



Micro ATX Intel Atom D410/D510 Mainboard

User's Manual

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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

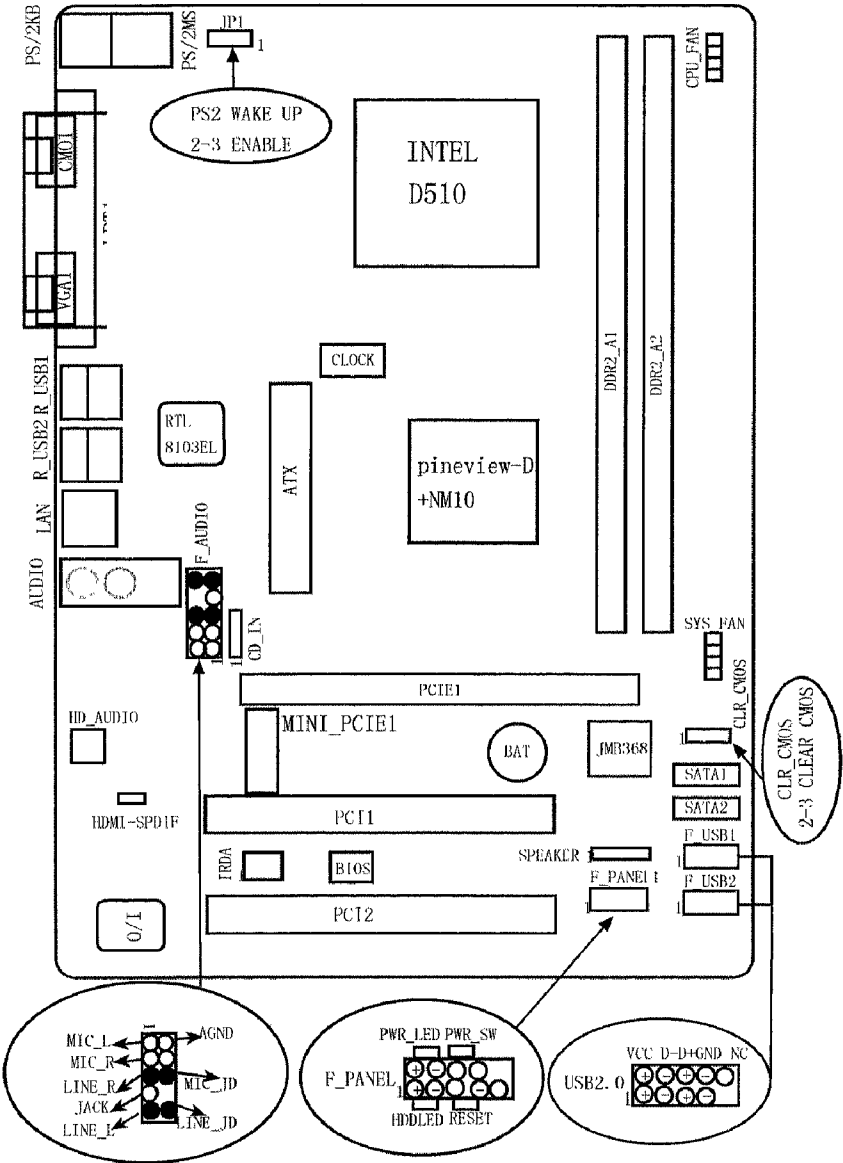
- I/O : four SATA 300 channels (speed up to 3GB/S)
One serial port
One VGA port
Eight USB ports
One PS/2 Keyboard port
One PS/2 Mouse port

- 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

1-2	Normal
2-3	Clear CMOS

Audio: Front panel Jumper setting

PIN	Function	PIN	Function
1	MIC+	2	Ground
3	Vbias	4	AuD_Vcc(AVCC)
5	AuD_R_Out	6	AuD_R_Out Back
7	N.C.	8	Key
9	AuD_L_Out	10	AuD_L_Out Back

Expansion slot

DDR2-A1/DDR2-A2	240 PIN DDR2 MEMORY SLOT
PCI1 / PCI2	120 PIN PCI BUS expansion slots
MINI PCI-E1	MINI PCI-Ex1 expansion slots
PCI-EXPRESS X 16	PCI EXPRESS X16 expansion slots

USB: Expansion Connector

PIN	Function	PIN	Function
1	VCC: Power +	2	VCC: Power +
3	D-: Data - Signal	4	D-: Data - Signal
5	D+: Data + Signal	6	D+: Data + Signal
7	GND: Ground	8	GND: Ground
9	KEY	10	NC

Connectors

PS/2 (Bottom)	PS/2 Keyboard (Purple)
PS/2 (Top)	PS/2 Mouse Header(Green)
R_USB1/2	USB Connector Port
F_USB1/2	USB Connector Port
VGA1	VGA Connector Port
COM1	Serial Port COM1 Connector Port
JACK1	Audio Output/Audio Input/Microphone
F_AUDIO	Front audio
CD_IN	CDROM Audio Input Port
S_ATA1/S_ATA2	SATA Port
IRDA	Far infrared interface
ATX	ATX_12V Power Supply Connector Port
CPU/SYS_FAN	FAN Port
Speaker	Speaker Output

Function Port Panel

Power Supply LED	Pin2: Power Supply Anode; Pin4: Ground
HDD LED	Pin1: Power Supply Anode; Pin3: LED Signal
Power Supply Switch	Pin6, 8: Switch Signal
Reset Switch	Pin5, 7: Reset Switch

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.

