Conception

This project is the development of non-professionals. It spreads in condition "as is" and the authors are not liable for any loss directly or indirectly connected with its use. Concept of the Resetter is the following: a payment is made only once, and you get only the features that are at the time of the purchase. If the software of the Resetter will be updated and a new features will be added, you get them for free as a bonus. Since the programs are not written by professionals, we can not guarantee the program will work on all operating systems and all computers, but we constantly improve them. To check the compatibility of our product with your computer, please download and run the program. If the program is started without any errors, then everything will work. The authors have no way to check the work of the Resetter on a printer, and that is why **we can not guarantee that we will teach you to reset chips for using them in printers.** We only provide you the tool to work with the chips. It is assumed that **you know how to modify the data in the chip** for this particular printer. However, our experience and your achievements allow us to add specific instructions on resetting the printer and dumps of their chips. The Crum Prog does not guarantee a support of emulators (compatible chips). We only guarantee reprogramming of emulators of our production or those emulators, which are stated as supported.

System requirements

To run the program You need to install NET Framework 4.0 or higher. You can download it from the manufacturer site -
http://www.microsoft.com/ru-ru/download/details.aspx?id=17851
The program was tested and it runs on the following operating systems:
Windows XP 32 -64
Windows Vista 32 -64
Windows 7 32 -64
Windows 8.1 64
Windows 10

To check the compatibility with your operating system version, please download the program and run it on your computer **BEFORE** purchasing our device. The program is compact and does not require any installation. If the program starts without an error, the device will run on your computer.

A list of supported chips.

We do not publish a list of supported printers as we do not know what chips are used in what printers. Our Resetter works not with the list of printers, but with the list of chips. In the case when we know the brand of a printer the chip is installed in, then we specify the printer model.
The program has a system of the management of a database of firmwares, which serves for an easy management and systematization the collected firmwares. **List of printers in the database (a menu called "Printer Model") does not indicate the list of supported printers.**
Anyone can add or remove any firmware from the base and can call it whatever he likes. The Resetter supports a work with the chips from the menu list "Chip Model" only.

List of chips:

-24Cxxx
-93Cxx (8 and 16 bit)
-XC-01
-1-Wire (list of the chips are seen in the corresponding chapter of the instruction)
-Xerox 3010/6000 series (only emulators)
-Kyocera (only emulators)
-AT88SC0204C(A) configuration zone (read only)
-AT88SC0204C(A) data zone for the following printer models:
Samsung 3050, 5525, 5530, 3470, Phaser 3300, 3428, 3435, Dell 1815, Ricoh 3200
Samsung SCX-4725, Xerox Phaser 3200
Samsung ML-4550, CLP-350, Xerox 3600, Ricoh 5100
Samsung ML-1630/1631, SF 560/565, SCX-4500
Samsung ML-2850, Xerox Phaser 3250
Samsung CLP-660/610, Xerox 3635
-S3CC912 -S3CC921 (with limitations)
SECDP-1:
MLT-D105: Sam SCX-4600,4623 ML-1910,1915,2525,2580 SF-650
MLT-D106: Sam ML-2245
MLT-D108: Sam ML-1640,1641,1645,2240,2241
MLT-D109: Sam SCX-4300
MLT-D209: Sam SCX-4824,4828 ML-2855
CLT - 407: Sam CLP-320,325 CLX-3180,3185
CLT - 409: Sam CLP-310,315 CLX-3170,3175
CLT - 508: Sam CLP-620,670 CLX-6220,6250
CLT - 609: Sam CLP-770
Xerox WC-3210,3220
Xerox WC-3550
Xerox 3140,3155,3160
SECDP-3:
MLT-D104: Sam ML-1660,1665,1667 SCX-3200,3205,3207,3217

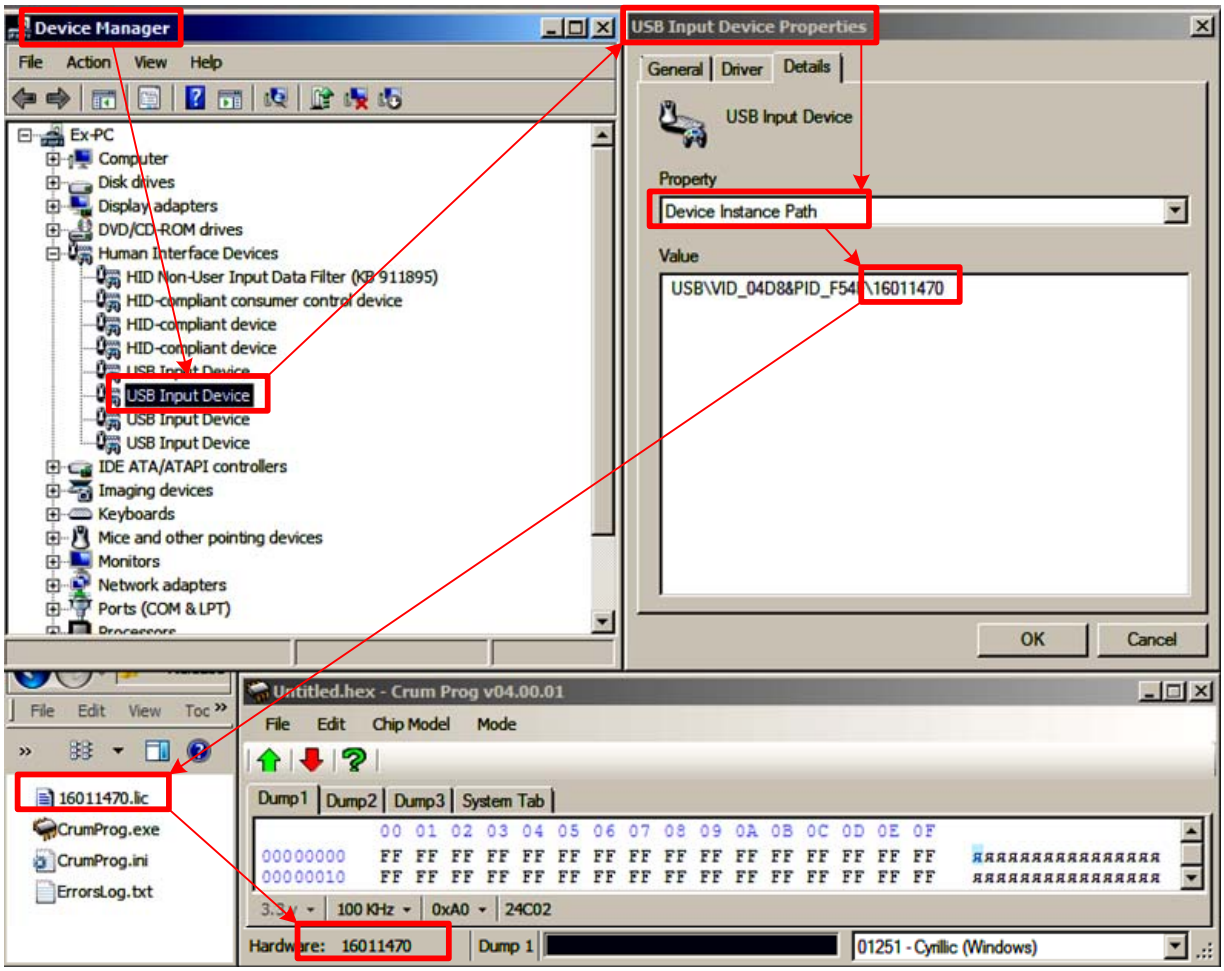
A list of supported chips.

