

**2012**

DIELEKTRIK UAB

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# **MULTI BANK LINEAR FLASH X SERIES**

## **USER MANUAL**

Version 1.2

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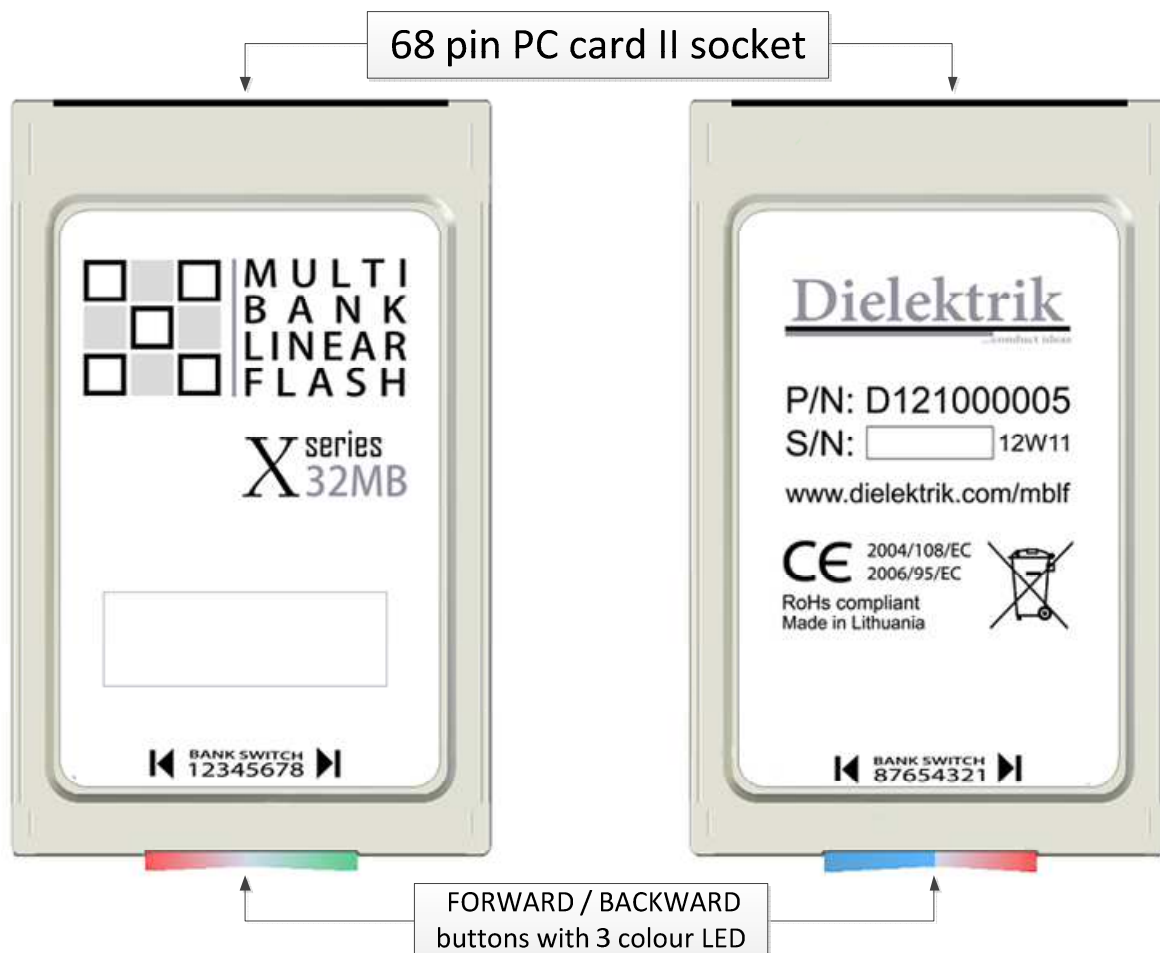
Contains basic information about Multi Bank Linear Flash card and an instruction on how to program the Multi Bank Linear Flash using Memory Card Explorer software.

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# 1 Multi Bank Linear Flash Card specification

Figure 1 Multi Bank Linear Flash card



## 1.1 Features

Proven compatibility with popular industry standard Flash File Systems (FFS) or Flash Translations Layer.

Applications for PC, PDA, PCA, Industrial Control, Standalone auto diagnostic systems, medical systems, Embedded System, Instrumentation, Communication.

Supports Erase Suspend to Read command keeping Erase as a background task. Mechanical Write protect switch not. Very low power consumption with automatic power management.

No battery required for data retention or backup. 20 year data guarantee safe.

## 1.2 System Compatibility:

**Tech2** [http://www.otctools.com/products/tech\\_2\\_basic\\_kit](http://www.otctools.com/products/tech_2_basic_kit) most famous as Opel Tech2

Manufacturer: OTC <http://www.otctools.com/>

OEM diagnostic tool for OPEL, SAAB, TOYOTA, GM, ISUZU, SAAB, CADILAC

Compatible part number / part name: *J-45080 / Tech 2 - 32 Mem CARD*

**HL-SCAN PRO** [http://www.nex-tek.com/en-us/products/hyundai\\_oe\\_tool/hspro.asp](http://www.nex-tek.com/en-us/products/hyundai_oe_tool/hspro.asp)