Note1: Hot plug support for Serial ATA drive and connections are not available in this motherboard.

4.4.2 Sound Connector Port Installation

This mainboard 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 pins 1-2.
- 3 Plug the power cord and turn ON the computer.
- 4 Hold down the key during the boot process and enter BIOS setup.

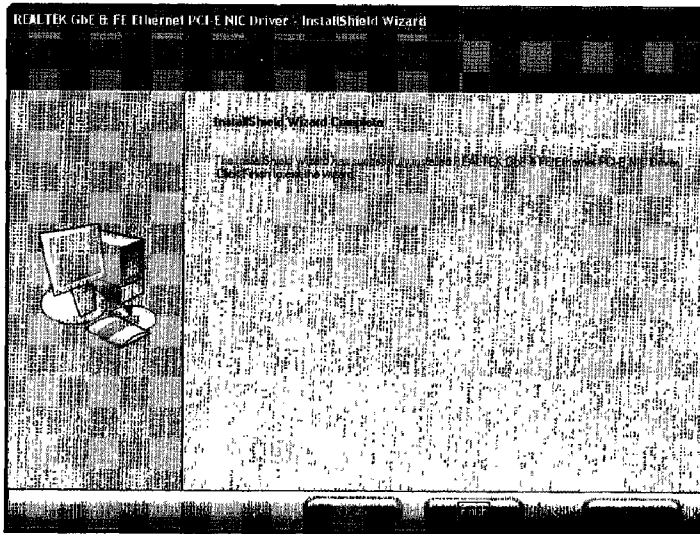
Note1: Do remove the cap on CLRTC1 jumper default position, except when clearing RTC RAM. Removing the cap will cause system boot failure!

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 you 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

CMOS Setup Utility American Megatrends, Inc.	
▼ Standard BIOS Features ▼ Advanced BIOS Features ▼ Advanced Chipset Features ▼ Integrated Peripherals ▼ Power Management Setup ▼ PNP/PCI Configuration ▼ PC Health Status	▼ Frequency/Voltage Control ▼ NO DISK(PXE/DOL) Load Optimal Defaults ▼ BIOS Security Features Save & Exit Setup Quit Without Saving
↑ ↓ ← → : 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**

Setup PnP and PCI interface parameter

✧ **PC Health Status**

✧ **Frequency/Voltage Control**

✧ **NO DISK(PXE/DOL)**

✧ **Load Optimal Defaults**

Setup the best performance values in system

✧ **BIOS Security Features**

Setup supervisor password in system

Setup user password in system

✧ **Save & Exit Setup**

Setup save and exit, press Y to save and exit

✧ **Quit Without Saving**

Setup 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

USB Functions	Default: 8 USB Ports
USB 2.0 Controller	Default: Disabled
Legacy USB Support	Default: Enabled
USB 2.0 Controller Mode	Default: Hspspeed
✧ HD Audio Controller	Default: AUTO
✧ System BIOS Protect	Default: Enabled
✧ Onboard LAN Controller	Default: Enabled
✧ PXE Function Support	Default: Disabled
✧ SuperIO Configuration	Default: Press Enter
Onboard Floppy Controller	Default: Enabled
✧ Serial Port Address	Default: 3F8/IRQ4
✧ Serial Port Mode	Default: Normal
✧ IR Port Address	Default: Disabled
✧ KBC Input Clock	Default: 8MHZ
✧ Keyboard PowerOn	Default: Disabled
✧ Mouse PowerOn	Default: Disabled

6.6 Power Management Features

✧ ACPI APIC support	Default: Enabled
✧ PWRON After PWR-Fail	Default: Power Off
✧ PowerOn by PCI card	Default: Disabled
✧ Wake-up by PCI-E	Default: Disabled
✧ Resume On RTC Alarm	Default: OFF

6.7 PCI/PNP Resource Management

✧ Clear NVRAM	Default: No
✧ Plug& Play O/S	Default: No
✧ PCI Latency Timer	Default: 32
✧ Allocate IIRQ to PCI VGA	Default: Yes
✧ Palette Snooping	Default: Disabled

✧	PCI IDE BusMaster	Default: Disabled
✧	OffBoard PCI/ISA IDE Card	Default: Auto
✧	IRQ3/IRQ4/ IRQ5/ IRQ7/ IRQ9/ 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
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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.