SECDP-4:
- MLT-D205: Sam ML-3310,3710 SCX-4833,5637
- MLT-D305: Sam ML-3750
- Xerox 3320
- Xerox WC-3315,3325

SECDP-5:
- MLT-D309: Sam ML- 5510,5512,6510,6512
- MLT-D307: Sam ML- 4510,4512,5010,5012
- Xerox 4600, 4620, 4622

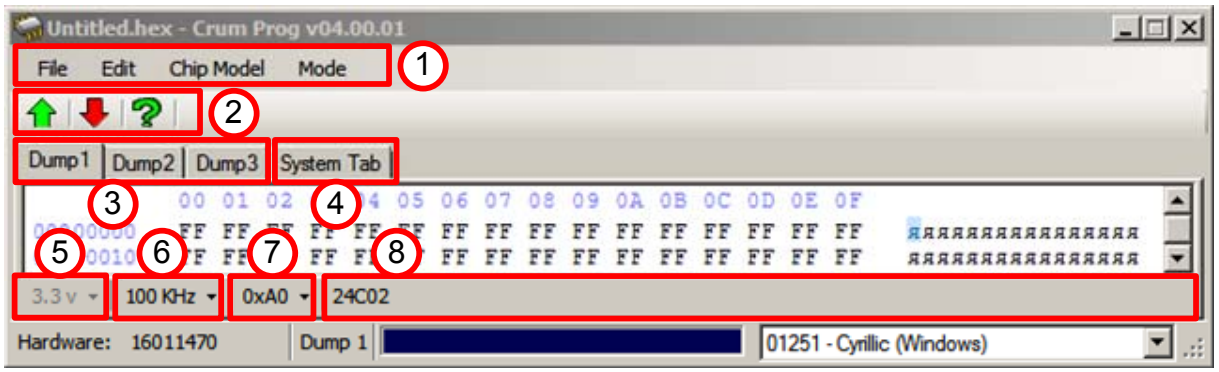
SECDP-6:
- MLT-D103: Sam ML-2950,2951,2955 SCX-4727,4728,4729

Connecting the device to the computer

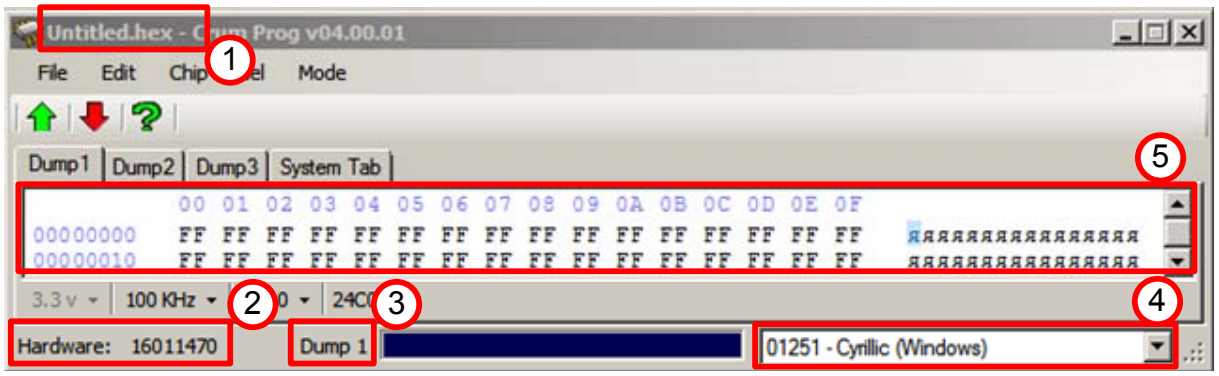


The device connects to a free USB 3.0/2.0/1.0 port and is recognized by the computer as a Human Interface Device (HID) class. Such devices as a keyboard, mouse, joysticks and other devices of communication of the computer and person also belongs to HID class devices. Any Windows version contains all necessary drivers for connection of any HID device. The present Resetter does not require any special drivers to work with Windows.
After connecting the device to the computer, Windows finds the drivers and the device is ready for work.
Each device has its own serial number, which You can see in a program window and device manager. This serial number is linked with a licence file. A name of the file can't be changed, the program will look for the license file on serial number and the file name. It is possible to keep licenses from several Resetters in the folder and the program will find the necessary. There is a complete list of all current and future chips in the file of the license by default. When buying a Resetter you can buy a specific list of concrete chips (economy version) and expand the list of the chips by getting another license file later.

Elements of the main program window

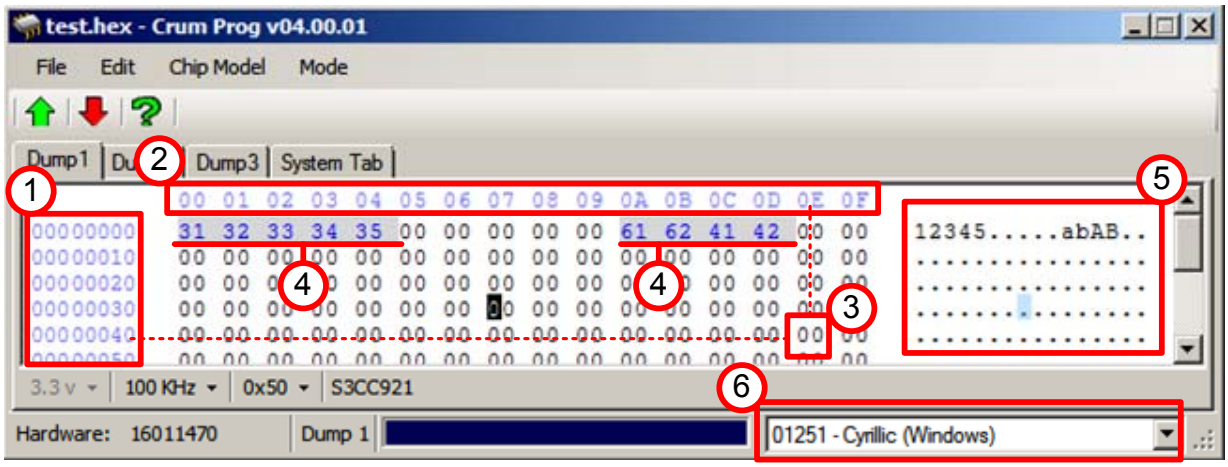


1. Menu of the program
2. Control buttons for reading, writing and checking the chip.
3. Buttons for switching several tabs with dumps.
4. System tab. It displays all messages from the Resetter.
5. Button of chip voltage selection. It may be deleted.
6. Button for setting the speed of data exchange with the chip.
7. Chip address on the bus. Represented in hexadecimal form.
8. Model of the chip for the active tab.



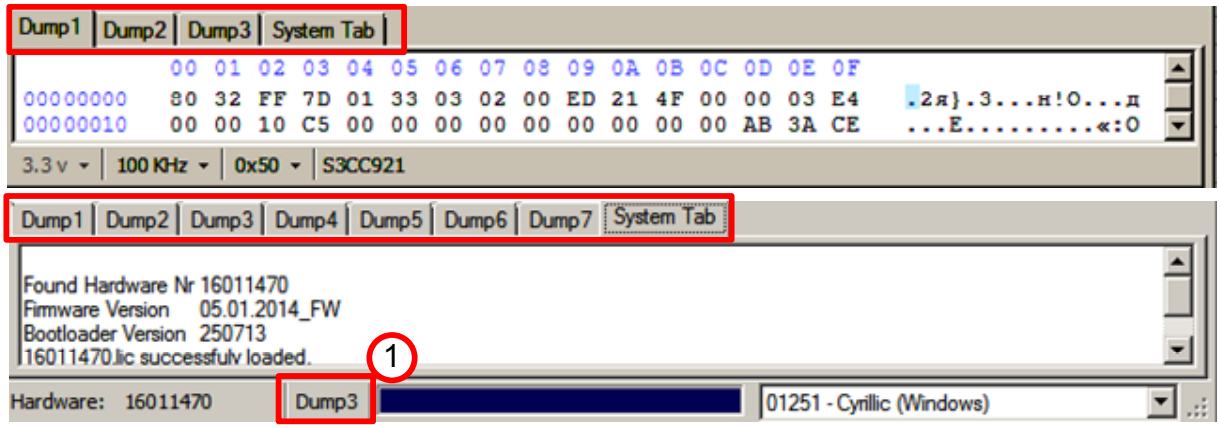
1. File name of the active tab in the program title.
2. The serial number of the Resetter connected to the computer.
3. The name of the active tab.
4. The code page for the right side of the editor.
5. Editor of a dump (content of the memory) of the chip.

Hex editor



Hex editor (Hexadecimal Editor) is intended to edit information of memory. All numbers in the editor are provided in a hexadecimal form, they are presented in a memory of all electronic devices in a such form. There is a numbering of tens (or lines) in the left part of the editor (1) , and there is a numbering of units (or columns) at the top of the editor (2). A crosshair of tens and units gives the address of number. There is number 00 on the picture (3) and its address is equal 4E. To avoid confusion between decimal and hexadecimal numbers, the prefix 0x is placed before the number or the suffix “h” is placed after the number. An example of a hexadecimal number with a prefix 0x4E and with 4Eh suffix - (0x4E = 4Eh = hexadecimal 4E).
The bytes (storage cells) which were changed in the process of editing are highlighted in the editor (4). It is possible to change the color of backlight in the .ini. file from the program folder. The backlight is removed when saving a new values in the file.
There is a panel of the interpreter of byte values in code page characters (fonts) in the right part of the editor (5). Different countries have different language code pages (fonts) and that is why the editor has a button (6) to switch between different code pages for the correct display of fonts in this region. The program receives data about the system code page on the specific computer and installs the appropriate page when starting.