OEM diagnostic tool for HYUNDAI, KIA

Manufacturer: NEXTECH <http://www.nex-tek.com/en-us/>

Compatible part number / part name: *09910-62000 / KMC 16MB S/W CARD*

*09910-63000 / HYUNDAI SOFTWARE CARD(32 MB)*

*09910-62000 / HYUNDAI SOFTWARE CARD(16MB)*

*09910-01000 / REPROGRAM CARD*

*09910-60001 / KIA IMMOBILIZER CARD (2MB)*

**CARMANSCAN 1** <http://www.nex-tek.com/en-us/products/aftermarket/scan1.asp>

After market Multi Vehicle coverage & Economical Auto Diagnostic Tool

Manufacturer: NEXTECH <http://www.nex-tek.com/en-us/>

Compatible part number / part name: *CI01-03000 / SOFTWARE CARD (32MB)*

*CI02-03000 / SOFTWARE CARD (32MB)*

### **Third Party Software Support:**

CSM Standard PC Card Manager ( EPP or USB Omni Drive Reader)

[http://www.synchrotech.com/products/card-rw\\_08\\_omnidriveusb2\\_If\\_linear\\_ata\\_flash\\_sram\\_pcmcia.html](http://www.synchrotech.com/products/card-rw_08_omnidriveusb2_If_linear_ata_flash_sram_pcmcia.html)

Elan Memory Card Explorer <http://www.pccard.co.uk/copy/aboutmce.php>

### 1.3 Flash specification

Multi Bank Linear Flash based on ACTEL ASIC and Axcell™ P33-65nm Flash Memory

Compatibility: Common Flash Interface (CFI)

CIS in ROM: customized attributed cards (*Attribute programmed by standard attribute specification. Customized attribute available on customer request.*)

Flash type: LH28F016 (TOSHIBA) emulated

#### Capacity:

One bank Flash memory capacity	32	MB
Bank quantity	8	pcs.
Total Flash memory capacity	256	MB
Attribute (read only)	2	kB

#### Performance:

High performance read access	115	ns
Initial access time	105	ns
Asynchronous-16-word page read	25	Ns
Conventional Word Programming (max)	320	μsec
Random Word Programming (max)	460	μsec
Program suspend	20	μsec
Erase suspend	20	μsec
Block erase	3	sec

**Reliability:**

100000 write/erase cycles per card (min)

**Electrical Characteristics:**

Operational Voltage Read: 5 Volts  $\pm 5\%$

Operational Voltage Write/Erase: 5 Volts  $\pm 5\%$

**Power consumption:**

Read access: 110 mA (max)

Write/Erase: 70 mA (max)

Standby mode: 1.5  $\mu$ A (max)

**Operating environment:**

Temperature Operating: 0 to 70°C

Temperature Storage: -40 to 125°C

Relative Humidity: 95% (max) non-condensing









**Physical Dimensions:**

Type II card: 87 x 54 x 5 mm (LWH)

Weight: 42.5 g

## 2 Bank switching

The 32 MB Multi Linear Flash has 8 banks, where information can be stored. When plugged in, a light diode will shine at the top of the Flash. Each bank has its own color and shining mode. Each bank needs to be written separately.

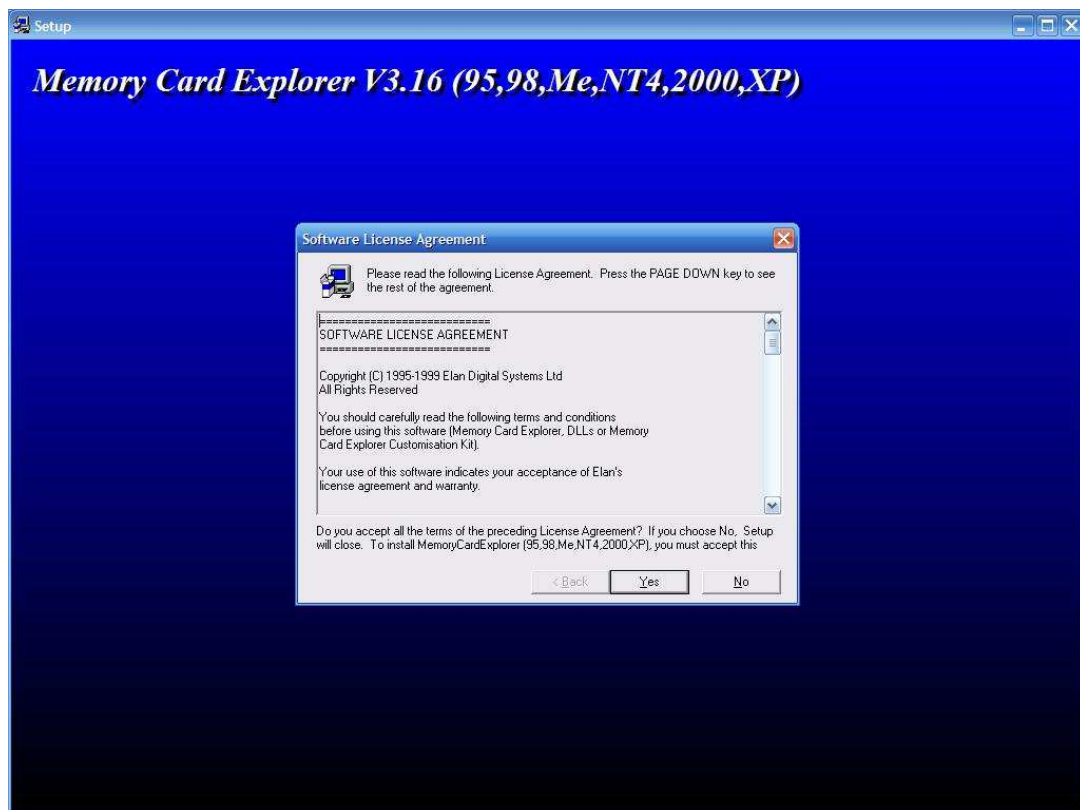
Bank No.	LED color	LED shining mode
1		Red light
2		Green light
3		Blue light
4		Red light blinking
5		Green light blinking
6		Blue light blinking
7		Red and blue light blinking
8		Green and blue light blinking

### 3 Using the Memory Card Explorer software

#### 3.1 Software installation

To write information to the banks special software is required. Memory Card Explorer, manufactured by Elan Digital Systems Ltd. is recommended. This software is compatible with Windows 95/98/NT4/2000/XP. You can purchase this software from their website [www.pccard.co.uk](http://www.pccard.co.uk). Make sure you have a full version of the software. To install it, run setup.exe. When installing this software, read the terms of License Agreement and click the Yes button (Figure 2).

