

## I. **User Introduction**

This manual is intended to support computer manufacturers and end users with the installation and configuration of motherboards. In addition, the material contained in this manual is intended to provide information about other products and to explain the technical differences between products and their operation. The manual contents have been carefully checked to ensure it is free of errors. Nevertheless we cannot guarantee that it is completely free of errors. NMC accepts no liability for any loss of profits or business or for any loss of data or working time or for any direct, unusual, incidental damage or consequential damage sustained of whatsoever kind. The equipment concerned is EMC-critical. Therefore installation and set-up of the motherboard may only be carried out by trained technical staff who are familiar with relevant current EMC guidelines. NMC PE GmbH reserves the right to make changes without prior notice to this manual or to the motherboard described in the OSM for technical reasons.

**Copyright 1999.** All rights reserved. This manual is protected under the law of copyright. The reproduction of this manual or electronic transfer of excerpts thereof or translation of the document into other languages is not permitted except by prior consent. Electronic, mechanical, magnetic, optical, chemical, manual or any other form of reproduction are likewise ruled out. Permission to reproduce the document can only be granted by NMC PE GmbH.

Allusions by name to other products in this manual are purely for the purpose of unambiguously designating and identifying the products described in the manual, which remain the property of their owners.

## Technical Support

If you need any additional information regarding installation or operation of the NMC motherboard, please refer in the first instance to your supplier. If your supplier is unable to provide further assistance, you can send your queries to our Technical Support team at any time, at our email address. [Support@nmc-pe.de](mailto:Support@nmc-pe.de)

### Internet:

<http://www.nmc-pe.de>

Edition: January 2000

Version: 1.0 (English)

Please note down the serial number of your NMC motherboard. You will find this on the external ISA slot on a white label underneath the bar code.

## Motherboard serial number:

-----

### Bios Update

If you need a Bios update for the motherboard, you can download this (provided a Bios update is available) from our home page. You will also find on our home page the tools which are necessary in order to flash update the Bios.

## Internet Addresses

<http://www.nmc-pe.de> or [www.nmc-pe.com](http://www.nmc-pe.com)

[Support@nmc-pe.de](mailto:Support@nmc-pe.de)

### Trademark

All brand names are the property of their owners and are mentioned only for the purposes of identification.

---



---

# Table of Contents

<b>I. User Introduction</b> .....	<b>1</b>
Technical Support .....	2
Internet: .....	2
Bios Update .....	2
Trademark.....	2
Table of Contents .....	3
<b>II. Components Checklist</b> .....	<b>5</b>
Components Checklist.....	5
<b>III. Introduction</b> .....	<b>6</b>
AMD-K7 TM Processor .....	6
S.E.C. Cartridge Terminology .....	7
Accelerated Graphics Port .....	8
Hardware Monitoring.....	8
ATA/UDMA 33/66.....	8
AMR Card.....	8
USB ( Universal Serial Bus ).....	9
STR ( Suspend To RAM ) .....	9
<b>IV. Mainboard Layout</b> .....	<b>11</b>
Mainboardlayout NMC- 7VAX.....	11
Mainboard Feature.....	12
<b>V. Hardware Configuration</b> .....	<b>14</b>
CPU Vcore Configuration .....	14
CPU Clk Configuration .....	14
Jumperconfiguration.....	15
Clear CMOS.....	15
Keyboard Power On.....	15
WOL (Wake On LAN).....	15
The I/O Shield .....	17
Memory configuration .....	17
DIMM Modul Installation.....	18
DIMM Modul .....	18
PC133.....	18
VCM ( Virtual Channel Memory ) .....	18
<b>VI. CPU Installation</b> .....	<b>19</b>
<b>VII. The BIOS</b> .....	<b>20</b>
What is Bios? .....	20

---

---

USER INTRODUCTION

---

---

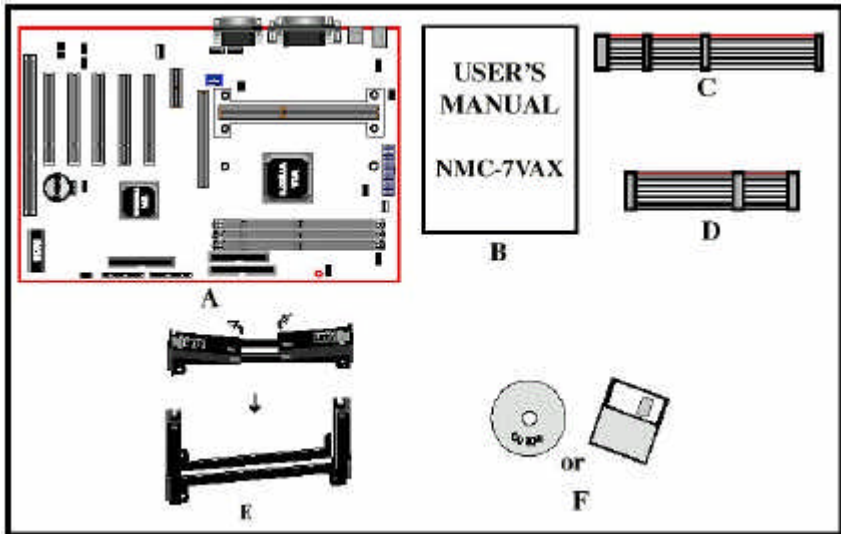
BIOSsetup .....	21
Standard CMOS Setup .....	22
Advanced Feature Setup .....	22
Advanced Chipset Feature .....	25
Power Management Setup .....	28
PnP/PCI Configuration .....	30
Integrated Peripherals .....	32
Sensor and CPU Speed Setup .....	35
Load Fail-Safe Defaults.....	37
Supervisor Password.....	37
User Password.....	37
Save & Exit setup .....	37
Exit without saving .....	37
Bios Update .....	37
Programmparameter.....	39
<b>VIII. Notes .....</b>	<b>40</b>
Liability and Warranty .....	40
Technical Changes.....	40

## II. Components Checklist

### Components Checklist

The components listed below should come with your NMC motherboard

- A (1) NMC- 7VAX+ Mainboard
- B (1) NMC- 7VAX+ Manual
- C (1) Floppy-Cable
- (1) IDE HDD- Cable
- D (1) Retentionmodul
- E (1) IDE Busmaster Driver
- (1) USDM Software



### III. Introduction

#### AMD-K7™ Processor

The AMD-K7™ processor is the newest microprocessor in the AMD K86™ family of microprocessors. The AMD K7 processor brings superscalar RISC performance to desktop systems running industry-standard x86 software. This processor implements advanced design techniques such as:

- ◆ Three out-of-order, superscalar, pipelined Multimedia Units
- ◆ Three out-of-order, superscalar, pipelined Integer Units
- ◆ Three x86 instruction decoders
- ◆ Fixed-sized internal instruction formats (MacroOPs)
- ◆ 72-entry Instruction Control Unit
- ◆ AMD 3DNOW!™ technology
- ◆ Large L1 and L2 caches and translation lookaside (TLB) structures
- ◆ Register renaming and data-forwarding
- ◆ Dynamic branch prediction
- ◆ S2K Interface Technology

The AMD K7 processor is the first x86 processor ever to incorporate the S2K interface technology to deliver unprecedented system performance. The S2K interface technology is based on the EV6 bus technology from Digital/Compaq and provides 1.6 Gbytes per second bandwidth to the system.

