ-45 (* 1000 Mbps optional)

- Expansion slot  : One PCI-E 16 slot (PCI-E x1 lane)

  One MINI PCI-E 1x

  Two 32-bit PCI slots 2.3 specification compliant
Chapter 3  Mainboard Locations
# Chapter 4 Installation

## 4.1 Jumper Setting and Slot

### Clear CMOS Jumper setting

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Normal</td>
</tr>
<tr>
<td>2-3</td>
<td>Clear CMOS</td>
</tr>
</tbody>
</table>

### Audio: Front panel Jumper setting

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
<th>PIN</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MIC+</td>
<td>2</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>Vbias</td>
<td>4</td>
<td>AuD Vcc(AVCC)</td>
</tr>
<tr>
<td>5</td>
<td>AuD R Out</td>
<td>6</td>
<td>AuD R Out Back</td>
</tr>
<tr>
<td>7</td>
<td>N.C.</td>
<td>8</td>
<td>Key</td>
</tr>
<tr>
<td>9</td>
<td>AuD L Out</td>
<td>10</td>
<td>AuD L Out Back</td>
</tr>
</tbody>
</table>

### Expansion slot

<table>
<thead>
<tr>
<th>Slot</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDR2-A1/DDR2-A2</td>
<td>240 PIN DDR2 MEMORY SLOT</td>
</tr>
<tr>
<td>PCI1 / PCI2</td>
<td>120 PIN PCI BUS expansion slots</td>
</tr>
<tr>
<td>MINI PCI-E1</td>
<td>MINI PCI-Ex1 expansion slots</td>
</tr>
<tr>
<td>PCI-EXPRESS X 16</td>
<td>PCI EXPRESS X16 expansion slots</td>
</tr>
</tbody>
</table>

### USB: Expansion Connector

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
<th>PIN</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VCC: Power +</td>
<td>2</td>
<td>VCC: Power +</td>
</tr>
<tr>
<td>3</td>
<td>D-: Data - Signal</td>
<td>4</td>
<td>D-: Data - Signal</td>
</tr>
<tr>
<td>5</td>
<td>D+: Data + Signal</td>
<td>6</td>
<td>D+: Data + Signal</td>
</tr>
<tr>
<td>7</td>
<td>GND: Ground</td>
<td>8</td>
<td>GND: Ground</td>
</tr>
<tr>
<td>9</td>
<td>KEY</td>
<td>10</td>
<td>NC</td>
</tr>
</tbody>
</table>

### Connectors

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS/2 (Bottom)</td>
<td>PS/2 Keyboard (Purple)</td>
</tr>
<tr>
<td>PS/2 (Top)</td>
<td>PS/2 Mouse Header(Green)</td>
</tr>
<tr>
<td>R USB1/2</td>
<td>USB Connector Port</td>
</tr>
<tr>
<td>F USB1/2</td>
<td>USB Connector Port</td>
</tr>
<tr>
<td>VGA1</td>
<td>VGA Connector Port</td>
</tr>
<tr>
<td>COM1</td>
<td>Serial Port COM1 Connector Port</td>
</tr>
<tr>
<td>JACK1</td>
<td>Audio Output/Audio Input/Microphone</td>
</tr>
<tr>
<td>F_AUDIO</td>
<td>Front audio</td>
</tr>
<tr>
<td>CD_IN</td>
<td>CDROM Audio Input Port</td>
</tr>
<tr>
<td>S_ATA1/S_ATA2</td>
<td>SATA Port</td>
</tr>
<tr>
<td>IRDA</td>
<td>Far infrared interface</td>
</tr>
<tr>
<td>ATX</td>
<td>ATX _12V Power Supply Connector Port</td>
</tr>
<tr>
<td>CPU/SYS_FAN</td>
<td>FAN Port</td>
</tr>
<tr>
<td>Speaker</td>
<td>Speaker Output</td>
</tr>
</tbody>
</table>
### Function Port Panel

<table>
<thead>
<tr>
<th>Port</th>
<th>Pin Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply LED</td>
<td>Pin2: Power Supply Anode; Pin4: Ground</td>
</tr>
<tr>
<td>HDD LED</td>
<td>Pin1: Power Supply Anode; Pin3: LED Signal</td>
</tr>
<tr>
<td>Power Supply Switch</td>
<td>Pin6, 8: Switch Signal</td>
</tr>
<tr>
<td>Reset Switch</td>
<td>Pin5, 7: Reset Switch</td>
</tr>
</tbody>
</table>

### 4.2 Memory installation

This mainboard supports DDR2 667/800 MHz memory. 240-pin modules from 256MB up to 4GB can be installed. Follow these instructions to install the Memory:

1. Push the latches on each side of the DIMM slot down.
2. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
3. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
4. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM. Install any remaining DIMM modules.