Figure 2 Installation of Memory Card Explorer





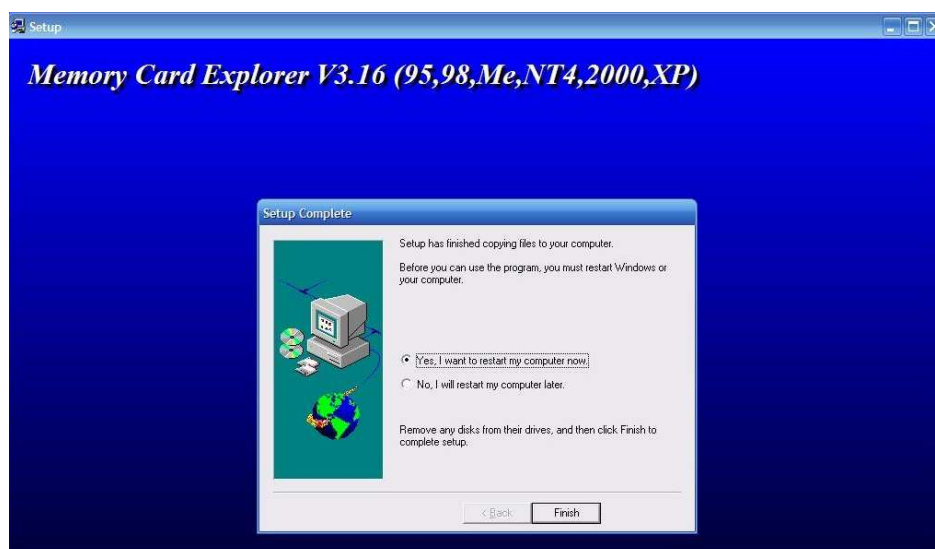
Choose an installation directory on your computer and proceed with the installation process (Figure 3).

Figure 3 Installation of Memory Card Explorer



After the installation, the Setup will ask you to restart your computer. Restart your computer to complete the installation, or choose to restart it later (Figure 4).

Figure 4 Installation of Memory Card Explorer



## 4 Memory Card Explorer configuration

Before you write files to your Flash, you need to set the memory bank. There are two memory banks: attributive and common.

Attributive bank memory field size is considerably smaller than common memory size. It is also slower to program. **Attribute memory is non-writable!!!**

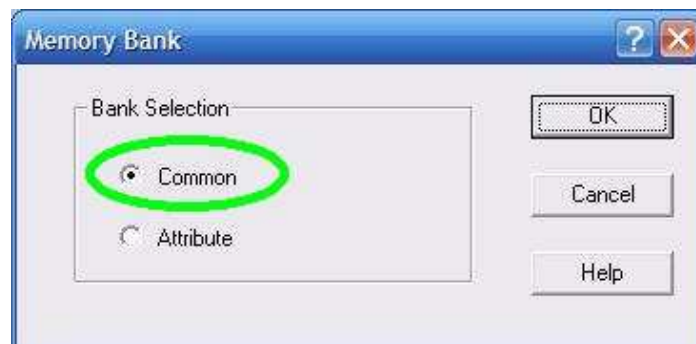
Common memory is used in most cases. You can overwrite banks if this mode is set.

Before you start overwriting the banks, make sure you have selected Common memory (Figure 5, Figure 6).

Figure 5 Memory bank selection

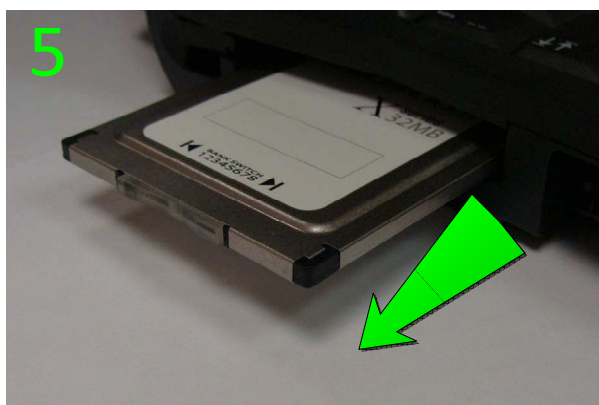


Figure 6 Common and attribute memory



## 5 Bank selection

Launch the Memory Card Explorer (MCE) software and insert the Multi Bank Linear Flash into your computer's card slot (1). After you had inserted the Flash your computer will ask permission to search for necessary drivers. Press Cancel. Select the bank you want to overwrite by pressing a button on the Flash (2; 3). Make sure the color of the light changes (i.e. from red to green (4)). In order for the banks to change properly you need to remove it after you had pressed the button (5). After 5-10 seconds insert it back into your computer. The banks have changed if the necessary light is on (i.e. green (6)). If the color of the light remained the same as before pressing the button (red in this case) you need to repeat the operation.