The AMD K7 Processor utilizes Single Edge Contact (S.E.C.) (Figure 1) cartridge packaging technology. The S.E.C. cartridge utilizes surface mounted core components and a printed circuit board with an edge finger connection. The S.E.C. cartridge package introduced on the AMD K7 Processor will also be used in future Slot A processors.

The S.E.C. cartridge has the following features: a thermal plate, a cover and a PCB with an edge finger connection. The thermal plate allows standardized heatsink attachment or customized thermal solutions. The thermal plate enables a reusable

heatsink to minimize fit issues for serviceability, upgradeability and replacement. The full enclosure also protects the surface mount components. The edge finger connection maintains socketability for system configuration. The edge finger connector is denoted as 'Slot A connector' in this and other documentation.

## **S.E.C. Cartridge Terminology**

- ◆ Processor card

The green PCB (with or without components on it)

- ◆ Processor core

The CPU silicon chip on the processor card.

- ◆ Cover

The plastic cover on the opposite side from the thermal plate.

- ◆ Slot A

The slot that the S.E.C. cartridge plugs into.

- ◆ Retention mechanism

Formerly 'retention module' the dual posts, etc. that holds the cartridge in place.

- ◆ Thermal plate

The heatsink attachment plate.

- ◆ Heat sink supports

The support pieces that are mounted on the mainboard to provide added support for heatsinks.

## **Accelerated Graphics Port**

Typically, 3D graphics rendering requires a tremendous amount of memory, and demands ever increasing throughput speed as well. As 3D products for the personal computer become more and more popular, these demands will only increase. This will cause a rise in costs for both end users and manufacturers. Lowering these costs as well as improving performance is the primary motivation behind AGP. By providing a massive increase in the bandwidth available between the video card and the processor, it will assist in relieving some of these pressures for quite sometime.

## **Hardware Monitoring**

Hardware monitoring allows you to monitor various aspects of your systems operations and status. The features include CPU temperature, voltage and RPM of fan.

## **ATA/UDMA 33/66**

Advanced Technology Attachment, also known as Integrated Drive Electronics (IDE), is a standard electronic interface used between a computer motherboard's bus and the computer's disk storage devices. With IDE, the disk drive controller is built into the logic board in the disk drive. There are two different important standards at this moment.

ATA 33 ( UDMA33 ) and ATA 66 ( UDMA 66 ). UDMA stands for Ultra Memory Direct Access. The different between both standards is not only the max. datatransfer. UDMA needs a 40 pin cable and UDMA 66 needs a 80 pin cable. To use a UDMA 66 device your mainboard has to support UDMA 66.

## **AMR Card**

AMR stands for Audio Modem Riser Card, a special Card which changes the digital signals from the AC 97 Codec. Some chipsets like the Intel® 800 series have the capability to generate digital sound and modem signals. To use this signals with standard devices like speakers or to get an internet connect you have to change this digital signal to analog signals. This is the function of the AMR Card. The AMR Card works in a special AMR slot which is installed on the mainboard.



## USB ( Universal Serial Bus )

USB (Universal Serial Bus) is an interface developed by Intel which can be used in many applications. It is a variation of the IEEE 1394 ("Firewire"), which is also used outside computers. Up to 127 devices can be connected to the USB cable and the data transfer rate is up to 1MB/second, which is also sufficient for scanners and printers. These devices can be unplugged and plugged in during operation. Windows 95 OSR 2.5 and Windows 98 detect the change automatically and install the appropriate drivers.

## STR ( Suspend To RAM )

The NMC-7VAX supports the STR power management state by maintaining the appropriate states on the SDRAM interface signals. The power source must be kept alive to the SDRAM during STR (ACPI S3). Advanced Configuration Power Interface (ACPI) provides more Energy Saving Features for operating systems that support OS such as Instant ON and QuickStart ™ function.

1. To enable the ACPI function and use the STR functionally to save your system energy, you are recommended to confirm the following requirements:
  - ◆ a. In BIOS, please select " ACPI function: Enable" and "ACPI Suspend Type: S3(STR)" in the Power Management Setup menu.
  - ◆ b. Then, please type the following before installing the Windows ® 98:  
{Driver}:> Setup /p j

If the Windows ® 98 installed in your system without the parameters above, please do refer your manual or contact Microsoft for more detail and then upgrade the system to support ACPI function.

- ◆ c. Restart your system.
  - ◆ d. Getting in to the "Advanced" of the Power Management icon of Control Panel, and selecting the "Stand By" in the Power Buttons.
2. Getting start with STR function, please click the START button and choose Shut Down icon. Then, select the Stand By option in the Shut Down Windows box to let system go to STR mode. Here are the differences between STR power saving mode and Green (or Suspend) mode:
    - ◆ a. It is the most advanced Power Management mode

---

---

## INTRODUCTION

---

---

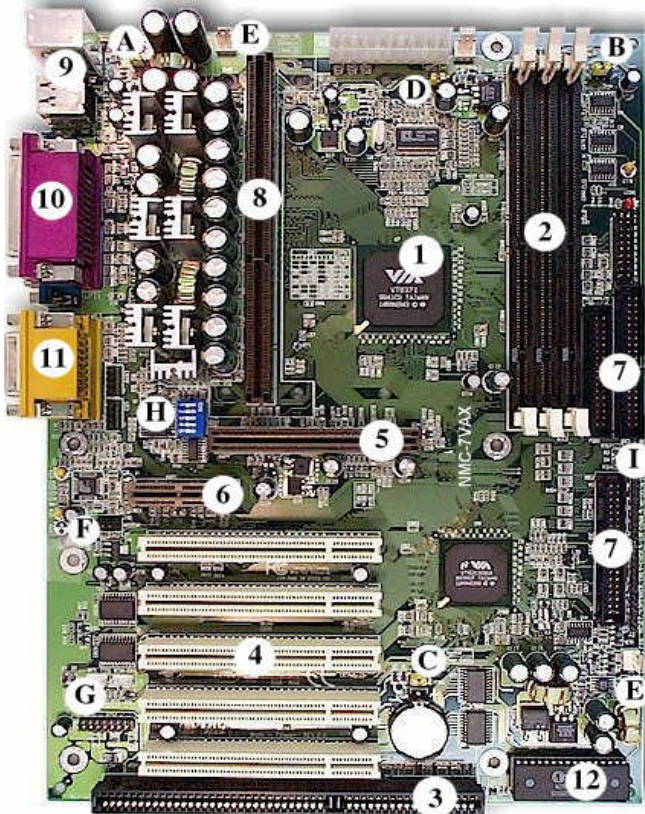
- ◆ b. It cuts all the power supplied to peripherals except to Memory - max. power
- ◆ It saves and keeps all on-screen data including any executed applications to SDRAM.
- ◆ d. You must push the Power button connected with onboard J3 pin to wake up your system (not to click to mouse or press keyboard to wake up the system.) Just pushing Power button, your system will quickly back to the last screen for you.

