BeFREE

User manual

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TIPRO
keyboards focusing on your future needs.

RECORDS OF REVISION

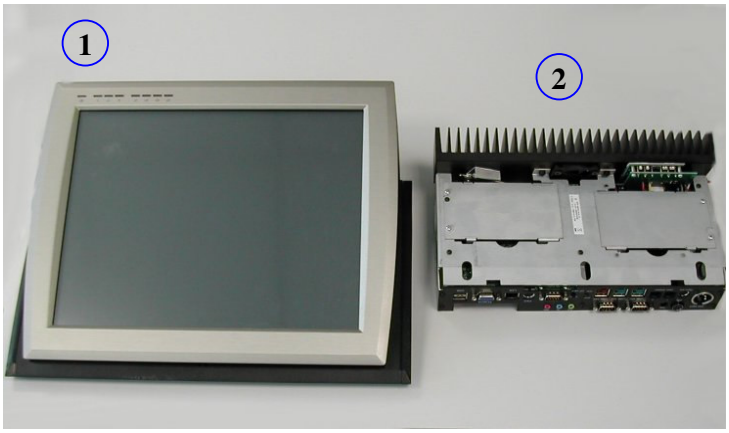
REVISION	DATE	SUMMARY		AUTHOR
		PAGE		
1	19.JUN.06		1st Issue	M Kamin
2	13.02.2002		Added standard version (non-powered)	B Scholten

1. General overview

1.1 What is what?

Tipro's BeFREE is a newly developed module. BeFREE is an integration of PC and a LCD touch screen, based on the existing FREE+ line. Therefore BeFREE is compatible with all existing and future FREE/FREE+ line modules. The BeFREE offers full connectivity in a very compact form and allows for easy-access serviceability. A special low heat producing processor is used, which is powerful enough for most tasks (except gaming and server applications). Due to low heat components and special design BeFREE produces very low noise levels.
BeFREE is built in the housing of the original 15" FREE+. It consist of an industrial grade motherboard, hard disk, DC – DC converter, touch screen, high brightness TFT and Tipro controller.

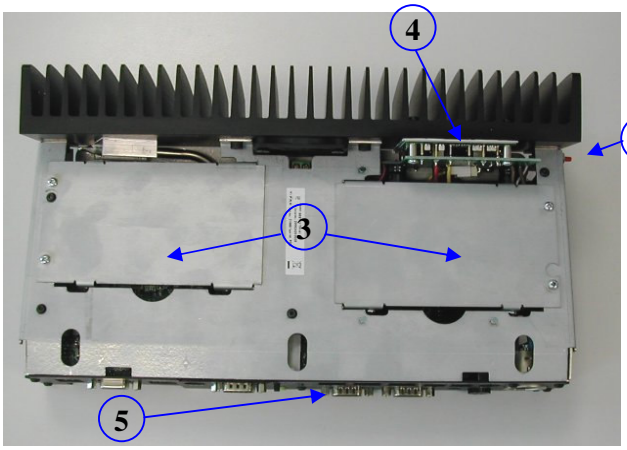
1.2 Where is what?



Picture 1 - BeFREE (top part and PC part)

1 - Housing
- High brightness TFT
- Touch screen

2 - PC part of BeFREE
- Tipro controller
- Hard disk
- Low heat processor
- DC-DC converter
- Motherboard
- Connector plate



Picture 2 - PC part of BeFREE

3 - Hard disk opening
4 - DC-DC converter[1]
5 - Connector plate
6 - ON/OFF button

[1] Shown is powered version

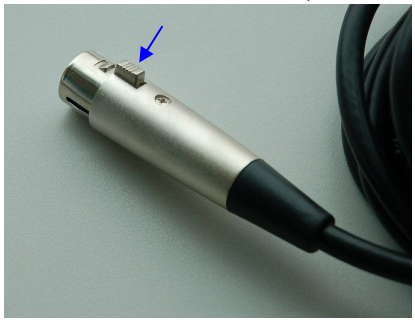
1.3 Package Contents

1. BeFREE
2. Power supply
3. Mains cable (EU)
4. CD with drivers and documentation

1.4 Getting Started

1. If desired, connect devices like keyboard, network, etc.

2. Connect the external power supply to the BeFREE.
   To remove the connector, the button must be pressed while pulling the connector.



3. Connect the power supply mains cable to the outlet.

4. Press the ON/OFF button (see 1.2, point 6 -5 -). It might take a few seconds before the image appears.

5. The system can be turned off either by the Operating System, or by pressing the ON/OFF button (you might need to hold it for a few seconds)

2 Warnings

Tipro products are designed to operate safely when installed and used according to the product instructions and general safety practices. The guidelines included in this chapter explain the potential risks associated with BeFREE operation and provide important safety practices designed to minimize these risks. By carefully following the information contained in this chapter, you can protect yourself from hazards and create a safer BeFREE work environment.

2.1 General Precautions for Tipro Products

Retain the safety and operating instructions provided with the product for future reference. Follow all operating and usage instructions. Observe all warnings on the product and in the operating instructions. To reduce the risk of fire, bodily injury, and damage to the equipment, observes the following precautions.

2.1.1 Damage Requiring Service

Unplug the product from the electrical outlet and take the product to a Tipro authorized service provider under the following conditions:

- The power cord, extension cord, or plug is damaged.
- Liquid has been spilled or an object has fallen into the product.
- The product has been exposed to water.
- The product has been dropped or damaged in any way.
- There are noticeable signs of overheating.
- The product does not operate normally when you follow the operating instructions.

2.2 Servicing

Except as explained elsewhere in the Tipro documentation, do not service any Tipro product yourself. Always remove the power cord before the BeFREE. Never run the PC-part of BeFREE separately from the screen and housing. Opening, removing covers or running PC-part separately may expose you to electric shock. Service needed on components inside these compartments should be done by a Tipro authorized service provider.

2.3 Mounting Accessories

Do not use the product on an unstable table, cart, stand, tripod, or bracket. The product may fall, causing serious bodily injury and serious damage to the product. Use only with a table, cart, stand, or bracket recommended by Tipro, or sold with the product.