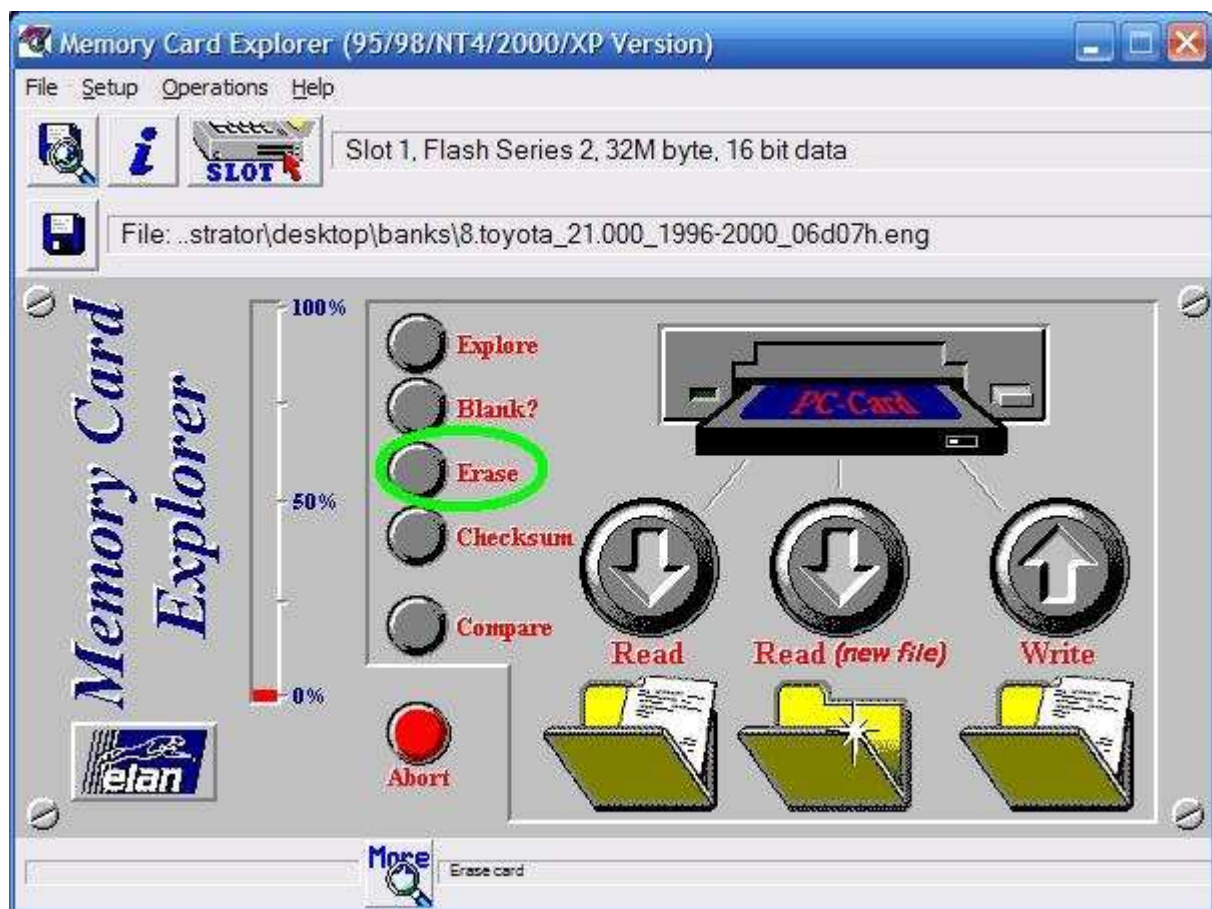


## 6 File writing to Flash

### 6.1 Erasing

Before you write files to a bank, you need to make sure it is empty. To do that, click “Erase” in the MCE window (Figure 7) and wait for the software to erase any files.

Figure 7 Erase option in the MCE window





During the erasing process a process bar on the left (Figure 8) will show the progress of the procedure. After completion, at the bottom of the MCE window the status bar will show the result of past action (Figure 9).

Figure 8 Process of the erasing operation

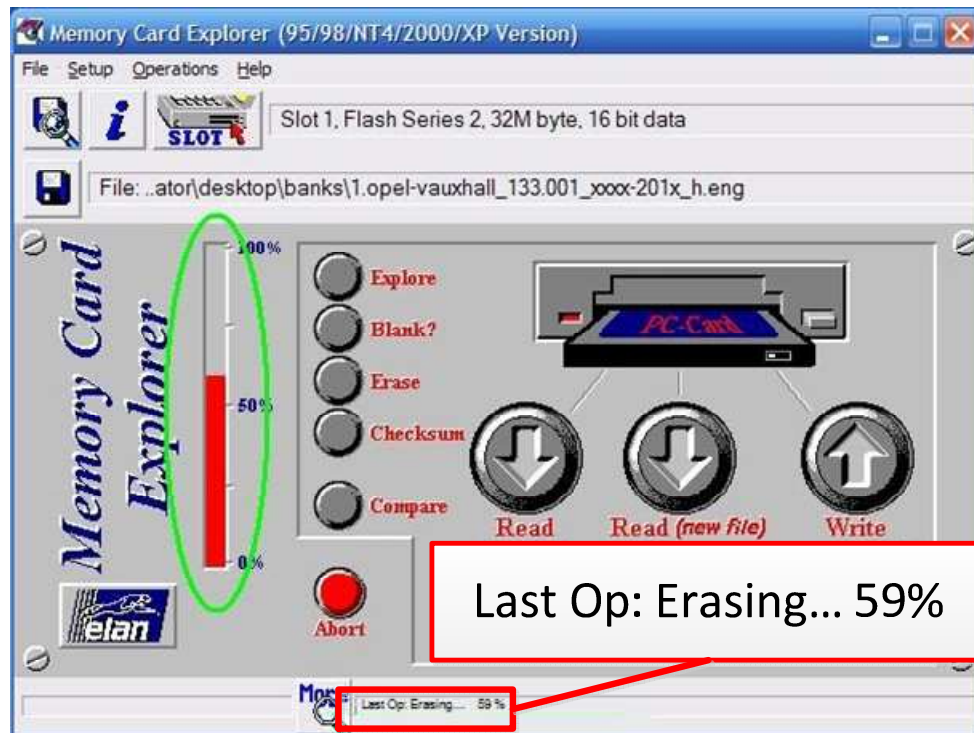


Figure 9 Last operation's status



## 6.2 Blank checking

After you have cleared the bank, you need to check if it is blank. Click “Blank?” (Figure 10) and wait for the software to check the bank (Figure 11). After blank test was completed, a message in the status bar will show the result of the last operation (Figure 12).