The "LED Indicator for ACPI Status" table shown below will guide you and give you a reference for ACPI status on this mainboard.

ACPI Onboard's LED Status Indicator Table					
Onboards LED Location	Status				
	Plug in the ATX Power core	Power On JP3 ( PW-On )	Green Mode ( S 1 )	STR ( S 3 )	Shutdown ( S5 )
LED 1 ( Red LED )	OFF	ON	ON	ON	OFF
J2 ( Power LED )	OFF	ON	Blinking	OFF	OFF

## IV. Mainboard Layout

### Mainboardlayout NMC- 7VAX



1	Chipset	11	Sound
2	DIMM Socket	12	AWARD PnP Bios
3	ISA Slot	A	JP4 Keyboard Power On
4	PCI Slot	B	JP2
5	AGP Slot	C	JP1 Clear CMOS
6	AMR Slot	D	JP3 Host Clock
7	HDD / FDD Connector	E	Fan connectors
8	CPU Socket ( Slot A )	F	Modem 1
9	PS/2 / USB Connector	G	WOL WOM USB2
10	Serial / Parallel	H	SW1 CPU Vcore

## Mainboard Feature

- ◆ NMC-7VAX is based on the AMD K7 Processor operating at 500 ~ 800MHz on SlotA. Designed with VIA KX133 AGPset.
- ◆ Supports up to 768MB of DRAM (minimum of 8 MB) on board (please see page 16).
- ◆ NMC-7VAX will support Error Checking and Correcting (ECC) when using parity SDRAM memory modules. This will detect multiple bit errors and correct 1-bit memory errors.
- ◆ Supports (1) 16 bit ISA slots, (5) 32 bit PCI slots, (1) 4X AGP slot, (1) AMR slot and provides (2) independent high performance PCI IDE interfaces capable of supporting PIO Mode 3/4 and Ultra DMA 33/66 devices.
- ◆ The NMC-7VAX supports (5) PCI Bus Master slots and a jumperless PCI INT# control scheme which reduces configuration confusion when plugging in PCI card(s).
- ◆ Supports ATAPI (e.g. CD-ROM) devices on both Primary and Secondary IDE interfaces.
- ◆ Designed with on chip Multi I/O: (1) floppy port, (1) parallel port (EPP, ECP), and (2) serial ports (16550 Fast UART). Note: Japanese "Floppy 3 mode" is also supported
- ◆ Features Award Plug & Play BIOS. With Flash Memory you can always upgrade to the current BIOS as they are released.
- ◆ NMC-7VAX utilizes a Lithium battery which provides environmental protection and longer battery life.
- ◆ Supports the (4) Universal Serial Bus (USB) Ports. The onboard VT82C686A chip provides the means for connecting PC peripherals such as; keyboards, joysticks, telephones, and modems.
- ◆ Built-in ATX 20-pin power supply connector.
- ◆ Software power-down when using Windows ® 95/98.
- ◆ Supports ring-in feature (remote power-on through external modem, allows system to be turned on remotely).

---

---

## MAINBOARD LAYOUT

---

---

- ◆ Resume by Alarm - Allows your system to turn on at a preselected time.
- ◆ Power Loss Recovery - In the event of a power outage your system will automatically turn itself back on without user intervention.
- ◆ Supports CPU Hardware sleep and SMM (System Management Mode).
- ◆ Supports Keyboard power ON function (KBPO).
- ◆ Built-in WOL (Wake-up On Lan) Connector.
- ◆ Built-in WOM (Wake-up On Modem) Connector.
- ◆ Built-in AC97 PCI Audio.
- ◆ Supports STR (Suspend to RAM) function.

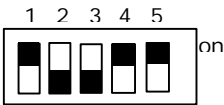
## V. Hardware Configuration

The following must be completed before powering on your new system:

- ◆ Jumper Settings
- ◆ System memory Configuration
- ◆ Install Processor
- ◆ Device Connectors
- ◆ External Modem Ring-in Power ON and Keyboard Power ON Functions (KBPO)
- ◆ Device Connectors

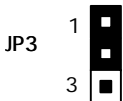
The M/B is designed with very few jumpers to make the installation faster and easier.

### CPU Vcore Configuration







SW1					CPU Vcore
1	2	3	4	5	
					Auto
		ON		ON	1,5V
ON		ON		ON	1,55V
	ON	ON		ON	1,6V
ON	ON	ON		ON	1,65V
			ON	ON	1,7V
ON			ON	ON	1,75V
	ON		ON	ON	1,8V

### CPU Clk Configuration



JP3	CPU Takt
1-2	100MHz
2-3	133MHz

## Jumperconfiguration

JP1		<p><b>Clear CMOS</b></p> <p>JP1 = 1-2 Default = 2-3 Clear CMOS</p>
JP2		<p><b>STR Funktion</b></p> <p>JP2 = 1-2 Disabled (Default) = 2-3 Enabled</p>
JP4		<p><b>Keyboard Power-on</b></p> <p>JP4 = 1-2 Disabled (Default) = 2-3 Enabled</p>
JP5		<p><b>Power Loss Recovery</b></p> <p>JP5 = 1-2 Disabled (Default) = 2-3 Enabled</p>

### Clear CMOS

In order to be able to delete the Bios settings as required quickly and easily, many NMC motherboards include a jumper which holds the Bios data in the factory condition and, after a conversion process lasting approx. 5 seconds, deletes the Bios data, converting the unit to the delivery state.

### Keyboard Power On

The keyboard power on function allows you to switch the computer on via the keyboard. Normally you need to set a jumper for this. On NMC motherboards this jumper will be found near the I/O shield.

### WOL (Wake On LAN)

The Wake on LAN is a three-pin connection which is provided for connecting to a network card designed for this purpose. This connection is used solely for the purpose of switching on or reactivating the computer via the network card from another computer in the network..



Soundkarten zu ermöglichen.