2.4 Ventilation

Slots and openings in the product are provided for ventilation and should never be blocked or covered, since these ensure reliable operation of the product and protect it from overheating. The openings should never be blocked by placing the product on a bed, sofa, carpet, or other similar, flexible surface. The product should not be placed in a built-in apparatus such as a bookcase or rack unless the apparatus has been specifically designed to accommodate the product, proper ventilation is provided for the product, and the product instructions have been followed.

2.5 Water and Moisture

Do not use the product in a wet location. The screen is splash proof, the sides, rear and bottom are not.

2.6 Power Sources

The product should be operated only from the type of power source indicated on the product's electrical ratings label. If you have questions about the type of power source to use, contact your Tipro authorized service provider or local power company.

2.7 Accessibility

Be sure that the power outlet you plug the power cord into is easily accessible and located as close to the equipment operator as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the electrical outlet.

2.8 Voltage Select Switch

Ensure that the voltage select switch, if provided on the product, is in the correct position for the type of voltage in your country (115 VAC or 230 VAC).

2.9 Internal Battery

Your computer may contain an internal battery-powered real-time clock circuit. Do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in fire. Replacement should be done by a Tipro authorized service provider.

2.10 Extension Cord

If an extension cord or power strip is used, make sure that the cord or strip is rated for the product and that the total ampere ratings of all products plugged into the extension cord or power strip do not exceed 80% of the extension cord or strip ampere rating limit.

2.11 Overloading

Do not overload an electrical outlet, power strip, or convenience receptacle. The overall system load must not exceed 80% of the branch circuit rating. If power strips are used, the load should not exceed 80% of the power strip input rating.

2.12 Cleaning

Unplug the product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

2.13 Heat

The product should be placed away from radiators, heat registers, stoves, or other pieces of equipment (including amplifiers) that produce heat.

2.14 Circulation and Cooling

Allow sufficient air circulation around the BeFREE and the external power supply during use. Prevent direct exposure to radiant heat sources.

2.15 Replacement Parts

When replacement parts are required, be sure the service provider uses replacement parts specified by Tipro.

2.16 Options and Upgrades

Use only the options and upgrades recommended by Tipro.

2.17 Object Entry

Never push a foreign object through an opening in the product.

2.18 Powered ports

Maximum current per port is 3A.
See also 4.4.2 Peripherals power restrictions.

2.19 Cash Drawer

The cash drawer uses the modular connectors specifically designed for cash drawer, printer or customer display. Do not connect ordinary telephone line to these connectors.

3 Versions

3.1 Overview

There are 2 basic versions of BeFREE:

1. Standard version, Ordering Code BF15-1.0/1-Cx-xxx
2. Powered version, Ordering Code BF15-1.0/1-Ax-xxx and BF15-1.0/1-Bx-xxx

The following items are the same in all versions:

- TFT
- Touchscreen
- Housing for TFT
- Mainboard
- Tipro Connectivity
- Fan control

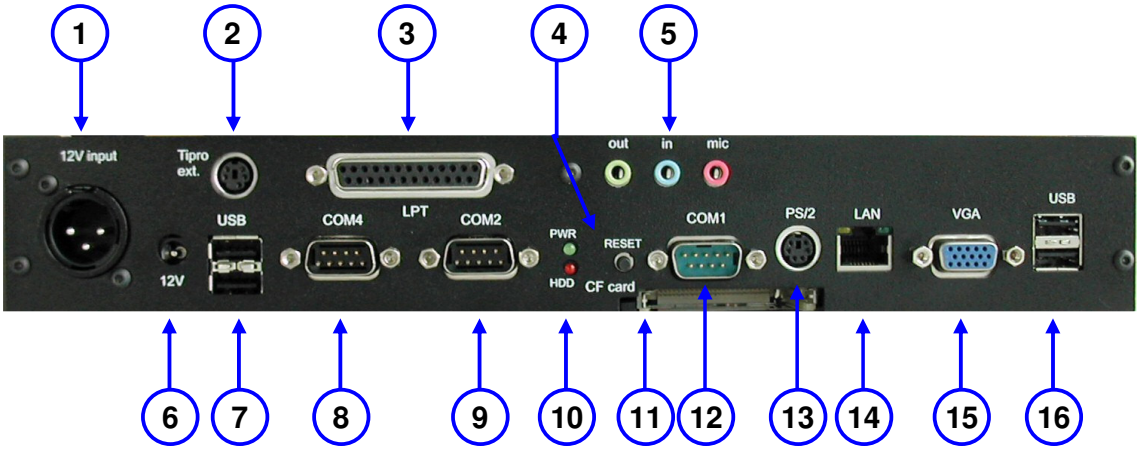
Differences are in power supply, both external AC/DC and internal DC/DC. The standard version is powered by 12V, the powered version by 24V.
The powered version offers more powered connectivity and can supply more current to peripherals than the standard version.

Visually the difference can be noticed at the rear; The powered version has a heatsink, the standard version does not.

The differences in connectivity are shown below

3.2 Connectivity

3.2.1 Standard

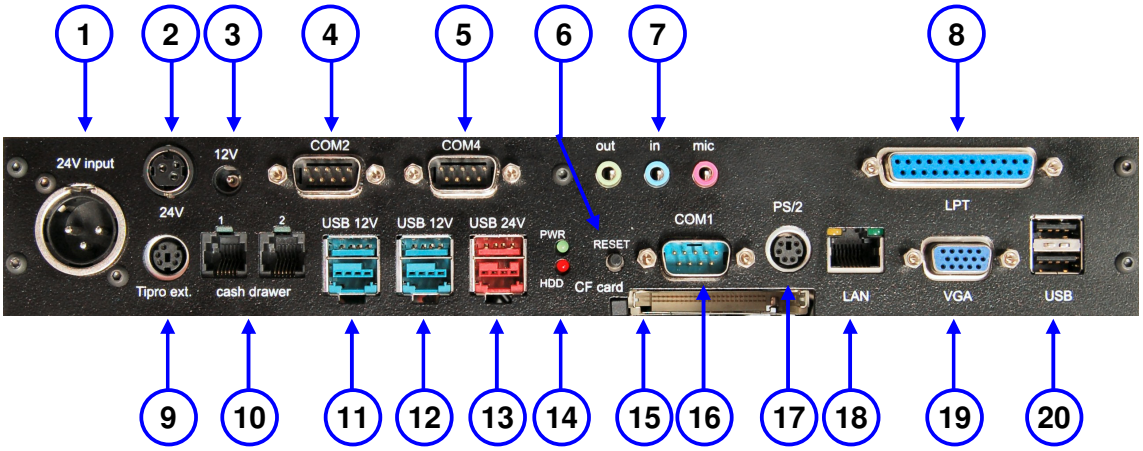


Picture 3 - Connector plate

No	Connector
1	12V input
2	Tipro external bus
3	LPT
4	Reset button
5	Audio; line out, line in, mic.
6	12V output
7	2x USB 2.0
8	RS232, powered (5/12V)