### 4.3 PCI-E x16 Display Card Installation

The system can be expanded with discrete graphics card (PCI-E x16) what boosts the performance.

### 4.4 Other Device Installation

#### 4.4.1 Serial ATA Installation

(7-Pin SATA1/SATA2)

The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement. These connectors support Serial ATA HDDs and allow up to 3GB/s data transfer rate using thin 4-conductor SATA cables.

**Note:** Hot plug support for Serial ATA drive and connections are not available in this motherboard.
4.4.2 Sound Connector Port Installation

This motherboard has three audio ports connect audio device.

- Upper – Blue – Line IN
- Middle – Green – Speaker output
- Under – Pink – Mic IN

4.4.3 Clear CMOS (Clear RTC RAM)

This jumper allows you to clear the CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The RAM data in CMOS, including system setup information such as system passwords, is powered by the onboard button cell battery.

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pin 1-2 (default) to pin 2-3. Keep the cap on pin 2-3 for about 5-10 seconds, and then move the cap back to pins1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the <DEL> key during the boot process and enter BIOS setup.

Note1: Do remove the cap on CLRTC1 jumper default position, except when clearing RTC RAM. Removing the cap will cause system boot failure!

4.4.4 ATX Power connectors (24-pin ATX)

These connectors connect to an ATX 12V power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit. In addition to the 24-pin PW1 connector,

Note1: Your ATX 12V power supply needs at least 15A on the +12V lead and at least 2A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 300W or above for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

Note2: Do not forget to connect the 24-pin ATX power plugs. Failure to do so may cause severe damage to the CPU or motherboard!
Select “Finish” to continue

Chapter 6  BIOS Setup

The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies those information to initialize all the components when booting up and basic function of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the Page Up key while rebooting your computer. Holding down the Page Up key also clears the setup information,
6.1 Main menu

| ▼ Standard BIOS Features | ▼ Frequency/Voltage Control |
| ▼ Advanced BIOS Features | ▼ NO DISK(PXE/DOL) |
| ▼ Advanced Chipset Features | Load Optimal Defaults |
| ▼ Integrated Peripherals | ▼ BIOS Security Features |
| ▼ Power Management Setup | Save & Exit Setup |
| ▼ PNP/PCI Configuration | Quit Without Saving |
| ▼ PC Health Status | |

↑ ↓ ← →: Move Enter: Select PGDN/PGUP: Value ESC: Exit F1: General Help 
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults F10: Save

Configure Time and Date Display System Information...

You can use cursor arrow keys to highlight anyone of options on the main menu page. Press Enter to select the highlighted option. Press the Escape key to leave the setup utility. Press the F9 key to go back to menu in BIOS. Some options on the main menu page lead to tables of items with installed value that you can use cursor arrow keys to highlight on item, and press Page Up and Page Down keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes that require your answer Yes or No by hitting the Y or N keys. If you have already changed the setup utility, press F10 to save those changes and exit the utility.

✦ **Standard BIOS Features**
  Setup date, time, floppy type

✦ **Advanced BIOS Features**
  Setup BIOS provides function, for example virus, boot-strap induct

✦ **Advanced Chipset Features**
  Setup mainboard chipset parameter, for example DRAM Timing

✦ **Integrated Peripherals**
  Setup include mainboard all peripherals drive

✦ **Power Management Setup**
Setup CPU, Hard disk, Monitor drive power save mode

✧ **PNP/PCI Configuration**
Set up PnP and PCI interface parameter

✧ **PC Health Status**

✧ **Frequency/Voltage Control**

✧ **NO DISK(PXE/DOL)**

✧ **Load Optimal Defaults**
Set up the best performance values in system

✧ **BIOS Security Features**
Set up supervisor password in system
Set up user password in system

✧ **Save & Exit Setup**
Set up save and exit, press Y to save and exit

✧ **Quit Without Saving**
Set up without save and exit, press N to without save and exit

### 6.2 Standard BIOS Features

Standard BIOS Features

✧ **SATA Configuration**
Default: Press Enter

SATA1
Default: Not Detected

SATA2
Default: Not Detected

✧ **System Information**
Default: Press Enter

✧ **System Time (hh: mm: ss)**
These items set up system date.

✧ **System Date (mm: dd: yy)**
These items set up system time.