---



---

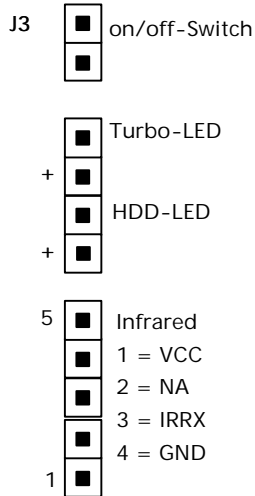
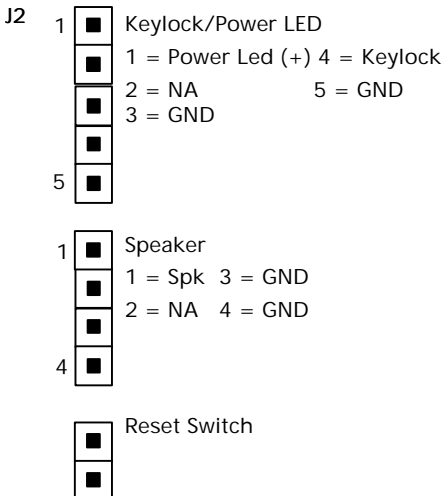
HARDWARE CONFIGURATION

---



---

- J 4: CPU Fan Connector
- J 6: Connector for Case Fan
- J 5: Connector for Power FAN
- CD1 CD Audio Connector
- AUX1 AUX Audio Connector
- J 2: Keylock, Speaker, Reset
- J 3: IR Connector TB-LED, HDD-LED, POWER\_ON

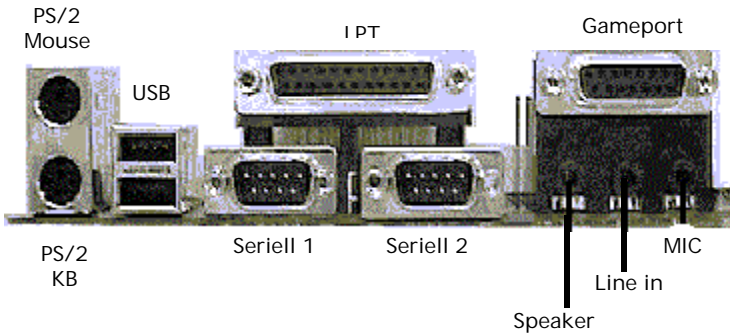




## The I/O Shield

Before the system can be started up for the first time it is necessary to connect up any external components such as input devices and monitors. On ATX motherboards this is done using the "I/O shield". The I/O shield contains the PS/2 connections, the USB ports and also the serial and parallel connections.

On some motherboards with one particular chipset (see "Chipsets" chapter) the I/O shield includes additional connections for the sound card and/or the onboard video card. The figure below provides a schematic representation of the connections which you will find on your motherboard.



## Memory configuration

Total Memory	DIMM 1	DIMM2	DIMM 3
= 256MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1	None	None
= 512MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1	None
= 768MB Maximum	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1	EDO/SDRAM* 8MB, 16MB, 32MB, 64 MB , 128 MB 256MBx1

\* Supports SDRAM of 8, 16, 32, 64, 128, 256MB DIMM Module.

## DIMM Modul Installation

To remove a memory module simply, follow the guidance provided on the next page.

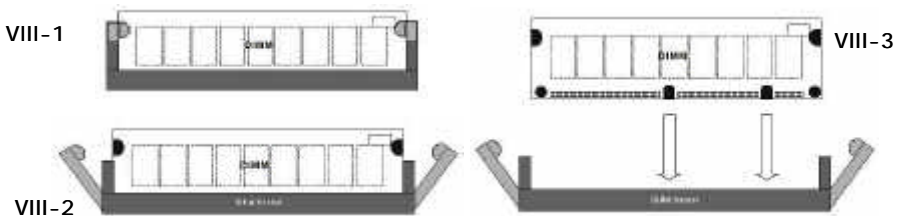
### DIMM Modul

#### Removing the memory

- Unfasten the brackets which are holding the memory module in the socket as shown in Figures VIII-1 and VIII-2. As you loosen the brackets, the module will already lift up a little..
- Now pull the memory module right out of the socket (see Figure VIII-3). If it seems a bit tight, please do not apply any force.

#### Installing memory

- When installing the DIMM module, make sure that the pattern of notches on the pin side of the module agrees with the pattern on the socket as it is not possible to mount the module the other way round.
- When you have inserted the module, lock the brackets as shown in Figure VIII-2..



## PC133

VIA has published the PC133 specification as a new DRAM standard. This specification is similar to Intels PC 100 specification. In this specification, precise requirements are defined as to what times and signal tolerances are permitted in order to ensure that the modules in 133MHz motherboards work reliably.

### VCM ( Virtual Channel Memory )

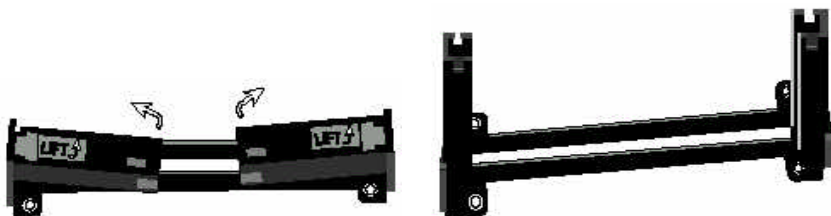
VCM is a development from NEC and a new DRAM standard. VCM, improves latency and throughput performance issues by temporarily storing data in multiple channels between the input/output terminals and memory cells. This allows the memory chip o prepare other memory data requests in a separate channel, while reading or writing current data. This increases the data transfer speeds.

## VI. CPU Installation

The NMC-7VAX uses the Single Edge Contact (SEC) slot for a AMD K7 proces-sor packaged in an SEC cartridge.

Please have ready the following list of components so that we may install the processor onto the motherboard.

1. AMD K7 processor heat sink
  2. AMD K7 Processor
- ◆ OK, now that you have all of your components ready, we can start. First, please refer to figure 6 below, and follow the direction to lift up the foldable AMD K7 Retention Mechanism. This pre-installed device is designed for you to install AMD K7 CPU more easier and to avoid any damage on the board due to overtightening the four screws.
  - ◆ One thing must be kept in your mind that please make sure to lift upright the foldable parts of the Retention module to fit and install CPU properly.



Now we are going to install the heatsink support base piece onto the motherboard. here is both a large and small hole so that the base will only fit in one direction. This piece needs to be pushed into the holes firmly until it is seated. Now we are ready to install the SEC Cartridge (AMD K7 Processor) into the Retention Module. The SEC Cartridge is mounted by sliding the SEC Cartridge into the Retention Module and letting it slide all the way down. Once it reaches the bottom make sure you press firmly on SEC cartridge to firmly secure into the Slot A Socket.

## VII. The BIOS

This chapter covers the setting and functions of the Bios, its commands and their significance, as well as the possible consequences of the settings. In this chapter you will find all the AWARD Bios functions for the chipsets used on NMC motherboards. This means that you will find Bios functions described which are not available on your NMC motherboard. You will find an appropriate note as to which chipsets and NMC motherboards provide each Bios function next to each Bios setting discussed.

### What is Bios?

The Bios (Basic Input Output System) is a kind of mini-operating system which configures your computer on start-up. Chip-specific settings such as the simple specification of the hard disk types used and the date are defined here and, if requested, these are backed up in the so-called CMOS. CMOS is a small battery-powered memory which retains the settings even after the computer has been switched off. This means that it is not necessary to keep reconfiguring the Bios.