8	
9	RS232, powered (5/12V)
10	PWR/ HDD LED
11	Compact Flash slot
12	RS232
13	PS/2 keyboard & mouse
14	Ethernet 100/10
15	VGA, external display
16	2x USB 2.0

3.2.2 Powered



Picture 4 - Connector plate

No	Connector
1	24V input
2	24V output
3	12V output
4	RS232, powered (5/12V)
5	RS232, powered (5/12/24V)
6	Reset button
7	Audio; line out, line in, mic.
8	PCMCIA
9	Tipro external bus
10	Cash drawer 2x RJ12

11	Powered USB 12V
12	Powered USB 12V
13	Powered USB 24V
14	PWR/ HDD LED
15	Compact Flash slot
16	RS232
17	PS/2 keyboard & mouse
18	Ethernet 100/10
19	VGA, external display
20	2x USB 2.0

4 Specifications

4.1 Specification common for all versions

4.1.1 Specifications of motherboard

- CPU: VIA EDEN 1 GHz fanless CPU, 128K L1 cache & 64K L2 cache.
- DRAM: soldered on-board 512MB DDR266 SDRAM memory
- Dual-View LCD / CRT: UniChrome Pro 3D /2D
- 10/100M Ethernet: Realtek 8110 100M/10M LAN
- CompactFlash I / II Socket: CF-2 socket for IDE Flash Disk, 1.8" MicroDrive HDD 340MB/1GB or higher

4.1.2 TFT LCD

The TFT display is an active matrix LCD with better resolution, sharper screen display and broader viewing angle compared to passive matrix screens. 15.0" displays are used in BeFREE.

- Samsung 15.0" LTM150XH-L06
- XGA 1024×768 display format
- Brightness: 430 typ cd/m^2
- Contrast ratio: 400 typ
- Viewing angle (upper/lower/left/right): 50/60/70/70

4.1.3 Touch panel

A resistive touch panel is made of glass plate, covered with a polyester sheet and coated with additional layers that make an electrical contact on the pressed spot. It uses the five-wire AccuTouch technology, which has a high touchpoint density and fast response. The surface of touch screen is resistant to acetone, methylene, isopropyl-alcohol, ammonia and others.

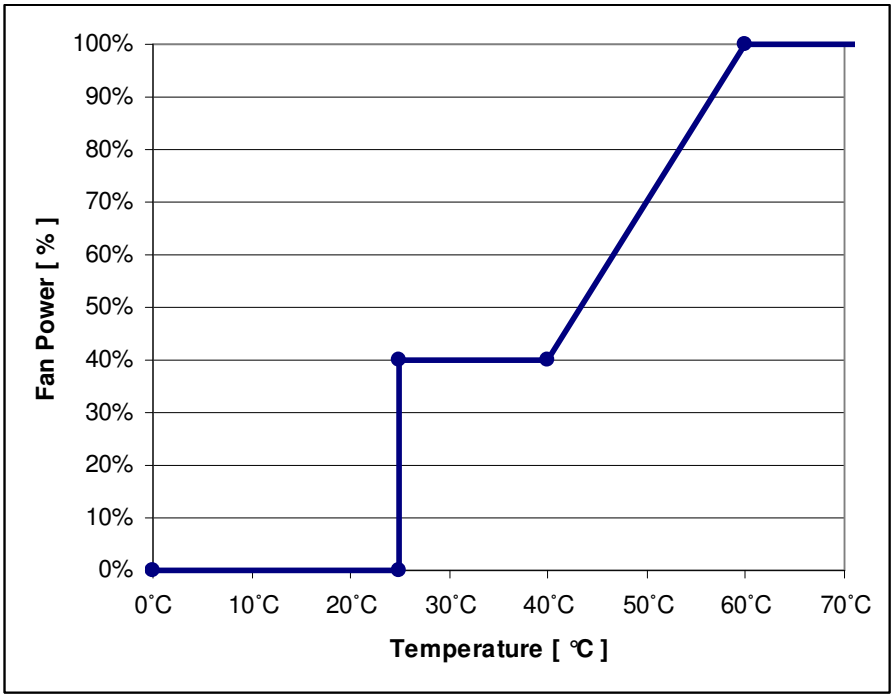
- Accuracy : ±2mm
- Response time: <10ms
- Resolution: 4096×4096 touchpoints
- Lifetime: 35 million touches in one spot

4.1.4 Tipro Controller

Tipro controller is built in BeFREE. It controls Fan, Cashdrawer and all other (optional) Tipro modules connected to BeFREE.
For monitoring, setting and programming modules, fan etc. ChangeMe is used. For programming please refer to ChangeMe Help file.

4.1.5 Fan control

BeFREE has integrated a specially designed Fan control which ensures that BeFREE is always producing as little noise as possible.
The Fan control is a device which controls fan speed proportionally to the BeFREE's temperature. In general that means the higher the temperature is, the greater the fan speed. See chart on Picture 5 which shows Fan power (rotation) dependence of temperature.
Fan control can be reprogrammed if necessary (due to environment, etc.). Reprogramming can be done by Tipro authorized service provider
Temperature of BeFREE can be monitored in ChangeMe or by using MIDAPI[2] functions.