Tabs



There is an opportunity to set up a number of tabs for convenient work with dumps in a program. 15 tabs are the maximum quantity of tabs. The system tab is always added automatically and is used for recording the system messages.

Tabs with dumps

Each tab saves the selected chip model and code page. After activating any tab and clicking “Read”, “Save” and “Check” button the Resetter will take an action with the chip from this tab. Only one tab can be active at the same time. If the system tab is selected than the last selected tab will be the active. An active tab is indicated in the status bar (1). An active tab becomes visible by clicking on the symbol of the active tab (1). Drag-and-drop function of a mouse works at tabs. It is possible to activate the necessary tab and to drag the required file in it.

System tab

The system tab displays messages for the user. Also these messages parallelly are written in a log file (ErrorsLog.txt) of the programm`s directory for problem analysis. The right mouse button functions (shortcut menu) do not work in a system tab, but the text from it can be copied by a shortcut of Ctrl-C and the text can be pasted by Ctrl-V combination.

The text inserted that way is not transferred to a log file. There are 3 types of text in a system tab which differ on color.

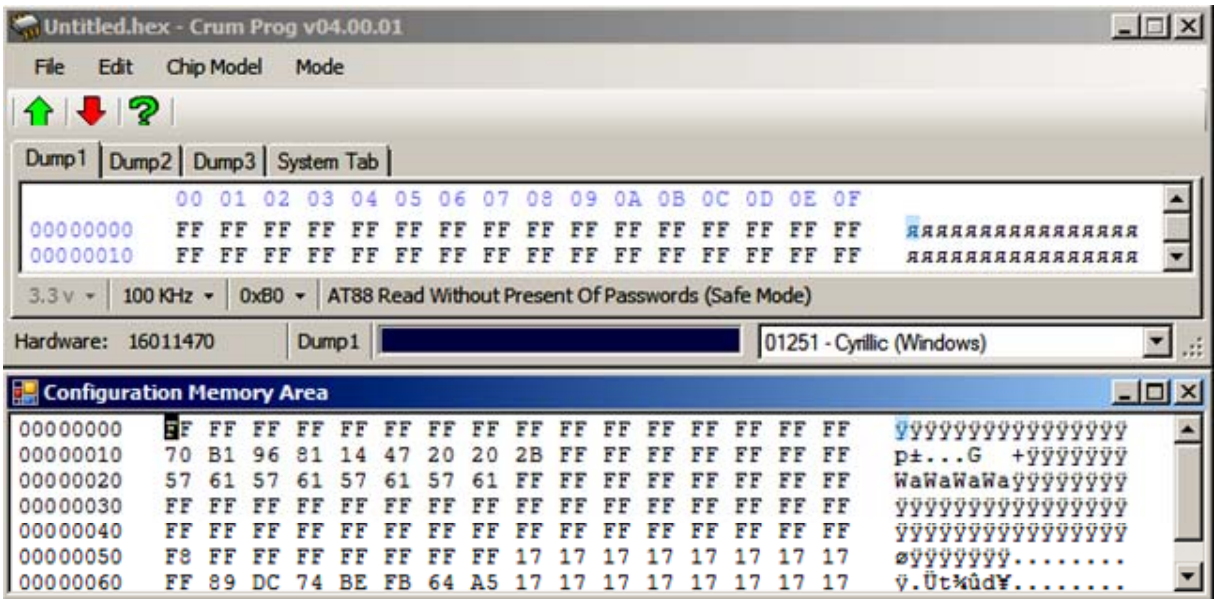
Black text mean standard operation and serve for information.

Red text mean critical errors because of which it wasn't possible to perform the specified operation.

Texts of other colors (there is only blue so far) mean warnings about any not compliances or automatic actions. No corrections are required in case of these texts.

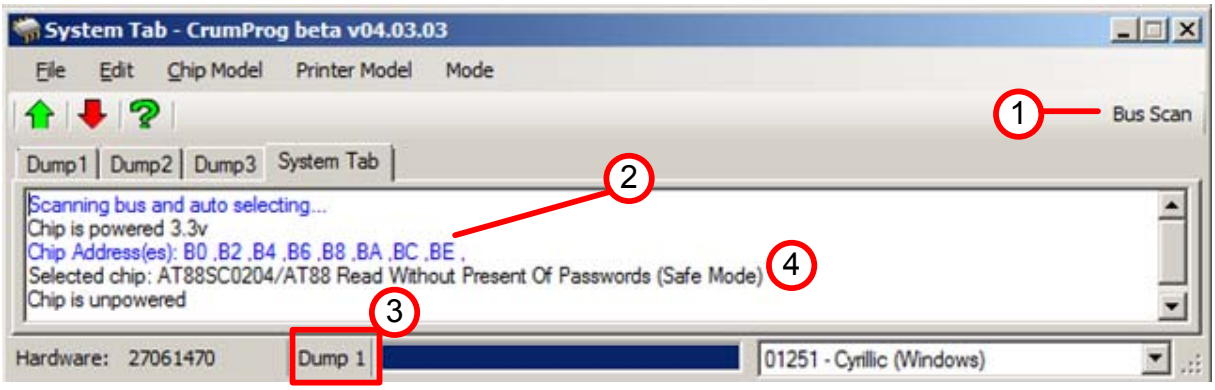
If a record in a system tab differs from black color, the program automatically transfers focus to a system tab to pay attention of the user to warning. The active tab to which this warning works, still remains active and its name is shown in a status bar (1).

Unchangeable memory in the chips



Some chips have more than one region of memory. The basic region of memory that is displayed in the tabs of dumps of the program is called EEPROM memory (Electrically Erasable Programmable Read-Only Memory). The main work with the chip memory is carried out in this region. However chips with difficult algorithms of access have additional regions of memory, such as Configuration of the chip (Configuration Mermory), serial numbers, authorization data, passwords, administrative areas of memory, one-time programmable areas of memory (OTP) and others.
If the knowledge of contents in these areas of memory can be useful for the user, the Resetter can show additional regions of memory from this chip. Additional regions of memory are displayed in additional windows (a picture). Information in these areas is for information only and can not be edited or rewritten into the chip. Additional windows are closed themselves when next reading/writing the chip. Saving a data from additional windows isn't provided. If the user wants to save this information, the shortcut menu works in additional windows. The dump can be selected and copied in another tab and then save the tab in the file.
It is possible to turn off the popups of additional windows in the setup file of the Program CrumProg.ini