A distinction is made in the Bios chips not only between type or manufacturer but also as regards the storage capacity of the chip. Generally, 128KB and 256KB-sized chips are used on the motherboards. More recent versions of the Bios are available in 512KB.



The capacity is usually stated as a 1 (= 128KB) or a 2 (= 256KB) [see circle above]. The complete type designation gives the voltage to be used during the flash process. On the next few pages the individual setup menu options and the options provided under each option will be explained.

## BIOSsetup

- ◆ Power on the computer and press the <Del> key immediately, this will bring you into the BIOS CMOS SETUP UTILITY.
- ◆ It is possible for the CMOS battery to fail, this will cause data loss in the CMOS only. If this does happen you will need to reconfigure your BIOS settings.



The following steps will take you to the main Bios menu.

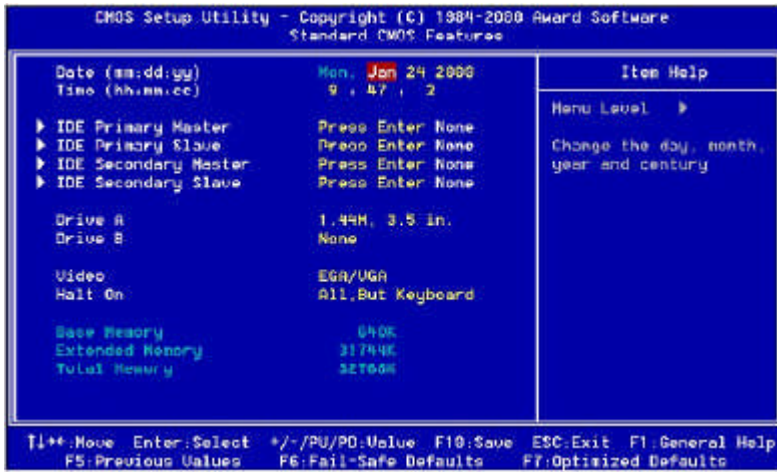
- Switch on your computer or perform a hardware RESET (not recommended if you have any applications running). After a few system checks, the message "Press DEL to enter SETUP" will appear.
- Press the <DEL> key to start the Award Bios program and the following menu will appear.

Choose one of the options and press <ENTER>. Adjust the settings under this option to your system (see details further on).

- You can press <ESC> at any time to leave the submenu.
- In the main menu, select <Save & Exit Setup> to save your changes and then start your system up again. Select <Exit Without Saving> to cancel the changes and start your system up again..

The various options in the main menu are explained in the sections below.

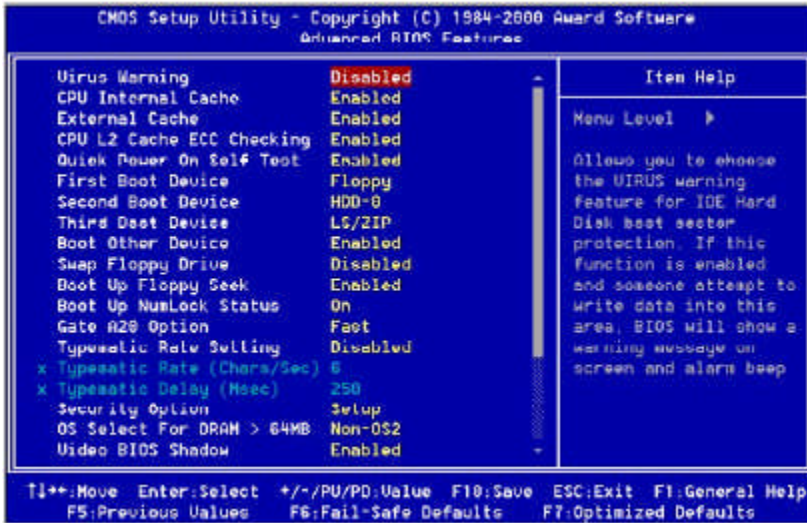
## Standard CMOS Setup



Select "STANDARD CMOS SETUP" from the main menu.

Use the arrow keys to move between the menu options. The individual menu options can be modified by using the PgUp/PgDn/+/- keys. Some fields allow you to make direct inputs. The individual commands are explained on the next page.

## Advanced Feature Setup



---

---

## THE BIOS

---

---

Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings.

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages..

### ➤ Virus Warning

If this option is enabled, the Bios stops the PC in the event of any write access to the boot sector or the partition table and does not resume until the user confirms that the operation should proceed. However, the Bios cannot distinguish real viruses from an operating system reinstallation and will warn of a possible virus attack in either case. The Bios does not have a proper virus scanner but can issue a warning message if a virus is suspected.

#### **Setting options:**

- Enabled
- Disabled (default setting)

**Recommendation:** you should enable this option after installing the operating system as it will help to arrest any viruses. Care should be exercised when running boot managers. Sometimes these write data to the boot sector during boot-up, so that an alarm is triggered every time this happens. Anti-virus programs can also trigger this alarm when they are checking out the boot sector with a checksum test. In this case you should disable the option.

### ➤ CPU Internal / External Cache

Every CPU today possesses an internal buffer (level 1 or "L1"cache) which you can access. Pentium® II/III processors also have an L2 cache on the CPU printed circuit board. All other processors which were not developed for Slot I/II have an L2 cache on the motherboard. With this cache option it is possible to prevent access to the cache – this makes the processor work significantly more slowly.

#### **Setting options:**

- Enabled (default setting)
- Disabled

**Recommendation:** make sure that the two options are both selected. Otherwise your PC will not work at its full potential speed. Often when the operating system crashes it is possible to disable the cache in order to test whether this has a fault. If the problems disappear after disabling, then you may assume that the cache is faulty.

➤ **First/Second/Third/ Other Boot Device**

This field is used to specify the order in which the various drives will be addressed. In other words, the entry here determines where the system should begin its search for an operating system. The first drive in the sequence which has a bootable system is used.

**Setting options**

- **Floppy ; HDD; SCSI ; LS/Zip ; CDROM**

**Recommendation:** enter the drive on which the operating system is installed first. After that, choose drive A. This will allow you to boot up your computer from a diskette in case the primary boot drive fails. If you mainly boot up from diskette, you should put that drive in first place.

➤ **Boot up NumLock Status**

This option specifies whether the numeric keypad should be locked on during the boot-up procedure.

**Setting options:**

- **Enabled**
- **Disabled (default setting)**

**Recommendation:** you can either enable or disable this option, as you please. This setting does not affect system performance.

➤ **Security Option**

This option is used to specify whether when a password is assigned only the Bios is accessed or the entire system.

**Setting options:**

- **Setup (default setting)**
- **System**

**Recommendation:** only define a password for your system if you really need it. If you forget your password, the only way to access the system is via CMOS Reset.

➤ **OS Select for DRAM > 64MB**

This function is intended for operating OS/2 with more than 64MB RAM. In version 3.0, OS/2 can only address 64 MB of RAM.