Figure 10 Blank option in the MCE window

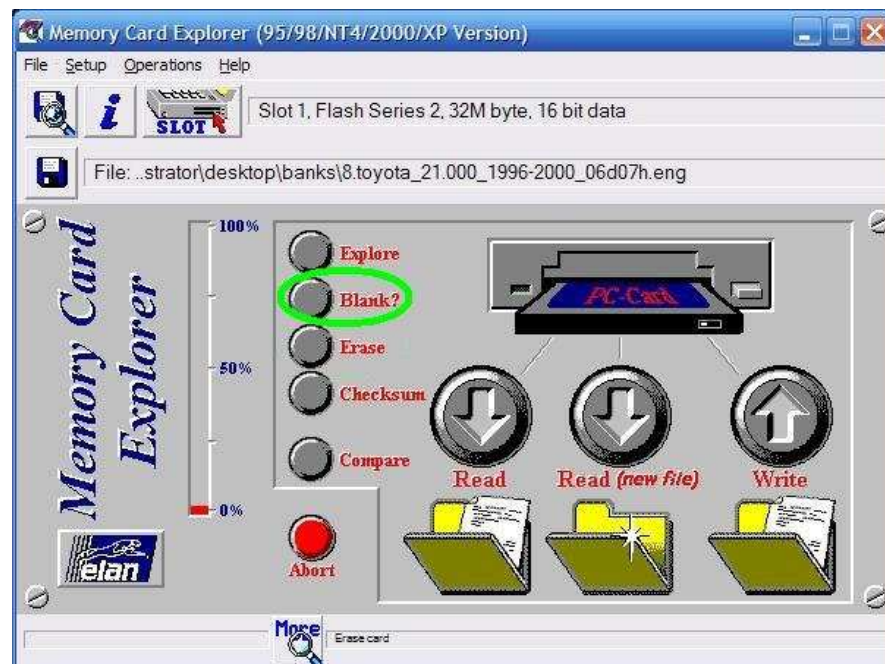
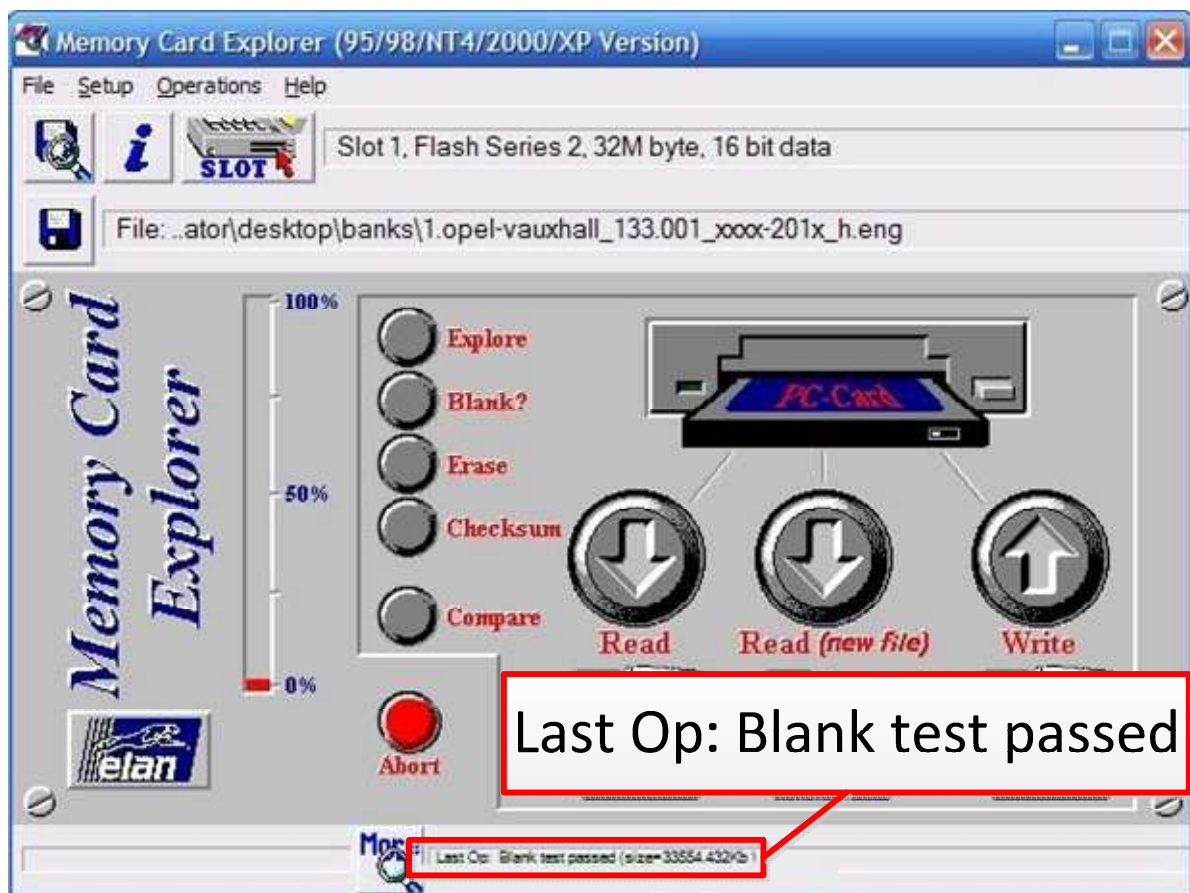