Picture 5 – Predefined Fan control settings

4.2 Power consumption

Power consumption of BeFREE:

Stand by:	4.5W
Idle mode in Windows XP:	57W
100% disk and processor load:	66W

Power consumption is higher if you connect additional external devices (e.g. printers, cash drawers …)

[2] Tipro's API. See MIDAPI documentation for more info

4.3 Standard version

4.3.1 Power supply

- Universal Input 100~240VAC, full range
- 80W @ 12V max output power
- Meets FCC/CISPR/VCCI class B EMI
- 3m. cord, XLR connector

4.3.2 Peripherals power restrictions

14W total available for external devices which has to be divided over 12 and 5V

Connection type:	Symbol	Maximum power allowed:
COM 5V/USB:	P_{5V}	**12W**
COM 12V:	P_{12V}	**14W**

Calculation of total used power:

$$1.1 \cdot P_{5V} + P_{12V} \leq 14W$$

4.4 Powered version

4.4.1 Power Supply

- Universal Input 100~240VAC, full range
- 150W @ 24V max output power
- Meets FCC/CISPR/VCCI class B EMI
- 3m. cord, XLR connector

4.4.2 Peripherals power restrictions

80W total available for external devices which has to be divided over 24/12/5V

Connection type:	Symbol	Maximum power allowed:
Powered USB+COM 5V:	P_{5V}	**30W**
Powered USB+COM 12V:	P_{12V}	**65W**
Powered USB+COM 24V:	P_{24V}	**80W**

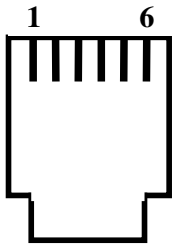
Calculation of total used power:

$$1.25 \cdot (P_{5V} + P_{12V}) + P_{24V} \leq 80W$$

Maximum current per port is 3A

4.4.3 Cash Drawer

BeFREE has two RJ12 connectors (see Picture 4, No 10) for cash drawers.



Picture 6 - RJ12 connector (front view)

Pin #	*Signal*
1	Shield
2	Kick out
3	Open/Close
4	Power 24V
5	NC
6	GND

The cash drawer uses the modular connectors.

! Do not connect ordinary telephone line to these connectors.

The Cash drawers can be driven by Tipro controller or by the motherboards GPIO pins. By default the cash drawers is driven by Tipro controller. If you want to change that, you have to change jumper settings see 5.4 Cash drawer jumper setting.
Cash drawer jumper setting is for advanced users only.

4.4.4 Explanation of programming Cash Drawer Ports

4.4.4.1 OPOS:

If your Tipro OPOS drivers don't support Cash drawer check on web site http://www.tipro.net for latest drivers or contact Tipro support mail (support@tipro.net).

All supported OPOS commands can be found in UnifiedPOS document version 1.8 on page 139 (Chapter 4).

Cash drawer names are defined in registry:
(HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\CashDrawer) and are by default set to: TiproCashDrawer1 and TiproCashDrawer2.
They can be changed manually in the registry.

4.4.4.2 GPIO:

Important: When programming the Cashdrawer ports directly through the GPIO make sure you program the open-signal as a pulse.
The ON signal should be maximum 20% of the whole signal. A typical ON pulse is 100ms. That means a typical signal has 100 ms. ON signal and at least 400ms. OFF.

For using GPIO pins you have to change jumpers see Cash drawer jumper setting 5.4 Cash drawer jumper setting.
Address of the GPIO port is 322.
Our Cash drawer outputs are connected to Digital-OUT0 and Digital-OUT1 (for sending open signal), and inputs are connected to the Digital-IN0 and Digital-IN1 (reading status of Cash drawer - opened/closed).

DIGITAL IN/OUT Default setting is "HIGH ", ACTION is LOW,
Edge level

DIGITAL OUT program: (BIOS Setting I/O Port Address)
Default is 320

For Example:
MOV DX, 322 (BIOS Setting Port Address +2)
MOV AL, X (X is 1,2,4 8 or ..... F)
OUT DX, AL

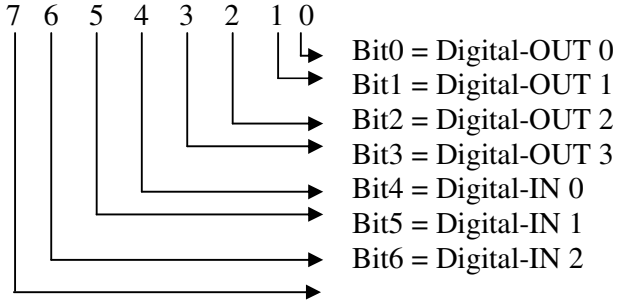
DIGITAL IN program: (BIOS Setting I/O Port Address)
Default is 320

For Example:
MOV DX, 322 (BIOS Setting Port Address +2)
IN AL (AL is 1Z, 2Z, 4Z, 8Z ..... FZ)

NOTE: Z is don't care

I/O port address, please see "BIOS document" Digital I/O Port Select (See References:)

Digital-IN/OUT Bits:



Bit7 = Digital-IN 3

1/h = Control Bit0 to be “LOW”
2/h = Control Bit1 to be “LOW”
4/h = Control Bit2 to be “LOW”
8/h = Control Bit3 to be “LOW”
1Z/h = Read Bit0 to be “LOW”
2Z/h = Read Bit1 to be “LOW”
4Z/h = Read Bit2 to be “LOW”
8Z/h = Read Bit3 to be “LOW”

Digital OUT 0 = Control Bit0 ~ Bit 4 to be “LOW“
Digital OUT F = Control Bit0 ~ Bit 4 to be “HIGH“

Z is don’t care!

5 Installation

5.1 Driver installation under Windows XP

If you are using Windows XP then windows will find and install almost all drivers except drivers for display, touch screen and audio. Drivers for these components are on enclosed CD/DVD.

5.1.1 Display drivers

To install display drivers insert enclosed BeFREE CD to your CD/DVD device.

- Use following path and start setup.exe

<CD/DVD>BeFREE drivers\VGA\ VT3259_XP_16-94-44-30\setup.exe

- Accept license agreement and continue setup
- When setup is complete display drivers are installed

5.1.2 Touch screen drivers

Correct touch screen installation have to steps, driver installation and calibration.

1. ***Driver installation***
   - Use BeFREE original CD and run setup.exe in following folder <CD/DVD>BeFREE drivers\touch\setup.exe
   - Click Next, accept license agreement and click Next
   - Select controller type to "12 or 10 Bit Controller" Select controller interface to "Serial (RS/232)"
   - Click Autodetect button – autodetect should found 10/12 Bit Touch Screen Controller on COM3 @ 9600 baud – press OK button after autodetect is finished.
   - Press Finish button
   - Windows will pop up window, press Continue Anyway (this software is safe)
   - Restart computer

2. ***Calibration***
   - Run Hampshire TSHARC Control Panel (Start → Programs)
   - Calibration will start automatically after 15 seconds (you can go to tab Calibration and click target to start calibration manually)
   - Calibrate the touch screen by touching 4 targets.
   - Press Accept and OK to close the dialog and save the calibrations.