**Setting options:**

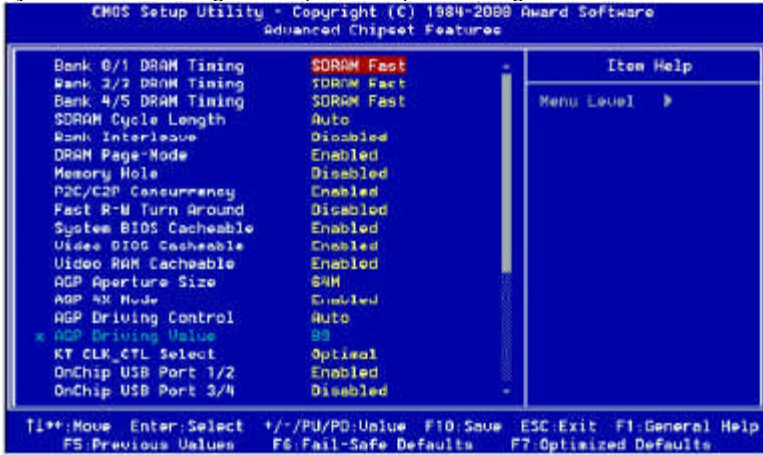
- **NON-OS2 (default setting)**
- **OS2**

**Recommendation:** if you use Windowsä you should set this option to Disabled. If you use OS/2 as the operating system and have installed more than 64 MB RAM but have only been able to use 64 MB up to now, you should set this option to Enabled.



## Advanced Chipset Feature

Under Chipset Feature Setup you can enter settings relating to the control of the memory as well as defining some special chipset settings.



Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings..

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages.

### ➤ Bank 0/1 ; 2/3 ; 4/5 DRAM Timing

This option is used to configure your FPM/EDO DRAM memory modules in the relevant banks. A DIMM slot contains two banks.

**Setting options:**

- Normal
- Fast

**Recommendation:** leave the settings on Fast. If the system is unstable with the Fast setting, change it to Normal.

### ➤ SDRAM Cycle length

This option is used to specify the SDRAM cycle length.

**Setting options:**

- 3
- 2

**Recommendation:** choose a higher value at the start, or else keep the default settings. The correct data will be read from the SPD. **Empfehlung:** Wählen Sie am Anfang einen höheren Wert, oder nutzen Sie die Defaulteinstellungen. Die korrekten Daten werden aus dem SPD ausgelesen

➤ **Bank Interleave:**

The item allows you to set how many banks of SDRAM support in your mainboard.

**Setting options:**

- 2
- 4
- Disabled

➤ **DRAM Page Mode**

This option constitutes a special type of access to the internal memory. The page function used here leaves a given page open after it has been accessed once, ready for the next access.

**Setting options:**

- Enabled
- Disabled

**Recommendation:** this option should be set to Enabled.

➤ **AGP Aperture Size (MB)**

AGP video cards can use random access memory as texture memory. The Graphics Address Remapping Table (GART) transfers graphics data from the video memory to the random access memory and back again. To AGP video cards the memory provided by the RAM appears as continuous. In reality, however, it does not have to be continuous – the GART only maps the memory as a continuous block. The size of the block defines the size of the memory address window for the AGP.

**Setting options:**

- 4 / 8 / 16 / 32 / 64 / 128 / 256

**Recommendation:** do not change anything unless this would mean having to accept limitations when running games. The standard value is 64 MB. If this value is reduced, no memory is released. The aperture size is a virtual size and does not really require the specified memory.

➤ **AGP-4x Mode**

Chipset AGP Mode support.

**Setting Options**

- ◆ 1x
- ◆ 2x
- ◆ 3x

➤ **ON Chip Sound / Modem**

This option allows you to enable or disable the integrated components.

**Setting options:**

- **Enabled**
- **Disabled**

➤ **USB Keyboard Support**

To enable USB keyboard support, set this parameter to **Enabled**.

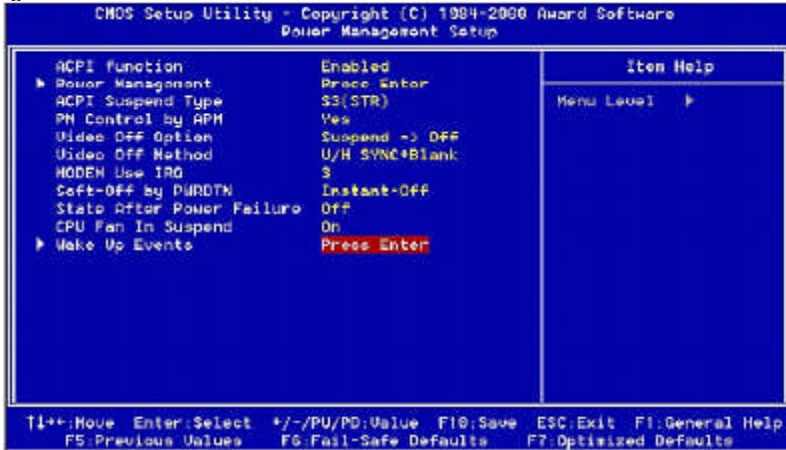
**Setting options:**

- **Enabled**
- **Disabled (default setting)**

**Recommendation:** *if you would like to use a USB keyboard, set this parameter to Enabled.*

## Power Management Setup

This group of functions is provided so that you can enable and adjust the Power Management function.



Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings.

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages.

### ➤ ACPI Function

This field allows you to enable or disable the ACPI function of the board. ACPI allows the operating system to take over direct control of the Power Management and Plug and Play functions of a computer.

#### Setting options:

- Enabled
- Disabled

**Recommendation:** to ensure that the ACPI functions run normally, you must be careful on two points. First, your operating system must support ACPI, something which up to now only Microsoft® Windows® 98 has done. Secondly, all devices and additional installed cards on your system, both hardware and software (drivers), must fully support ACPI

➤ **ACPI Suspend Type**

This item allows you to select S1(POS) or S3(STR) function.

**Setting Options**

- S1 ( POS )
- S3 ( STR )

➤ **PM Control by APM**

Power Management is entirely controlled by APM. APM stands for Advanced Power Management and is a power-saving standard specified by Microsoft®, Intel® and other major suppliers.

**Setting options:**

- Yes
- No

**Recommendation:** *if your operating system is designed for this, you should set this parameter to Yes.*

➤ **Soft-OFF by PWRBTN**

This parameter defines the method by which you switch off the computer.

**Setting options:**

- Delay 4sec.
- Instant Off

**Recommendation:** *choose the Instant Off setting, as this will allow you to switch the computer on and off via a simple click of a button.*

➤ **State After PWR fail**

This function enables the computer to start up automatically after a power failure.

**Setting options:**

- Enabled
- Disabled

**Recommendation:** *this function should be enabled. It is indispensable in applications in which the computer has to operate continuously.*

➤ **MODEM Use IRQ**

This option allows you to specify the interrupt line of any modem which is installed. Activities on this line wake the computer up e.g. in order to receive a fax.