Bus scan

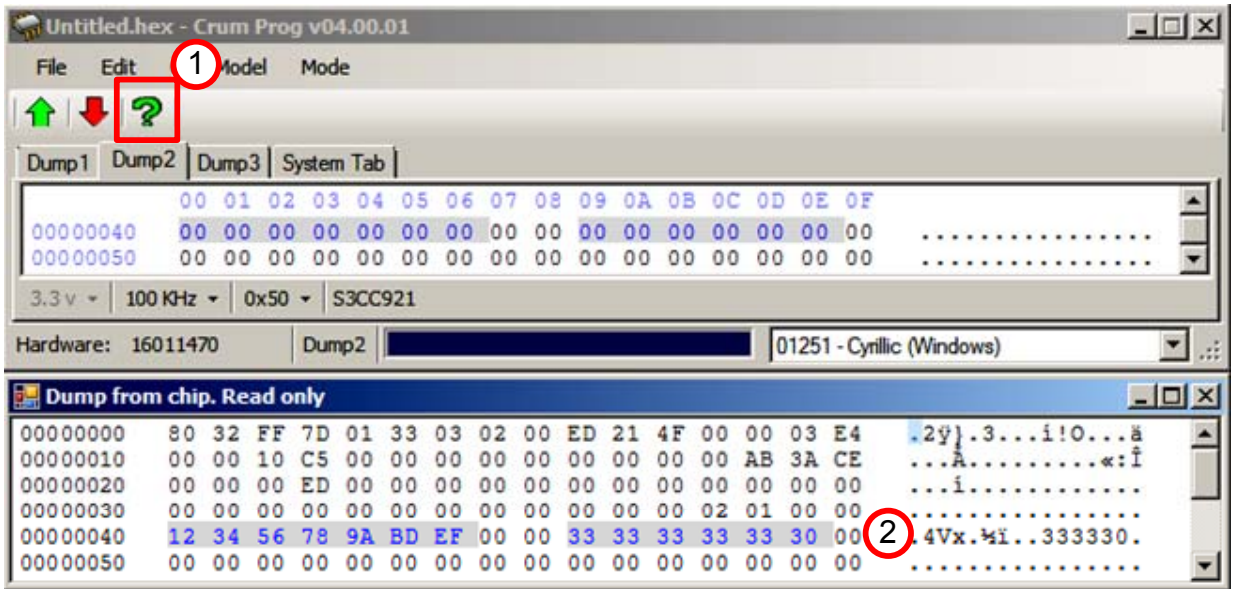


Bus scanning (search of the address of the chip by searching of all possible addresses) can be started either by pressing a button (1) or automatically in this Programmer. A procedure of automatic search of the chip runs in the case when no chip was selected on the active tab and one of control buttons of the Resetter "Read", "Write" or "Compare" is pressed.The range of scanned addresses(00 -255) is presented in hexadecimal 0x00-0xFF way in the Resetter. The scan result will be showed in the System Tab (2), thus the System Tab will be activated. The active tab (3), which the scanning was made for, will be marked on the Status Bar. Clicking on the name of the dump on the status bar (3), an active tab opens.
If the found address (or some addresses) uniquely identify a specific supported chip, this chip is automatically selected in the active tab (4).
Some chips can't be identified by the found addresses, then it is necessary to select a model of the chip manually. For example 24s02, X-01, 24s512 and Kyocera chips may have the same address on 0hA0 bus. If the automatic choice sets 24c02 chip, instead of H-01, then H-01 chip will be permanently damaged. If You select 24c02 chip instead of 24c512, then 24c512 chip won't be read completely. Thus an automatic choice will set the H-01 chip in order not to damage anything. If this choice differs from the type of your chip, select the type manually, based on the given-out addresses of scanning and on the surface of the chip. Scanning will have a result for the chips with I2C protocol only, accordingly all the chips with another protocol (for example 1-Wire) can not be recognized by the program. If you are sure that the chip is I2C, but its address was not identified by scanning, it is likely that there is a problem with connecting the chip.

Comparing

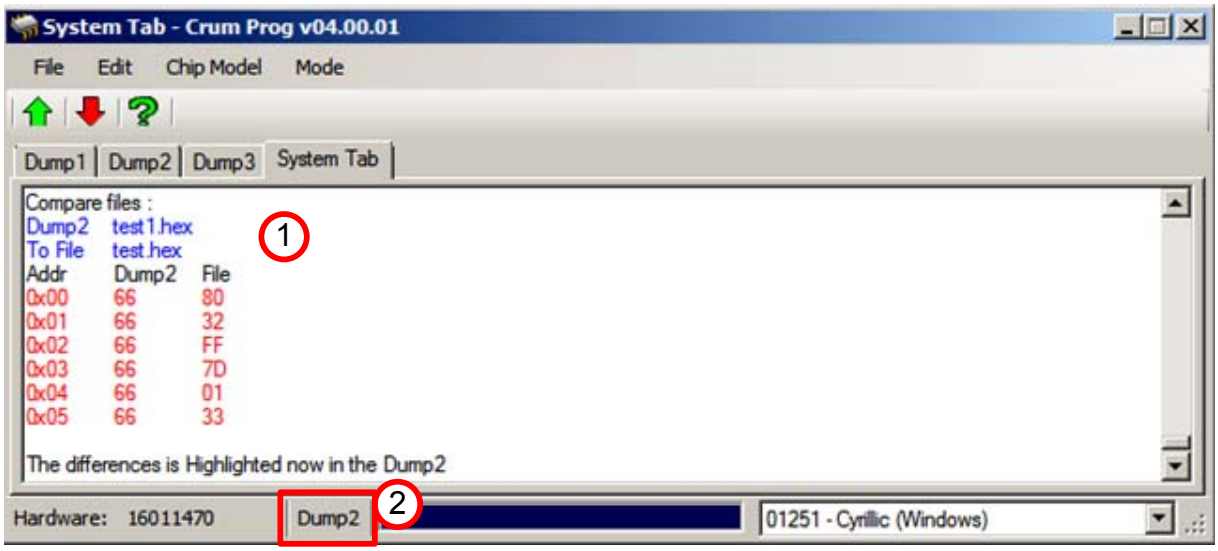
There are two types of comparing the dumps at the moment:
1. Comparing a dump in a programm and a dump in a chip,
2. Comparing a dump in a programm and a dump from the file

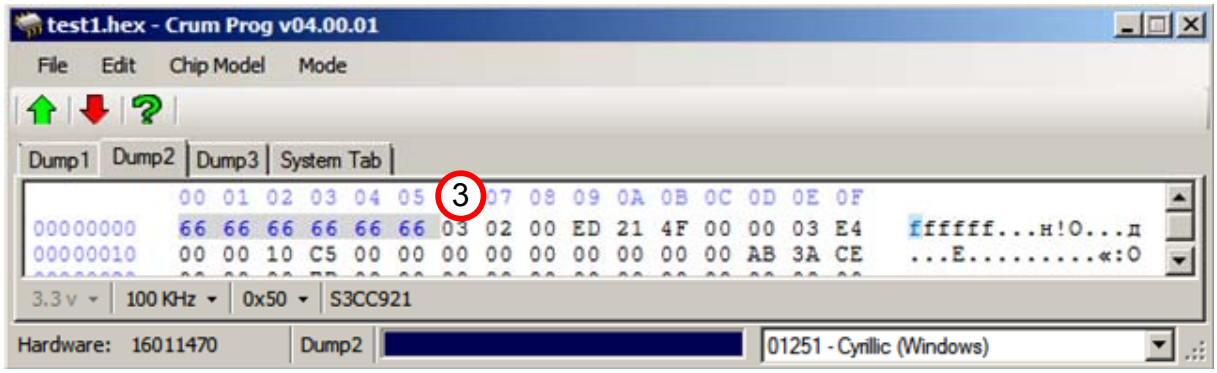
Comparing with a chip



After writing a dump in a chip it is useful to check how successful it was modified. Press Compare button (1) on a toolbar in the program to compare data from the chip with data from the active tab.
If the data have no differences the type of the programm won`t change. There will be a message in a System Tab that data have no differences and the tab with a dump will remain active in a programm.
If data differed, then an additional window called “Dump From Chip” (2) will be opened and The last read dump from the chip will be brought out there. All the differences of data on the appropriate addresses in both windows will be highlighted. An additional window will be closed automatically at the next reading/writing procedure.

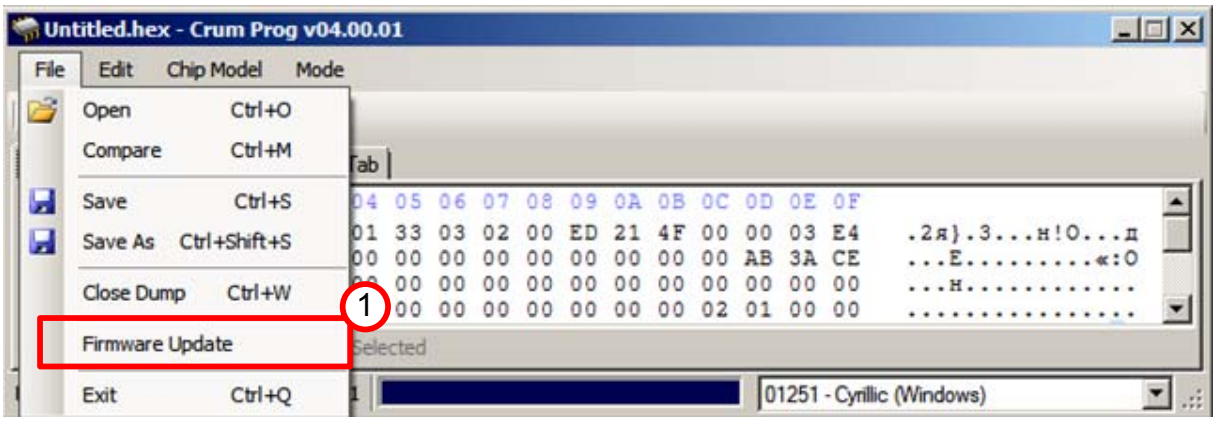
Comparing with a file





For comparing an active dump with a file it is necessary to open a tab with a dump which You want to compare, then open the System Tab and drag a file for comparing there. Or to click File/Compare in the menu of the program and to specify a path to the file for comparing. The names of the files which were compared and the differences between them (1) will be written in a System Tab after comparing process. An active dump is specified on the Status Bar (2). If You open an active tab, the differences (3) will be highlighted there.