5.1.3 Audio drivers

To install audio drivers insert enclosed BeFREE CD to your CD/DVD device.

- Run setup.exe in following folder

<CD/DVD>BeFREE drivers\audio\setup.exe

- Follow setup instruction and press Finish at the end
- Setup is completed

5.2 HOW TO open BeFREE

!	Always remove the power cord when opening the BeFREE!

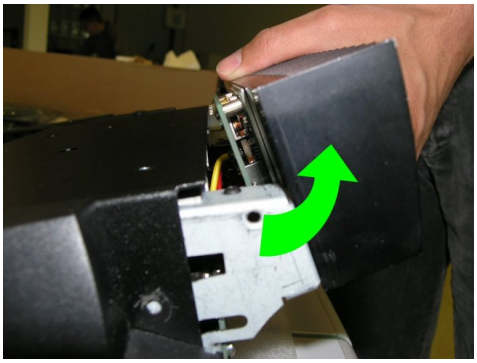
Picture 7- Unscrew screws at the side

1. Turn BeFREE upside down, it is recommended that you put some protection beneath to prevent scratches on display or housing.
2. Unscrew the 2 screws on the side of BeFREE by the heatsink. See Picture 7.

3. Grab the heatsink and pull it out first straight and after a few centimeters up (See Picture 8, Picture 9 and Picture 10). While pulling you can at the same time push at the connector side. The whole PC part comes out (See Picture 11).

Picture 8 - Push and pull

Picture 9 - First straight



Picture 10 - After few centimeters straight, up

Picture 11 - PC part can come out

4. You successfully open BeFREE. PC part is available for further work (e.g. Hard disk exchange, hardware upgrading, Powered COM ports voltage settings etc.)
5. For placing computer inside of the housing just follow steps vice versa (3→ 1)

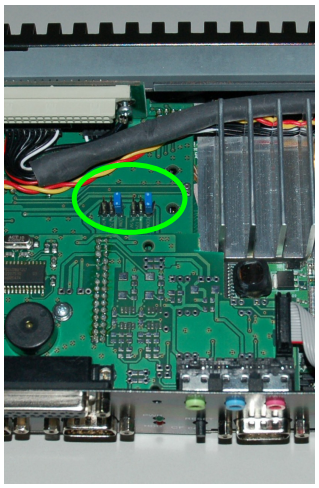
5.3 Setting of the voltage on the powered COM ports

COM 2 and COM 4 can be configured to have power on pin 9.

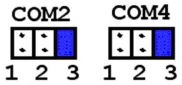
- First step is to open the BeFREE. Follow steps described in previous section.
- Next step is to turn around the PC part so that you can see the top.
  On the PCB right behind the COM ports (See Picture 13) there is a set of jumpers for each of the 2 COM ports. On the PCB is written where to put the jumper for the desired voltage.

5.3.1 Standard Version

⇒ COM 2 can have either 0, 5 or 12V.
⇒ COM 4 can have either 0, 5 or 12V.



Picture 12 - Jumpers position

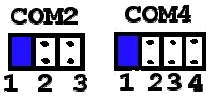


COM 2		COM 4	
Jumper position		Jumper position	
1	+5V	1	+5V
2	+12V	2	+12V
3	Non powered (default)	3	Non powered (default)

5.3.2 Powered Version

⇒ COM 2 can have either 0, 5 or 12V.
⇒ COM 4 can have 0, 5, 12 or 24V.

Picture 13 - Jumpers position

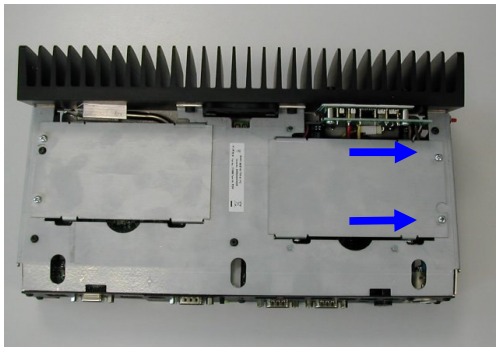


COM 2		COM 4	
Jumper position		Jumper position	
1	Non powered (default)	1	Non powered (default)
2	+5V	2	+5V
3	+12V	3	+12V
		4	+24V

5.4 Cash drawer jumper setting

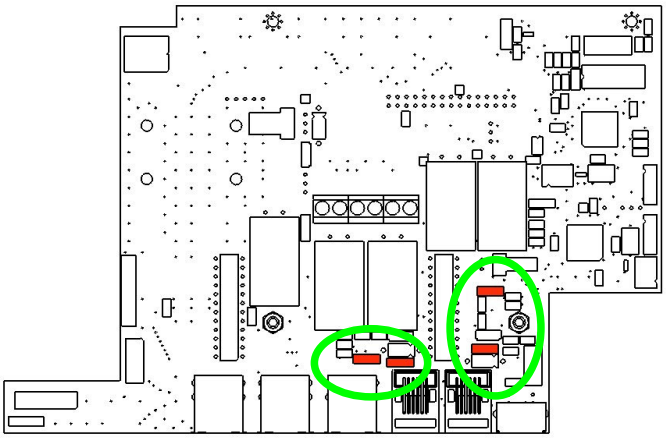
Note: Just Powered version

- Take PC part of BeFREE out. See section HOW TO open BeFREE for help.
- On the bottom side unscrew two screws on the right side of BeFREE. (See Picture 14)



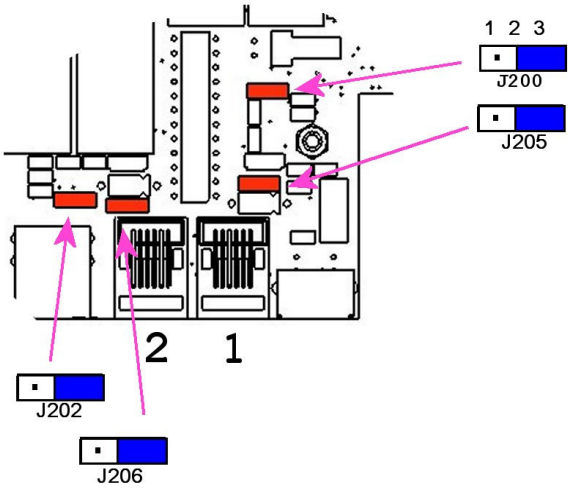
Picture 14 - Removing right cover from PC part, unscrew two screws.