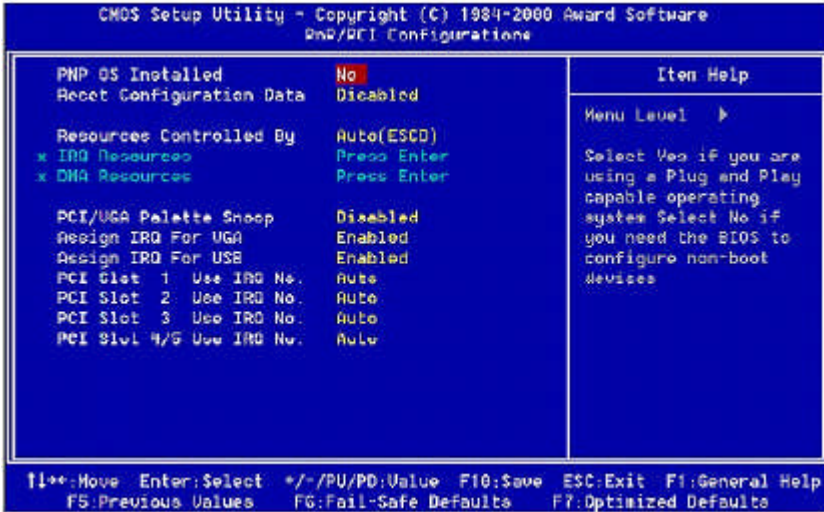
**Setting options:**

- 3-11
- NA

**Recommendation:** *set one free IRQ.*

## PnP/PCI Configuration

This menu option contains the functions which control the Plug and Play and the IRQ assignment..



Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings.

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages.

### > PnP OS installed

This parameter setting tells the Bios whether a Plug and Play-capable operating system is installed or not. Operating systems such as Windows 95 and 98 are able to detect the installed components and allocate the available resources automatically.

Windows always takes over control of the Bios.

#### Setting options:

- Yes
- No

**Recommendation:** if you use Windows 95/98 you should always set this option to **Yes**. With other operating systems e.g. WIN NT, you should set this option to **No**.

➤ **Resources Controlled By**

This option allows you to choose whether the system should assign the IRQs automatically or whether this should be done manually.

**Setting options:**

- Auto
- Manual

**Recommendation:** *provided you have not installed any critical (older ISA cards) components on your system, you should let the Bios perform this assignment automatically..*

➤ **Slot 1 to 5 use IRQ No**

These settings allow the user to specify what IRQ will be assigned to PCI devices in the chosen slot..

**Setting Option:**

**Auto,3,4,5,7,9,10,11,12,14 & 15. The defaults are Auto.**

**Recommendation:** *leave the initial assignment of interrupts for the PCI slots to the Bios by selecting Auto.*

➤ **PCI/VGA Palette Snoop**

Leave this field at Disabled.

**Setting Options:**

- Enabled,
- Disabled

## Integrated Peripherals

Under Integrated Peripherals you can enable or disable the IDE ports. The UDMA functions and control of the serial and parallel interfaces are also specified here.



Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings.

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages.

### ➤ Onchip IDE Channel 0/1

This option enables the first/second IDE port.

#### Setting options:

- Enabled
- Disabled

**Recommendation:** if you want to connect any drives to this port, the option must be enabled.

### ➤ Primary/Secondary Master/Slave PIO

This parameter is used to specify the PIO mode of your hard disk.

#### Setting options:

- Mode 0-4
- Auto



---

---

**Recommendation:** if you do not know the PIO mode of your hard disk, select Auto.

➤ **Primary/Secondary Master/Slave UDMA**

This parameter is used to specify whether the drives on each of the connected UDMA ports can be used.

**Setting options:**

- Enabled
- Disabled

**Recommendation:** the UDMA setting for a given port depends on the UDMA capability of the drives used.

➤ **Init Display First**

This option is used to initialize the video card. If two screen settings are possible on your system, then you should specify here whether the PCI or the AGP video card should be the first card to be initialized.

**Setting options:**

- PCI
- AGP

**Recommendation:** if two screen settings are possible, select the card which you would like to use as the first video card

➤ **Onboard FDD Controller**

This option enables or disables the floppy disk drive controller.

**Setting options:**

- Enabled (default setting)
- Disabled

➤ **USB Keyboard Support**

To enable USB keyboard support, set this parameter to Enabled.

**Setting options:**

Enabled

Disabled (default setting)

**Recommendation:** if you would like to use a USB keyboard, set this parameter to Enabled

➤ **Onboard seriell Port 1/2**

This field allows the user to configure the 1st serial port. The default is Auto..

**Setting Options**

Auto / 2E8/IRQ3 / 2F8/IRQ3 / 3E8/IRQ4 / 3F8/IRQ4 / Disabled

**Recommendation:** choose either Auto or else the default settings.

➤ **Onboard Parallel port:**

This field allows the user to configure the LPT port. The default is 378H / IRQ7.

**Setting Options:**

378H:            **Enable Onboard LPT port and address is 378H and IRQ7.**  
278H:            **Enable Onboard LPT port and address is 278H and IRQ5.**  
3BCH:            **Enable Onboard LPT port and address is 3BCH and IRQ7.**  
Disabled:        **Disable Onboard Winbond Chip's LPT port.**

➤ **Onboard Parallel Port Mode:**

This field allows the user to select the parallel port mode. The default is Normal.

**Setting Options:**

Normal:         **Standard mode. IBM PC/AT Compatible bidirectional parallel port.**  
EPP:             **Enhanced Parallel Port mode.**  
ECP:             **Extended Capabilities Port mode.**  
EPP+ECP:       **ECP Mode & EPP Mode.**

➤ **Onboard Legacy Audio:**

Legacy Audio enabled/disabled.

➤ **Sound Blaster:**

Sound Blaster compatible device enabled/disabled.

➤ **SB I/O Base Address:**

Sound Blaster I/O resource selection.

➤ **SB IRQ Select:**

Legacy audio device IRQ selection.

➤ **SB DMA Select:**

Sound Blaster DMA channel selection.

➤ **MPU-401:**

MPU-401 function enabled/disabled.