Installing updates

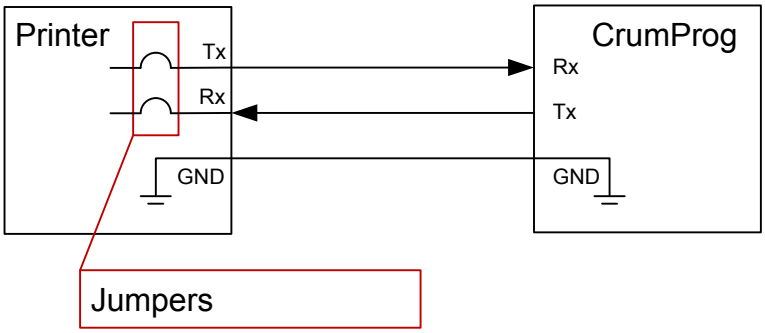


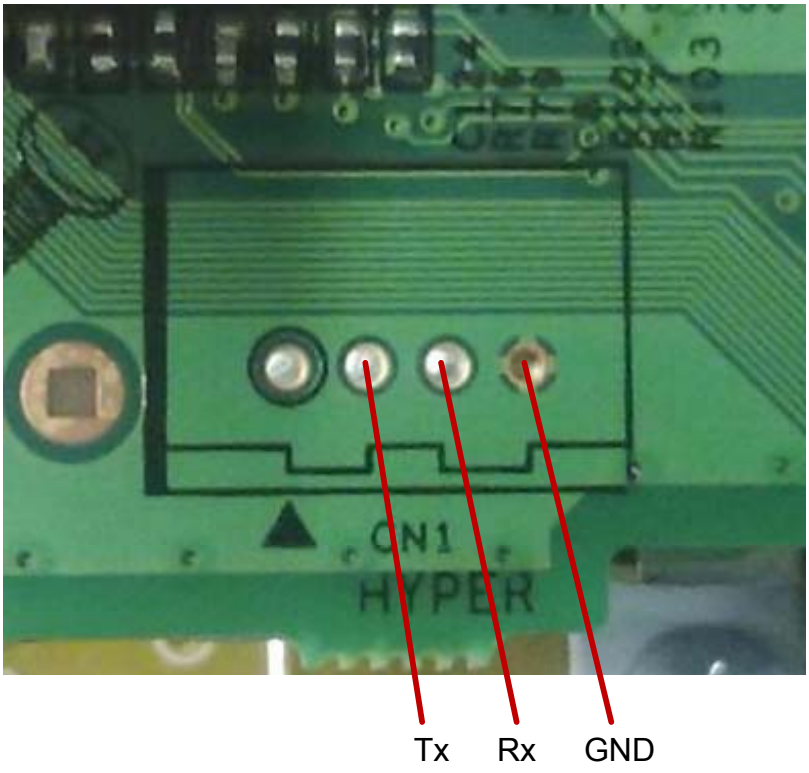
An update of software can be made in a controller of the Resetter. There is a bootloader in controller which is protected in configuration from erasing and changing. This bootloader always provides communication of controller with the computer through USB connection. Keys and criptography for writing a Microcode file (firmware) to another part of microcontroller, which is not protected from overwritting, are written in the bootloader. The update file is protected by a password and it is identical for all the Resetters, regardless on the connected features. A file with update as well as updated versions of the programm are laid out in the free download on the Internet http://www.resetkits.lv/ (please specify the address).

The dialog box with the opportunity to specify the path to the update file will be opened after pressing File/Firmware Update (1) button. There is no any check of authenticity of the file of the firmware at this stage, so if You specify an incorrect file, then an old firmware will be deleted and a new one won`t be loaded. We will add the authentication of the file of the firmware before memory erasing in the following updates. If You specify a path to the correct firmware then after selecting this path the firmware will be loaded to the controller immediately. The Resetter is ready for work and does not need resetting right after loading.

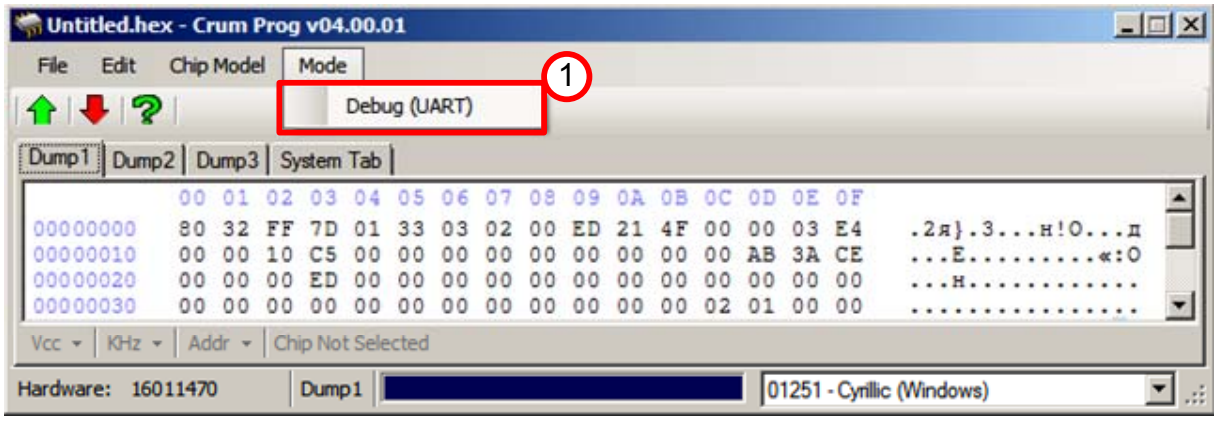
Debug (UART). Connection

3.3v Rx ->
3.3v Tx <-
GND



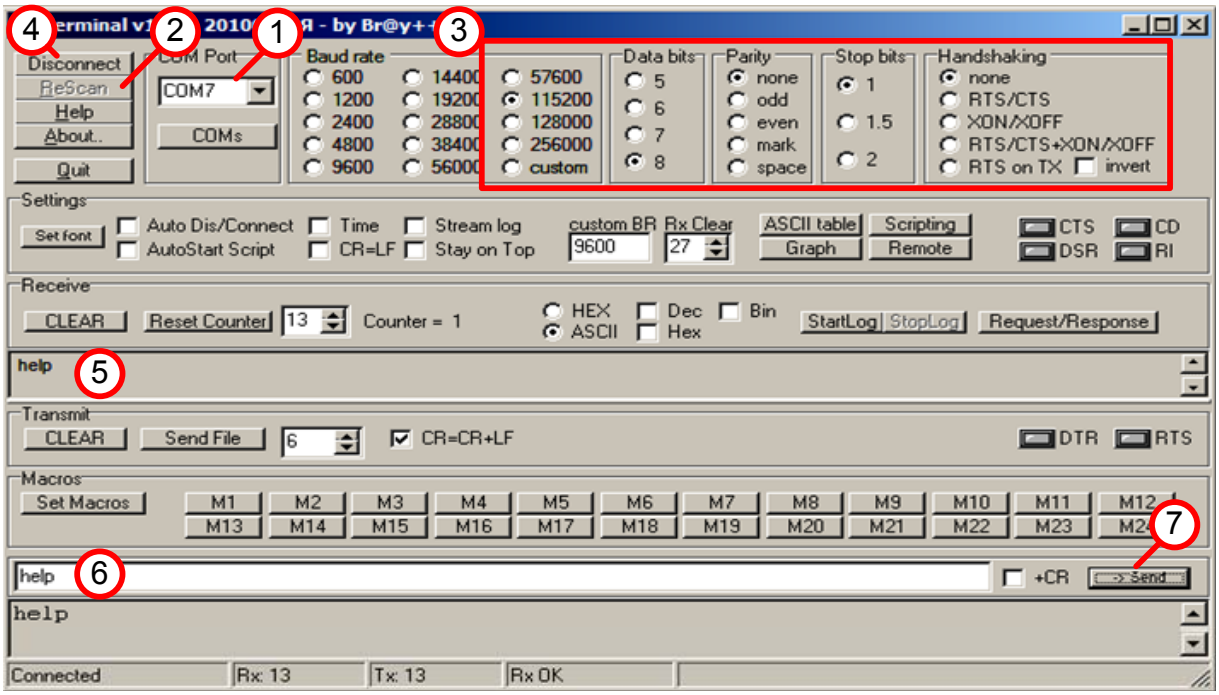


Debug (UART)