Figure 11 Process of blank checking operation



Figure 12 Last operation's status



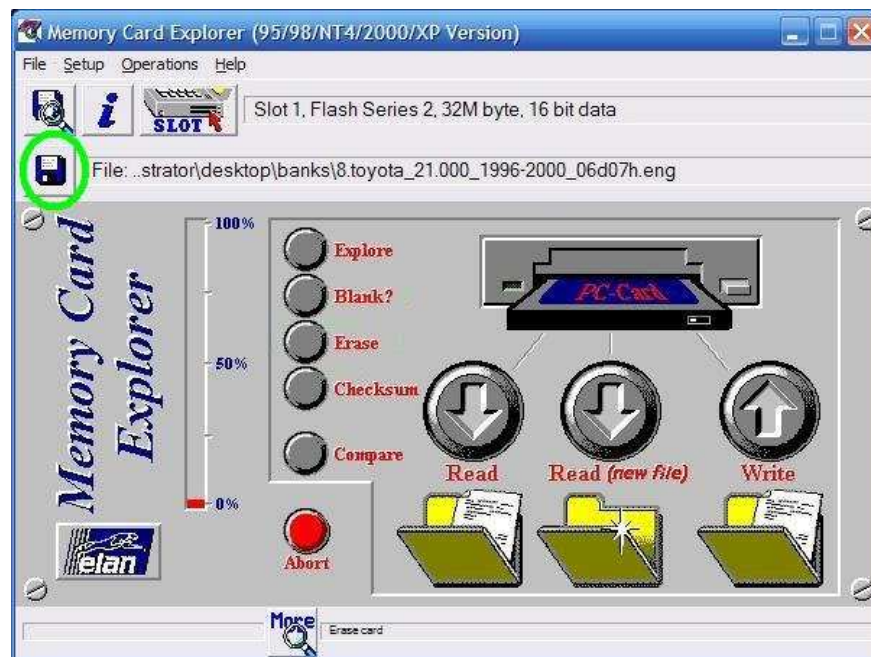
After erasing and performing the blank test, new files can be written to the flash.



### 6.3 Writing

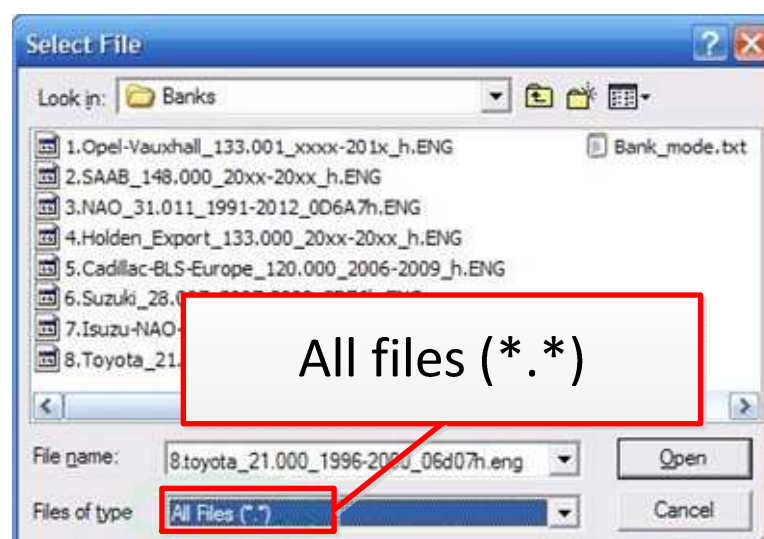
To write files to a multi bank linear flash, select the file (up to 32 MB) that you want to copy to your Flash by clicking the “Select” icon (Figure 13).

Figure 13 Selecting files



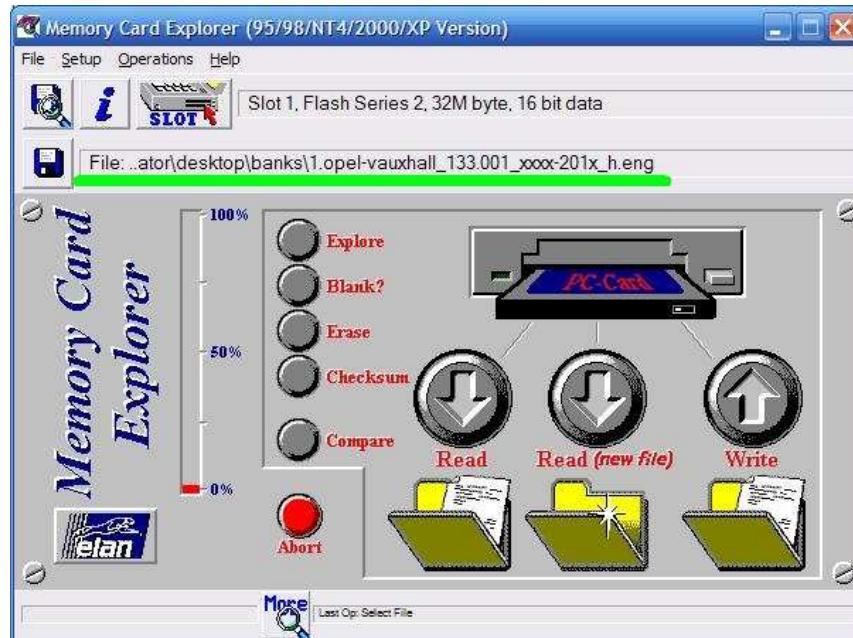
Choose a file you want to write (Figure 14) (NOTE: filename with directory should not exceed 120 characters, otherwise an error will occur).