- Remove right Harddisk cover. Slide a bit to the right and then up.
- On Picture 15 the positions of the jumpers to change communication mode are marked with red color.



Picture 15 - Position of the jumpers, jumpers are colored red

- One pair of jumpers belongs to one RJ12 connector.



Picture 16 - Detailed jumper position

- Jumpers J200 and J205 belong to RJ12 connector No. 1 and jumpers J202 and J206 belong to RJ12 connector No. 2

Jumper	Connector (RJ12) No	Signal	Default position
J200	1	OUT1	[2, 3]
J205	1	IN1	[2, 3]
J202	2	OUT2	[2, 3]
J206	2	IN2	[2, 3]

- If the jumpers are in position:
  - ⇒ [2, 3] (Default) then cash drawer is operated by Tipro controller.
  - ⇒ [1, 2] then cash drawer is operated by motherboard GPIO pins.

5.5 Cleaning

You should clean BeFREEs screen display with dry soft, clean cloth. Then you should wipe the cloth across the display from left to right, moving from the top of the display down to the bottom of the display. If your display contains grease or some other contaminant, then you should dampen your cloth with water.

You should also use some non aggressive cleaners as:

- ⇒ Water.
- ⇒ Water with a tiny amount of soft liquid soap.
- ⇒ Isopropyl Alcohol.
- ⇒ Commercial glass cleaners that do not contain ammonia.

6 BIOS settings

6.1 Starting setup

The Phoenix-Award BIOS is immediately activated when the computer starts. The BIOS reads the system information contained in the CMOS and starts the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.
While the BIOS is in control, the Setup program can be activated by one of two ways:
1. Press the <Del> key immediately after switching the system on, or
2. Press the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test)

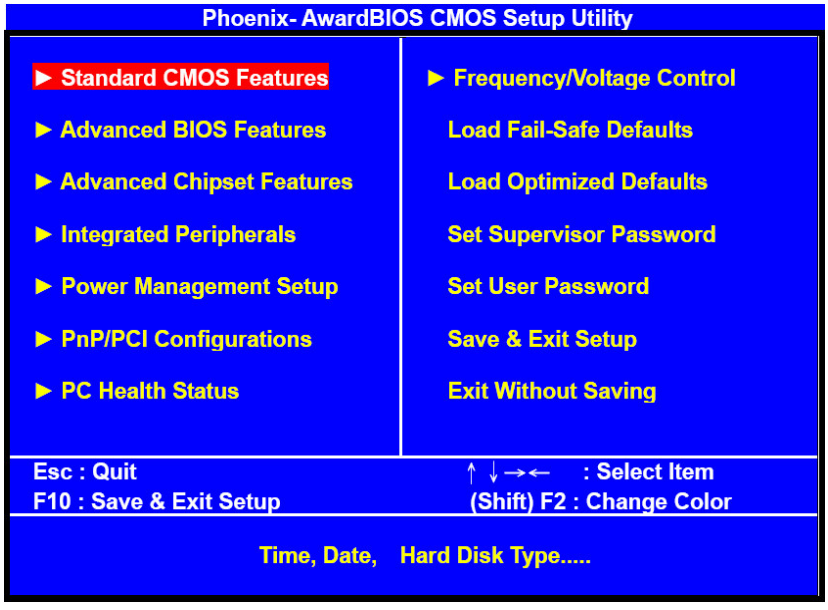
Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the connector plate. 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 F1 TO CONTINUE, DEL TO ENTER SETUP

6.2 Main menu

Once you enter the Phoenix-Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.



Note that a brief description of each highlighted selection appears at the bottom of the screen.

6.2.1 Setup Items:

The main menu includes the following main setup categories. Please note that some systems may not include all entries.

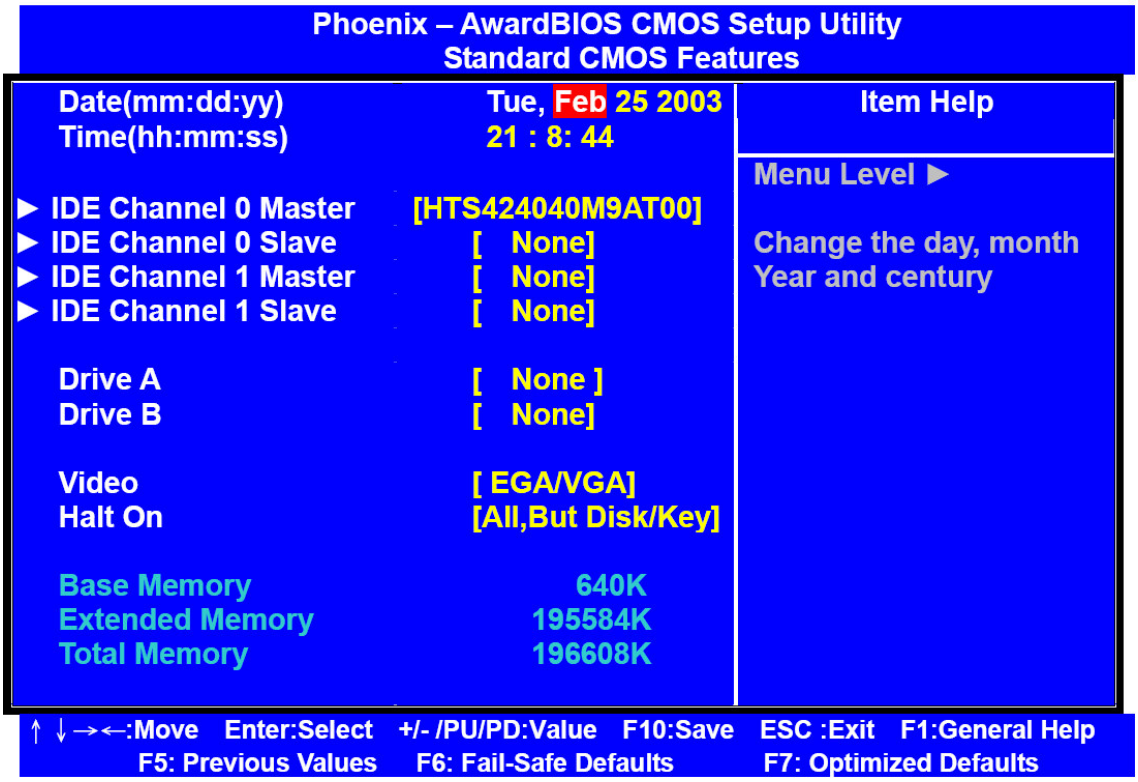
6.2.2 Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