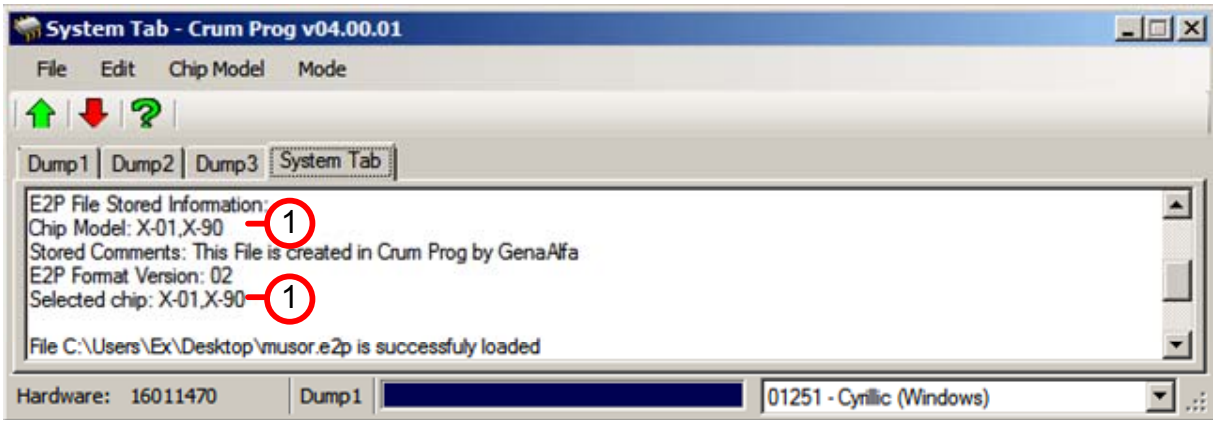
In some cases it is useful to connect to the printer through the service connector on the motherboard of the printer (formatter). This connection is required in a case when the printer stops connecting (communicate) throuh USB. In this case, the processor of the printer continues to communicate with the programmer via the service connector for debugging CPU microcode. This connector on the printer is called "DEBUG" or "TERMINAL". Some printers provide service jumpers for DEBUG connection with the processor. As a part of this manual, we do not give their location, but acquaint with their possible presence.
Connection to the processor is at "low level", it means that the connected has full access to all processes of the printer without any "protection against the fool". All your actions will be immediately accepted to execution and they can't be cancelled. Having such rights, you can easily damage something in the printer and You won't always even note what exactly killed the printer.
We don't give the description what exactly it is necessary to do with the printer through this connection to it, we just give You the tool for this connection. All responsibility for consequences of Your actions lays down on You. Connection is made through 3 wires: "TX", "RX" and "GND". Voltage levels are already coordinated for connection to 3.3 V formatter (check how many volt is applied to the chip of the cartridge, and it will be the voltage of the formatter, but I think that all the printers have 3.3 V).
To enter DEBUG mode press Mode/Debug in the programm. Resetter will change USB settings of connections after that and the programm stops to see the hardware. LED on the resetter will start blinking another way. There will be a new device COM-X port in Device Manager of the computer, where X is a free COM number. Maybe it will be necessary to specify a path to the driver (is applied) in Windows. To exit the DEBUG mode it is necessary to disconnect the Resetter from USB and to connect it again. When connecting the Resetter it always starts in a Resetter mode.
I choosed quite a good programm (Terminal) to work with DEBUG. I will shortly describe a work with it below.

Terminal



Before you run the Terminal program, make sure that the Resetter passed into the DEBUG mode and the LED on a board blinks rare short flashouts. Also make sure that the computer connected all necessary drivers (it can be made in Hardware Manager) and computer has an additional COM port (I do not describe it cause it is a standart procedure).
After starting the program choose a number of Your COM port in a window (1). If you run the program earlier than the computer set drivers, press ReScan (2) button and the program will revise the list of the connected ports. After that make necessary installations of the port for connection to the printer, they are shown on the picture (3). When everything is ready press the Connect button (4). If the port is connected successfully, the Connect button will change on Disconnect (4).
I didn't connect the printer but just connected two wires on the Resetter TX and RX together for this demonstration. Resetter received the sent messages. You can do so to check a work of DEBUG mode also. After You made all the settings and connected a port, connect a printer to power supply. The printer will give out some message lines in a window (5) (there is no messages in my example cause the printer isn't connected). Printer will ask You to send any symbol to the port within a second, so be ready for it. If You don`t send the symbol, the printer will load a firmware and won`t enter the DEBUG mode. The required symbol (most likely any symbol) should be entered into a field (6) for sending and to send it using button (7). Enter a symbol in advance (before connecting the printer), otherwise You will not have time to send it in a set time. If the printer accepts a symbol from You, it will give out some more lines in a window (5) and will confirm readiness to accept commands of control from You. Try to enter the help command, as it is shown in an example (6). The printer will give You out the system of commands in reply. Shortly it is everything.

File formats



The program can work with three file formats: *.hex, *.bin, *.e2p. Files of other formats can also be opened in the program for their editing, but files of other formats are loaded as a binary array and will be stored in the same form. Files of other formats cannot be a source for writing in the chip. If, however, you wish to use these files to write to the chip, then copy the part of the file from its tab to the tab, in which your chip is selected (copy/paste).
The main file format of this programmer is the format *.hex. If you do not specify a different file extension, the program will save files as *.hex.
The format *.e2p by the company http://www.lancos.com also stores information about the type of the chip selected. If you save the file in this format, the next time you open the file, the chip type will be selected automatically (1). Other formats do not contain data on the type of the chip selected.
To save the file in a format other than *.hex, select in the program menu File/Save As and the file type to be saved.

Working with chips

General information

This programmer is designed to correct various memory areas in the memory chips. No automatic corrections in the memory areas are provided. The user must make all necessary changes to the contents of memory individually, based on own knowledge and in accordance with the objectives. We do not provide information on what should be changed in the memory of the chip to reset certain counters. The customer must examine the contents of the memory chip and understand where and how the memory values in the chip should be changed in order to achieve the objectives. This programmer is designed as a tool in the hands of a skilled user, but we do not train users to the "skilled user" level, we only provide the tool for the job. Data security in the chips also becomes the object of user's concern.

Types of memory areas

Memory in the chips has various types. Each memory type has its own pros and cons.

EEPROM.

This memory type is the most versatile. The values in this area can be changed from any value to each. You can change one or more bytes at a time. The number of overwriting in one memory cell is about 100 000 - 10 000 000 times, after that the memory cell (byte) can be destroyed and no longer stores information.

FLASH.

This type of memory changes its value only from the bit value 1 to the bit value 0. If the value of memory bit was 0 and it should be changed to 1, the memory of this type must be erased through the separate procedure of erasing. If in the EEPROM memory you could erase one byte, the FLASH memory must be erased by blocks (block length depends on the type of chip). To change one bit from 1 to 0 you need only to change one bit, but to change the bit from 0 to 1, you have to save the memory block to erase (not to lose data from the block), then to erase the whole memory block, then to store the new information (stored) to the block with erased memory, and to change the bit which you wanted to change. Once the contents of the memory block have correct values, you should store the entire memory block as a whole.

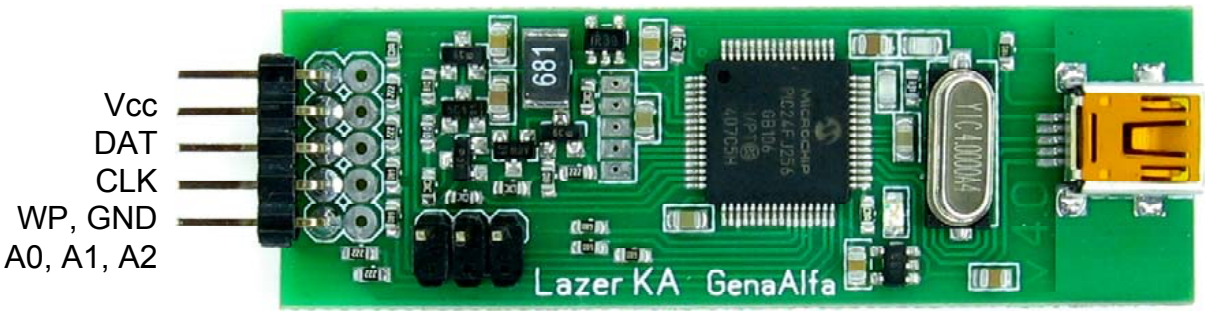
ROM.

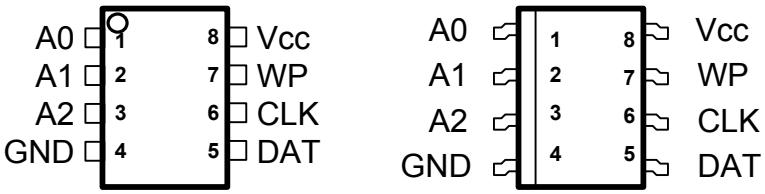
This type of memory chip is programmed by the chip manufacturer during its manufacturing. The memory of this kind is not intended for any kind of change.

OTP.