Figure 14 Selecting files from folder

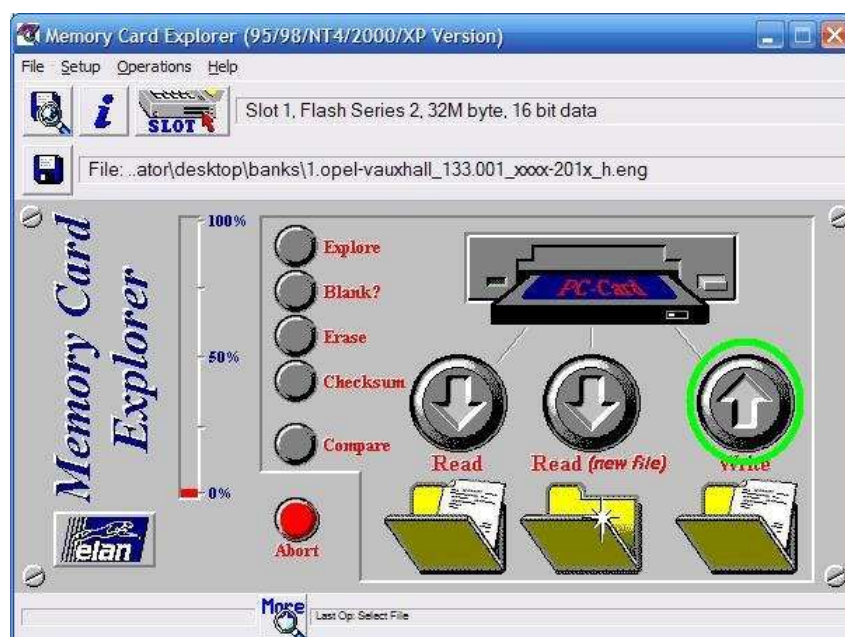


After selecting the file, it should appear in the box next to the “Select” icon (Figure 15).

Figure 15 Filename in the file box



Now press “Write” and start the writing process (Figure 16).



Status of the writing process will appear in the process bar (Figure 17). After completion, status bar at the bottom of the window will show the status of the last operation (Figure 18).

Figure 17 Writing process



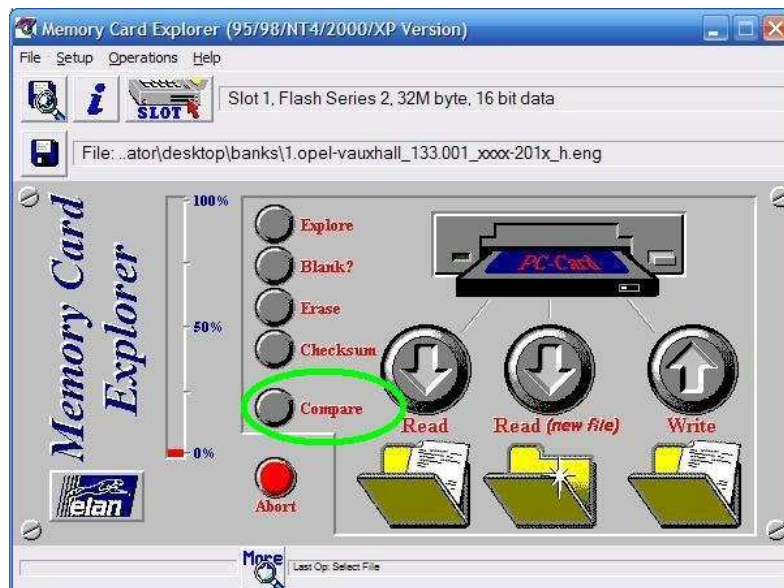
Figure 18 Last operation's status



## 6.4 Comparing

If you want to make sure you have written certain files into a respective bank, perform “Compare” action. To do so, select the file you want to check (Figure 13, Figure 14). Then select the bank where this file is written, and then press “Compare” (Figure 19).

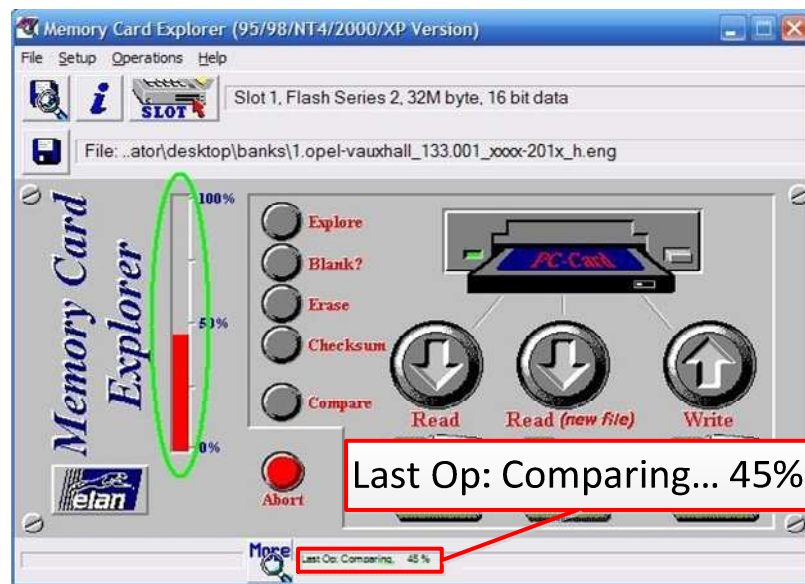
Figure 19 Compare option in the MCE window



If the file in the bank is right, compare process will be successful (Figure 20). If not, an error will occur.