➤ **MPU-401 I/O Address:**

Built-in MPU-401 compatible MIDI I/O port selection:

**Setting Options:**

**300-303H**  
**310-313H**  
**320-323H**  
**330-333H (default)**

➤ **Game Port (200-207H):**

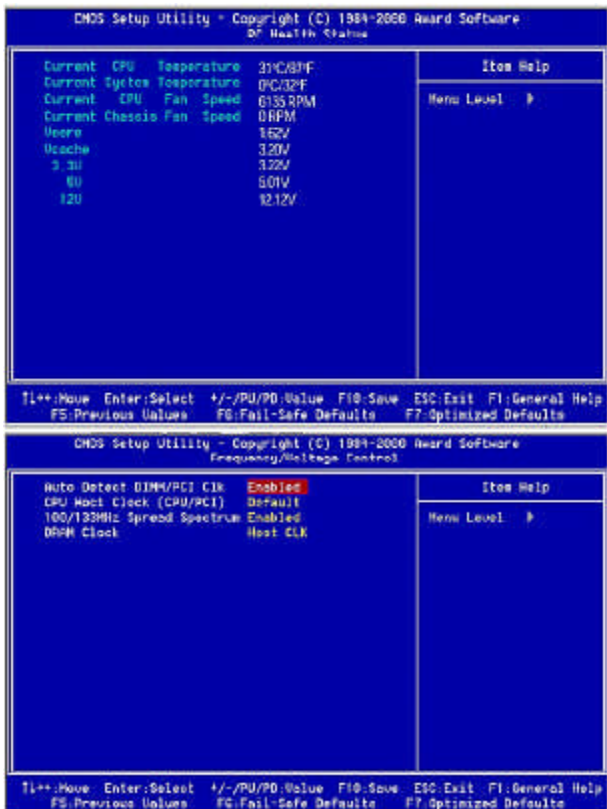
Built-in joystick port support disabled/enabled(default).

---



---

## Sensor and CPU Speed Setup



Use the cursor keys to select the option. Use the PgUp/PgDn/+/-keys to adjust the settings.

You can use the function keys here. The function keys produce the following effects:

- <F1> Help is provided on the possible settings.
- Shift <F2> Changes the color settings
- <F5> Restores the settings to their initial values (the settings at the beginning of start-up)
- <F6> Sets all settings to the default settings.
- <F7> Sets all settings to the "power-up" settings.

The various options are explained over the next few pages.

➤ **Auto Detect DIMM/PCI Clk**

This function has the same background as Spread Spectrum. If there are any unused PCI and/or DIMM slots, this function prevents the slots being controlled by the clock generator. The function also affects the radiation characteristics.

**Setting options:**

- Enabled
- Disabled

**Recommendation:** *leave this option set to Enabled.*

➤ **CPU Host Clock ( CPU/PCI )**

Choose the external Clk ( FSB )

➤ **100/133 Spread Spectrum**

At higher clock frequencies, the EMC discharge from the computer increases. To prevent your system from interfering with radio reception, when this option is enabled the bus clock frequency fluctuates very slightly, changing the interference emitted by the PC. As a result, the interference exerted by the PC on other equipment is reduced.

**Setting Options:**

- **Enabled:** Enables this option.
- **Disabled:** Disables this option.

➤ **DRAM Clock**

The item will synchronize/asynchronize DRAM operation clock.

➤ **Current CPU Temperature:**

This is the current temperature of the CPU.

➤ **Current System Temperature:**

This is the Current temperature of the system.

➤ **Current CPU FAN Speed:**

The current CPU fan speed in RPMs.

➤ **Current Chassis FAN Speed:**

The current chassis fan speed in RPMs.

➤ **CPU(V):** The voltage level of the CPU(Vcore/Vcache).

3.3V, 5V, 12V: The voltage level of the switch power supply.

## Load Fail-Safe Defaults

To load the default settings on your motherboard, enter "Y" at the prompt and hit the carriage return key.

## Supervisor Password

This option is used to enter the password (Administrator) for access to Bios setup, boot-up and saving in CMOS.

## User Password

This option is used to specify the password for access to your PC.

### Recommendation:

*Do not use this function unless it is absolutely necessary. We recommend that you keep the password ready to hand in a safe place in case you forget it.*

## Save & Exit setup

This option saves your settings and terminates setup.

## Exit without saving

If this option is selected, setup is terminated without the settings having been saved..

## Bios Update

If you want to replace the Bios version on your system with an update, the sections below contain guidance on how to perform an update in a simple fashion.

NMC cannot guarantee that no errors will occur during the flash procedure, even if you follow these instructions to the letter.

### Bios flash procedure

*Do not perform any Bios update unless it is really necessary. Flash updating the Bios is entirely at your own risk.*

- ◆ Download the necessary flash program Awdflash.exe (if possible, the latest version) from the Internet, together with the associated xxx.bin file which goes with your board. Make sure you only use the file designed for your board and for the size of the EEPROM that you have on the board.
- ◆ Create a system diskette, which should contain only the data necessary for booting up. Copy the two files (flash program and bin file) to this system diskette.

---

---

## THE BIOS

---

---

- ◆ Boot up the computer using this system diskette (not a start-up diskette).
- ◆ Start the Awdflash.exe program and enter the correct name of the \*.bin file (including the BIN suffix). The example below illustrates the syntax which has to be used.

**[drive] :\ [flash program] [name of Bios file] /[parameters]**

Here is a specific example:

**awdf flash bx0604.bin /py /sn**

- ◆ This specific example instructs the flash program to program the Bios file specified without prior user prompting and not to create a backup of the original Bios file.

- ◆ Another option is to simply invoke the flash program, as follows:  
**[drive]:\ [flash program]**

Here is a specific example:

**A:\awdfflash**

- ◆ This entry triggers a sequence in which first of all you are prompted to enter the name of the file to be flashed. Enter the correct name including the file suffix and confirm by pressing <Enter>.
- ◆ Confirm that you want to back up your entries and enter a name xyz.bin for the Bios which is to be backed up.
- ◆ The next prompt relates to backing up the Bios file. Enter "Y" if you want the Bios to be backed up. If you want to back up the Bios, enter a name of your choice for the file. Do not forget to give it the suffix .bin.
- ◆ After the Bios has been successfully flashed, press F1 to perform a Reset (reboots the computer) or F10 to terminate the program.
- ◆ When the computer starts up again, load the setup defaults in the Bios and check your individual entries..

## Programmparameter

py	Program flash memory;
pn	No programming
sy	Save BIOSfile to Disk
sn	No save
?	„help function“

## VIII. Notes

### Liability and Warranty

NMC Peripherals Europe GmbH generally will not accept liability or any claims under warranty where damage or malfunctions arise as a consequence of:

- ◆ failure to observe the operating instructions;
- ◆ incorrect operation and improper use;
- ◆ use for a purpose other than that intended;
- ◆ use of spare parts and purchased parts which have not been expressly approved by the manufacturer;
- ◆ reconstruction and modifications which have not been approved by the manufacturer;
- ◆ improper maintenance and servicing.

The conditions of warranty and liability contained in NMC-GmbH's general terms and conditions shall apply.

### Technical Changes

NMC PE GmbH reserves the right to make changes without prior notice to the illustrations and factual content of this manual in order to reflect technical developments. This affects particularly any measures which promote technical progress.

In order to provide you with a quality manual, this document has been prepared with the utmost care and will be revised at regular intervals. Despite all the checks to which this process is subject, we cannot exclude the possibility that the document contains technical inaccuracies or typographical errors. All errors we are aware of will be rectified in future editions. We would appreciate it if you would notify us of any errors that you notice in this document. If you have any suggestions or criticisms to make, please send an email either to [koester@nmc-pe.com](mailto:koester@nmc-pe.com) or [info@nmc-pe.com](mailto:info@nmc-pe.com).