This type of memory can be changed once and is not intended to overwrite the original value. This limitation is due to the fact that the OTP memory has no procedures of deletion unlike the FLASH memory. Also, the OTP memory has some modifications. For example, Logical OTP (a bit varies from 1 to 0) or Arithmetic OTP (a byte varies from a smaller to a larger). Description of OTP zones in each specific chip will be given in the description of this chip.

24Cxxx. Connection

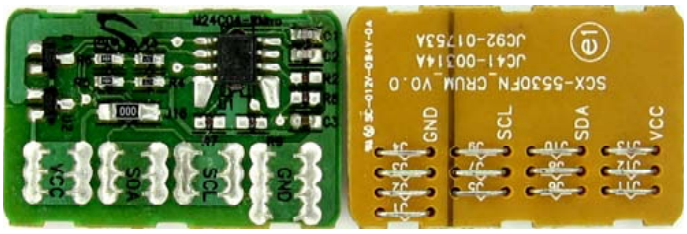


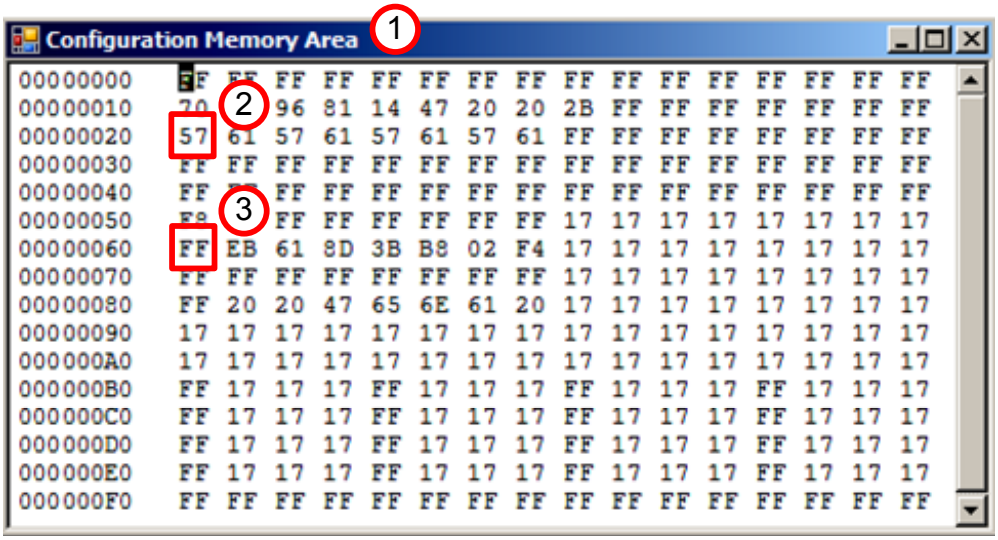


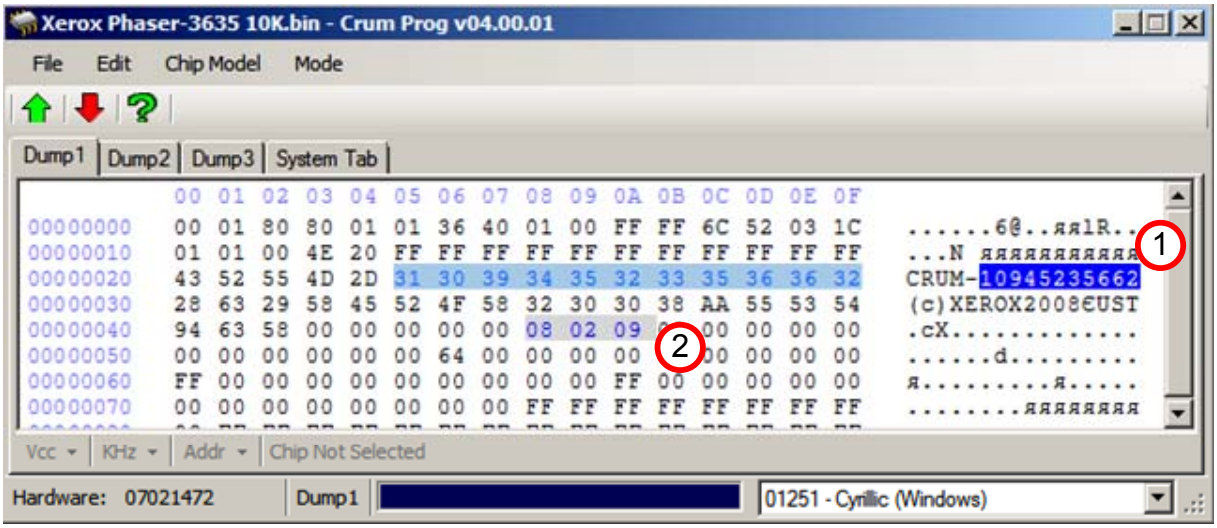
24Cxxx

Chips in this series consist entirely of EEPROM memory. You can change their memory as you like. Addressing these chips on the bus i2c may vary from 0xA0 to 0xAE. The exact address of the chip depends on two factors: the model of the chip and connected address pins of the chip. One chip responds only to two adjacent addresses simultaneously - even and not even (A0 and A1 or A2 and A3, etc.).

AT88SC0204C(A). Connection







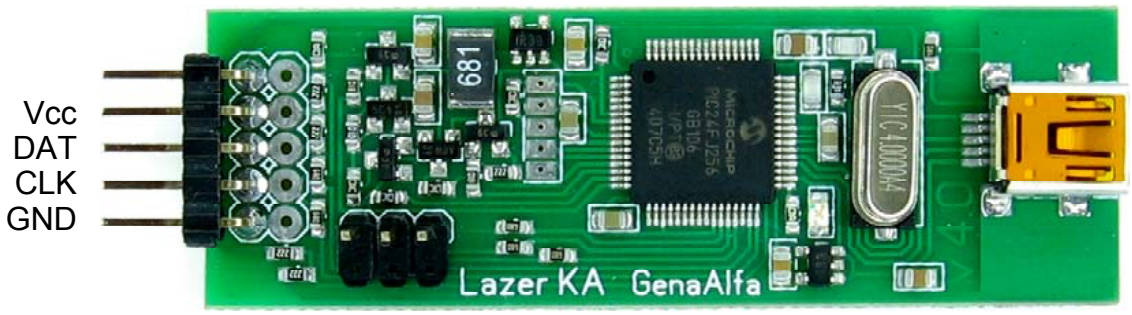
AT88SC0204

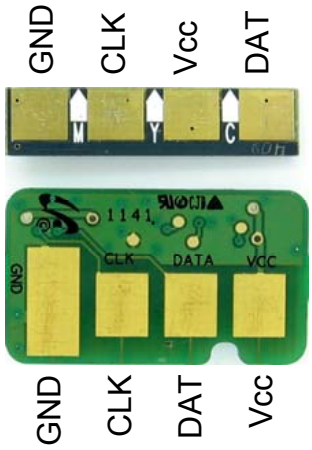
Chips in this series are protected by cryptography. In the chip there are two memory zones: data zone and the zone of the chip configuration. In the configuration zone the information on the chip is stored, which serves for the correct operation of the chip. This programmer does not modify the configuration zone of the chip, but can read it for user's information. The printer stores its information in the data zone of the chip. To access the data zone, the chip is required to provide the correct passwords. Different printers have different passwords in their chips, that's why it is important to select the correct printer model from the list of these chips. Every attempt to read the chip with unfamiliar passwords reduces the counter of incorrect login attempts. Totally it is possible to make 7 attempts to read the chip with incorrect passwords before the chip is locked. The programmer has a function of reading the chip without passwords. In so doing, only the configuration zone (1) is read from the chip, in which you can keep track of login attempts counters (3), or other service information. You can find information about the chip from the manufacturer here: www.atmel.com/Images/doc8664.pdf . Don't toy with passwords. No need to press Read several times if the data does not open – perhaps this password is from another CRUM. Remember that the incorrect password counters are ticking... The programmer has only one protection against counters – it does not allow you to use the last password. The last attempt will never be used. If the counter (3) reaches the penultimate attempt (you will see an error message), you should insert the CRUM back into the printer and turn on. The printer will enter the correct password and the counter will reset. You can read the counter values in the mode "Read Without Present Of Passwords (Safe Mode)" in the configuration zone (1). Counters can only have these values ($FF, $FE, $FC, $F8, $F0, $E0, $C0, $80, $00). FF – number of attempts not spent, 00 - the chip is locked dead. Just 7 attempts, and the chip is locked up.