### 6.3 Advanced BIOS Features

✧ **CPU Configuration**
Default: Press Enter

Max CPUID Value Limit
Default: Disabled

Execute Disable Bit Capability
Default: Enabled

Hyper Threading Technology
Default: Enabled
Full Screen LOGO Show Default: Disabled
Quick Boot Default: Disabled
Bootup Num-LOCK Default: ON
MPS Revision Default: 1.4
PS/2 Mouse Support Default: AUTO
Wait For 'F1' If Error Default: Enabled
Hit 'DEL' Message Display Default: Enabled
Boot MENU Default: Enabled

6.4 Advanced Chipset Features
Memory Remap Feature Default: Enabled
PCI MMIO Allocation: 4GB to 3328MB
Initiate Graphics Adapter Default: PEG/PCI
Internal Graphics Mode Select Default: Enabled, 8MB
Onboard Mini-PCI-E Default: AUTO
PEG Port Configuration
Video Function Configuration Default: Press Enter
DVMT Mode Select Default: DVMT Mode
DVMT/FIXED Memory Default: 256MB
Spread Spectrum Clock Default: Disabled

6.5 Integrated Peripherals
Storage Features Setup Default: Press Enter
Configure SATA as Default: IDE
SATA Run Mode Configuration Default: Compatible

Hard Disk Write Protect Default: Disabled
IDE Detect Time Out (Sec) Default: 35
ATA (PI) 80Pin Cable Detect Default: Host & Device
Onboard Device Default: Press Enter
USB Configuration Default: Press Enter
<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Functions</td>
<td>8 USB Ports</td>
</tr>
<tr>
<td>USB 2.0 Controller</td>
<td>Disabled</td>
</tr>
<tr>
<td>Legacy USB Support</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB 2.0 Controller Mode</td>
<td>Hispeed</td>
</tr>
<tr>
<td>HD Audio Controller</td>
<td>AUTO</td>
</tr>
<tr>
<td>System BIOS Protect</td>
<td>Enabled</td>
</tr>
<tr>
<td>Onboard LAN Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td>PXE Function Support</td>
<td>Disabled</td>
</tr>
<tr>
<td>SuperIO Configuration</td>
<td>Press Enter</td>
</tr>
<tr>
<td>Onboard Floppy Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td>Serial Port Address</td>
<td>3F8/IRQ4</td>
</tr>
<tr>
<td>Serial Port Mode</td>
<td>Normal</td>
</tr>
<tr>
<td>IR Port Address</td>
<td>Disabled</td>
</tr>
<tr>
<td>KBC Input Clock</td>
<td>8MHZ</td>
</tr>
<tr>
<td>Keyboard PowerOn</td>
<td>Disabled</td>
</tr>
<tr>
<td>Mouse PowerOn</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

### 6.6 Power Management Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPI APIC support</td>
<td>Enabled</td>
</tr>
<tr>
<td>PWRON After PWR-Fail</td>
<td>Power Off</td>
</tr>
<tr>
<td>PowerOn by PCI card</td>
<td>Disabled</td>
</tr>
<tr>
<td>Wake-up by PCI-E</td>
<td>Disabled</td>
</tr>
<tr>
<td>Resume On RTC Alarm</td>
<td>OFF</td>
</tr>
</tbody>
</table>

### 6.7 PCI/PNP Resource Management

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear NVRAM</td>
<td>No</td>
</tr>
<tr>
<td>Plug&amp; Play O/S</td>
<td>No</td>
</tr>
<tr>
<td>PCI Latency Timer</td>
<td>32</td>
</tr>
<tr>
<td>Allocate IIRQ to PCI VGA</td>
<td>Yes</td>
</tr>
<tr>
<td>Palette Snooping</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
PCI IDE BusMaster: Default: Disabled
OffBoard PCI/ISA IDE Card: Default: Auto
  IRQ10/ IRQ11/ IRQ14/ IRQ15/: Default: Available
DMA Channel 0: Default: Available
DMA Channel 1: Default: Available
DMA Channel 3: Default: Available
DMA Channel 5: Default: Available
DMA Channel 6: Default: Available
DMA Channel 7: Default: Available
Reserved Memory Size: Default: Disabled

6.8 PC Health Status
H/W Health Function: Default: Enabled
CPU Shutdown Temperature: Default: Disabled

6.9 Frequency/Voltage Control
Configure DRAM Timing by SPD: Default: Enabled

6.10 NO DISK (PXE/DOL)
Onboard LAN Controller: Default: Enabled
PXE Function Support: Default: Disabled

6.11 Load Optimal Defaults
If you select this item and press enter a dialog box appears.
If you press Y, and then Enter, the setup utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.
6.12 BIOS Security Features

- Change Supervisor Password  Default: Press Enter
- Change User Password  Default: Press Enter
- Boot Sector Virus Protection  Default: Disabled

If you highlight this item and press Enter, a dialog box appears that you can enter a supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then the password is required for the access to the setup utility or for it at start-up, depending on the setting of the password check item in advanced setup.

6.13 Save & Exit Setup & Quit Without Saving

Highlight this item and press Enter to save the changes that you have made in the setup utility configuration and exit the program. When the save and exit dialog box appears, press Y to save and exit, or press N to exit without saving.