Figure 20 Comparing process



After the comparing operation has been completed the status bar will show its result (Figure 21).

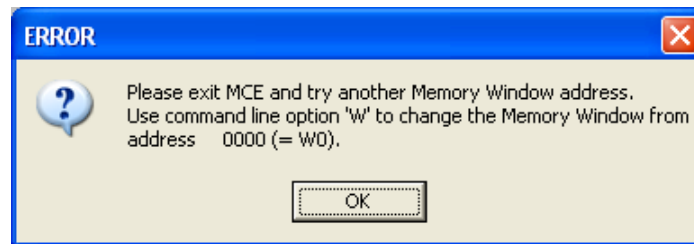
Figure 21 Successful compare operation



## 7 Known issues

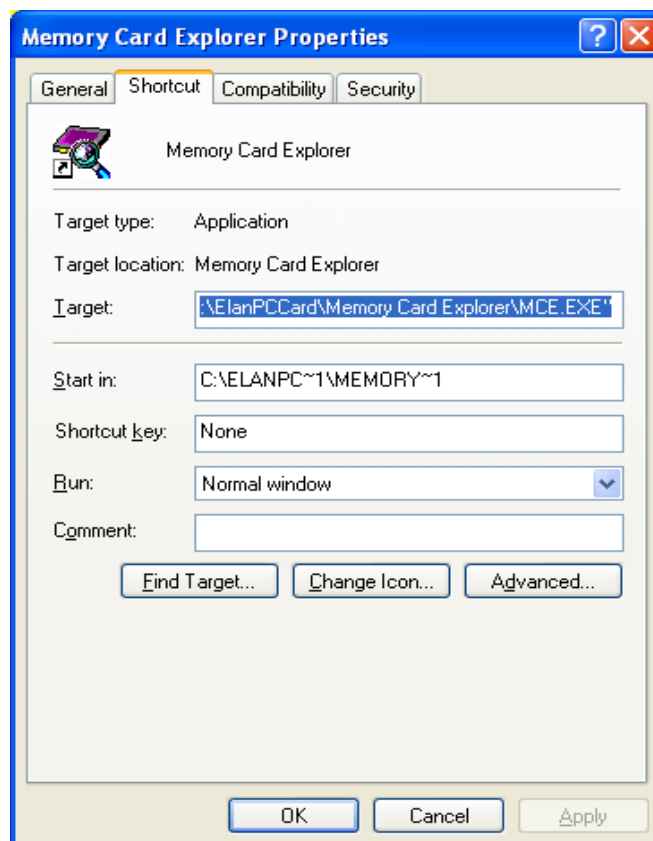
Some PC's may show an error while trying to write files to Multi Bank Linear Flash card (Figure 22).

Figure 22 Error message



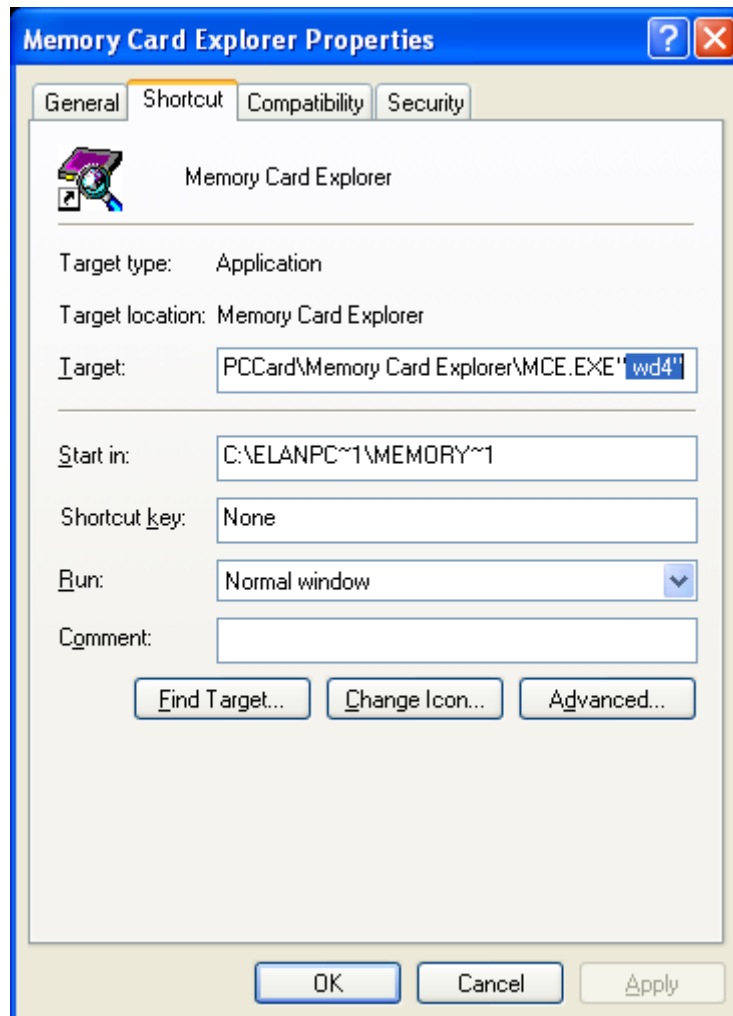
This error appears when the standard memory address that MCE uses is taken. To fix this problem you need to set an accessible address. Usually the address is 0D4000h. To change the address simply right-click on the MCE icon on your desktop and choose 'Properties'. A window will appear (Figure 23).

Figure 23 Memory Card Explorer Properties



Select the address that is located in the ‘Target’ box as shown in Figure 23. Do not change the address that is written there, but simply add wd4” (Figure 24).

Figure 24 Configuration of the address



**Notes:**