- Advanced BIOS Features
  This setup includes all the items of Award special enhanced features.
- Advanced Chipset Features
  This setup to change the value in the chipset registers and optimizes your system's performance.
- Integrated Peripherals
  This setup is to specify your settings for integrated peripherals.
- Power Management Setup
  Use this setting to specify your settings for power management.
- PnP / PCI Configuration
  This setup appears if your system supports PnP / PCI.
- PC Health Status
  This entry displays the current status of your PC.
- Frequency/Voltage Control
  Use this item to specify your settings for Frequency/Voltage control.
- Load Fail-Safe Defaults
  This menu to load the BIOS default values for the minimal/stable performance of your PC
- Load Optimized Defaults
  This item to load the default factory settings for BIOS for optimal system performance..
- Set Supervisor / User Password Setting
  Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.
- Save & Exit Setup
  Save CMOS value changes to CMOS and exit setup.
- Exit Without Saving
  Abandon all CMOS value changes and exit setup.

6.3 STANDARD CMOS FEATURES

The items in Standard CMOS Setup Menu are divided into 15 categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



- Date

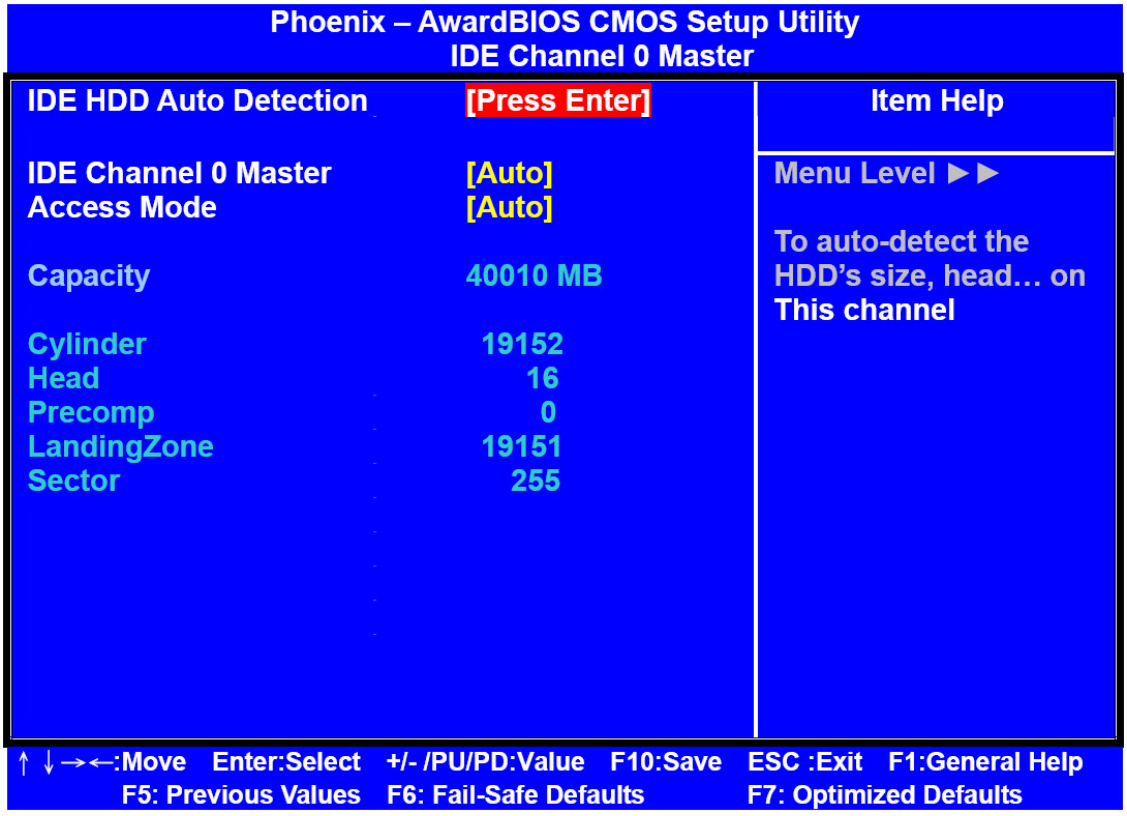
To assign the system date, the format is “mm:dd:yy”. The input range for the Month is 1-12. Rang for Date is 1-31. Rang for Year is 1994-2099. System BIOS will calculate the day of the week automatically.

- Time

The time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- IDE Channel 0/1 Master/Slave

Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The Specification of hard disk drive will show up on the right hand according to your selection.



Access Mode	The settings are Auto, CHS, LBA and Large.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.

- Drive A Type / Drive B Type

The category identifies the types of Floppy Disk Drive A or Drive B that have been installed in the computer.
Settings : [None - 360K - 5.25 in - 1.2M - 5.25 in - 720K - 3.5 in - 1.44M - 3.5 in &2.88M - 5.25 in]
12

- Video

The category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter include high resolution mono adapters.

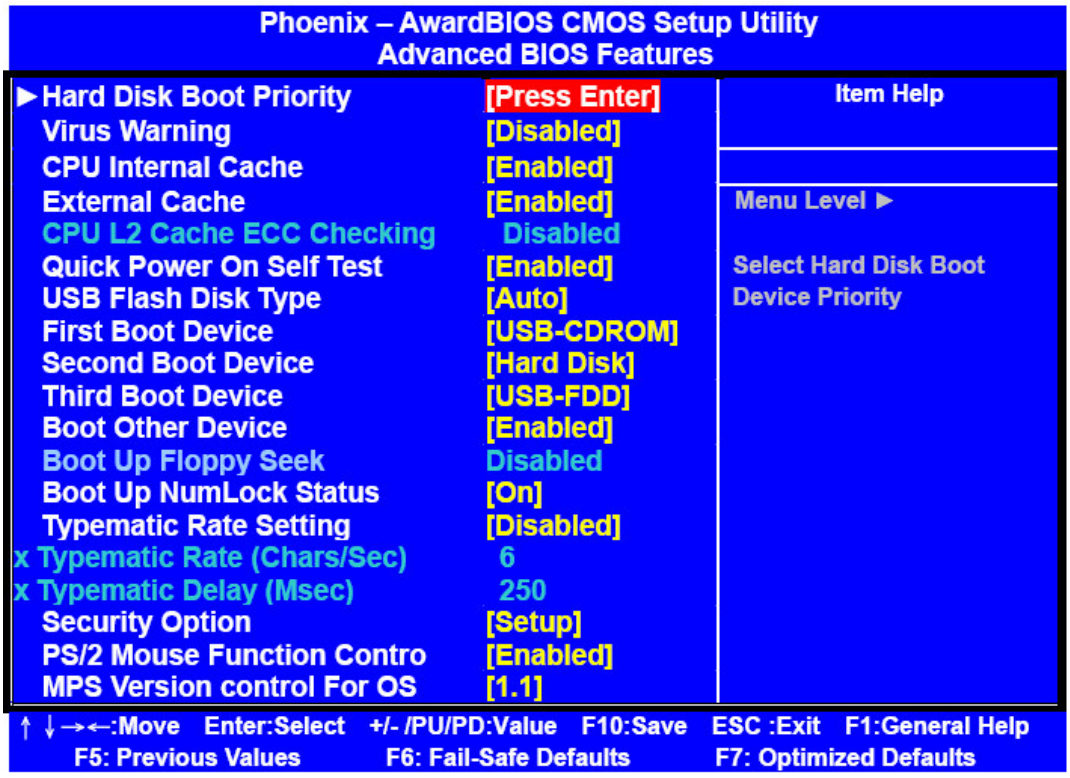
- Halt On

This function allows the system to halt when an error is detected during Power-On Self-Test.

All errors	Whenever the BIOS detect a non-fatal error the system Would be stopped and you will be prompted.
No errors	The system boot will not be stopped whenever any error Detected.
All, But Keyboard	The system boot will not stop for a keyboard error but it will stop for all other errors.
All, But Diskette	The system boot will not stop for a FDD disk error but it will Stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard and FDD disk Error but it will stop for all other errors.

6.4 Advanced BIOS features

This section allows you to configure your system for basic operation. You can select the system's boot-up sequence, shadowing, keyboard operation and security.



- Hard Disk boot Priority

Show: Bootable Add-in Cards

- Virus Warning

When this function is enabled, the BIOS monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and then display an error message. Afterwards, if necessary, you can run an anti-virus program to locate and remove the problem before any damage is done. Many disk diagnostic programs will attempt to access the boot sector table, which can cause the above warning

message. If you run such a program, we recommend that you first disable the Virus Warning function beforehand. The default value is disabled.

Enabled	Turns on hard disk boot sector virus protection
Disabled	Turns off hard disk boot sector virus protection

- CPU Internal Cache

This field configures the CPU internal cache (L1 cache). The default value is enabled.

Enabled	Turns on CPU internal cache
Disabled	Turns off CPU internal cache

- External Cache

This field configures the system's external cache (L2 cache). The default value is enabled.

Enabled	Turns on CPU external cache
Disabled	Turns off CPU external cache

- Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer.

Enabled	Shorten Power On Self Test (POST) cycle and boot up time.
Disabled	Standard Power On Self Test (POST).

- USB Flash disk Type

Settings: [Auto, Floppy, HDD]

- First /Second /Third Boot Device

This option allows user to assign first boot of the system.

Floppy	Boot from Floppy drive
LS120	Boot from LS120 drive
Hard Disk	Boot from the HDD
CD-ROM	Boot from CD-ROM
ZIP100	Boot from ATAPI ZIP drive
USB-FDD	Boot from USB-Floppy drive
USB-ZIP	Boot from USB-ZIP drive
USB-CDROM	Boot from USB-CDROM
LAN	Boot from network drive
Disabled	Disable the boot device sequence

- Boot Other Device

This option allows user to select other Device. If the system fails to boot from the " First /Second/Third Boot Device" list.

Enabled	Enable alternate boot device
Disabled	No alternate boot device allowed

- Boot Up NumLock Status

The option allows the <NumLock> key to be activated after system boot up.

On	Forces keypad to behave as Num Lock-key
Off	Forces keypad to behave as arrow key

- Typematic Rate Setting

This item determines if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys.
Settings: [Enabled, Disabled]

- Typematic Rate (Chars/Sec)

Use this option to set the rate at which a character keeps repeating while you hold down a key.
Settings: [6, 8, 10, 12, 15, 20, 24, 30]

- Typematic Delay (ms)

When the typematic rate is enabled, this selection allows you to select the delay between when the key was first depressed and the acceleration begins.
Settings: [250, 500, 750, 1000]

- Security Option

You can select whether the password is required every time the system boots or only when you enter the Setup. You can assign “Supervisor Password” and “User Password” in the main CMOS Setup Utility Screen.

Setup	Password prompt appears only when end users try to run BIOS Setup
System	Password prompt appears every time when the computer is powered on and when end users try to run BIOS Setup

- PS/2 Mouse Function Control

You can Select PS/2 Mouse Function Enabled or Disabled.
Settings: [Enabled, Disabled]

- MPS Version Control

Setting: [1.1] and [1.4]

- OS Select for DRAM > 64

Settings: [Non-OS2, OS2]
VIA chips no support

- Video BIOS Shadow

Video shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.
Settings: [Enabled, Disabled]

- Small Logo(EPA) Show

It can add Customer EPA LOGO.
Settings: [Enabled, disabled]

For further details see BIOS document

7 References:

- BIOS document NC615
- ChangeMe Help
- MIDAPI Help
- FREE Technical specification