AT88SC0204

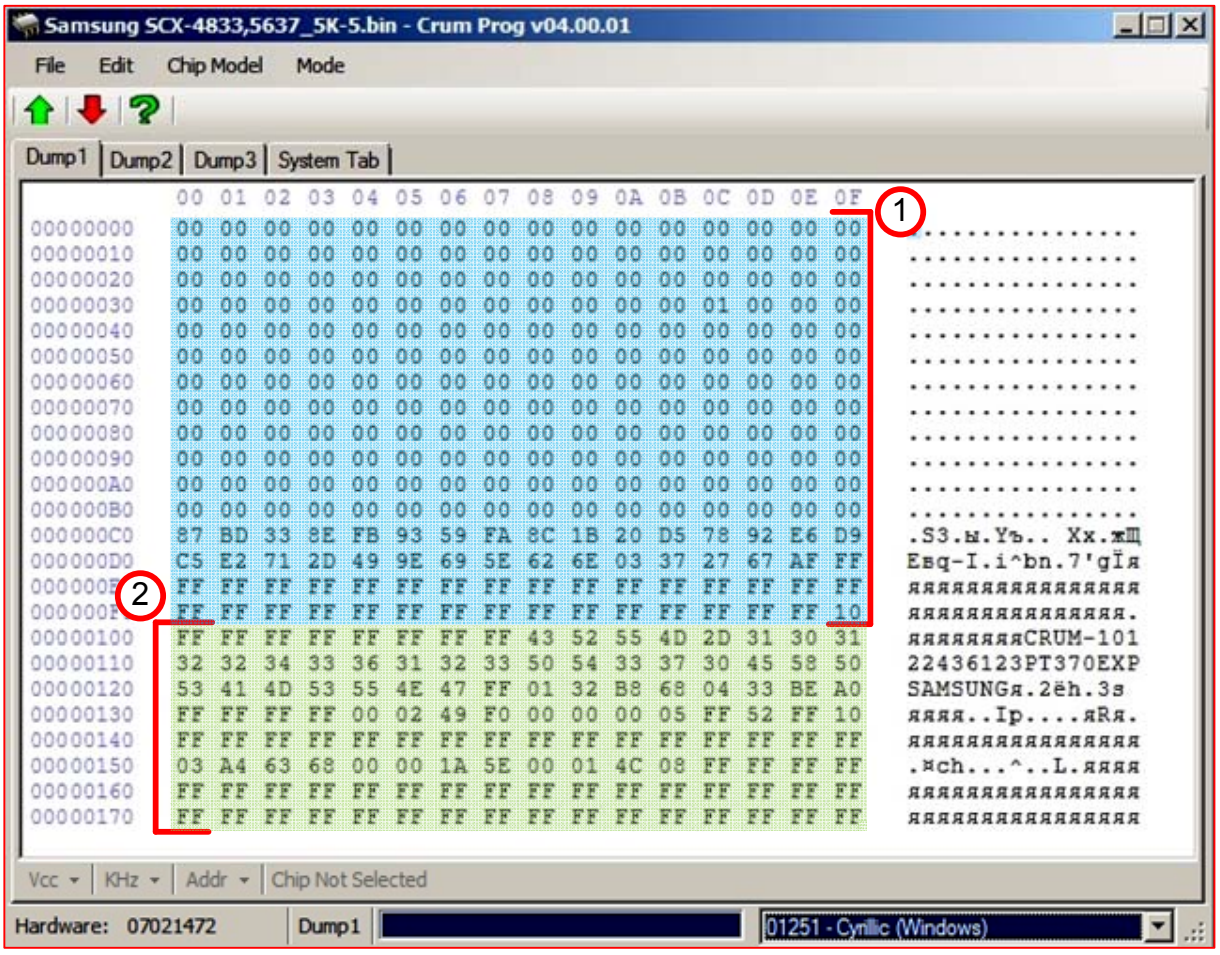
Printers **Xerox-3600** and **Xerox-3635** have the OTP zone, which is stored as the number 0x56 at 0x20 in the configuration zone (2). If the programmer meets this configuration in the chip, before attempting to write to the OTP zone it will make an automatic attempt to reset the protection, whereby the programmer will store the value 0x57 at 0x20 (2). Lock removing can be successful only to the original chips. If, after entry into the chip the value 0x56 does not vary to 0x57, then the attempt to reset the protection failed. Unsuccessful attempt to reset the protection means that the chip is not original.
Unlike other printers, Xerox 3635 remembers the last 10 serial CRUM numbers (1) (the exact number is not known), and the printer remembers the additional marker in the firmware (2). **To reset the chip in this printer** you need to change the serial number (1) and change the marker (2). The serial number may have only numerical values (in the right part of the editor) and the marker may have any values from 0 to 9 (in the left side of the editor).

S3CC912, S3CC921. Connection





S3CC912, S3CC921



Chip address space is divided into two zones - EEPROM (1) and OTP (2). **EEPROM** zone is located at the addresses from 00h to FFh. In the original chips this area can be changed as you like, and in this zone there are main counters that must be reset. Multiple reading and writing of data is possible. It should be noted that the memory area from C0 to FF still has not been used in printers, and it contains different data in different chips, so we advise to leave this zone unchanged. Perhaps in this zone there are the keys or data that will be used by next versions of printer firmware.

OTP (One Time Programmable) zone is located at the addresses 100h - 17Fh. It is an area for a single programming. It is readable, but it is available as a singly programmable. This means that the entry of any byte is possible only to memory cells which contain the value 0xFF. In this block there are mostly constants: CRUM-number, capacity and type of cartridge, release date and more. This area also has several important singly programmed data. They are the flag “Exhaust toner” (0x14C), the flag to ignore toner “Clear toner” (0x14D), 16-byte field “Progress Bar” (0x160-0x16F). Flags are initially equal 0xFF, and upon activation of flags the printer usually writes the number "01". The field “Progress Bar” in the new cartridge contains 0x10 byte with the value 0xFF.

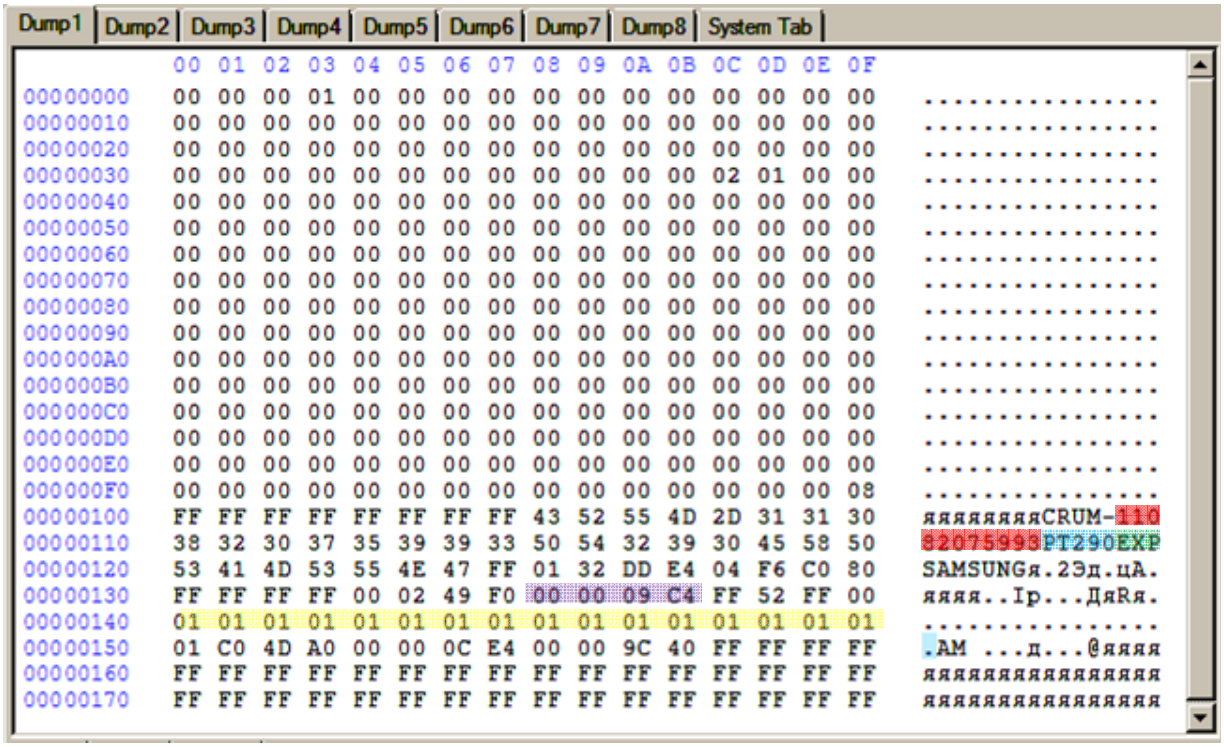
S3CC921 - S3CC912 chips resetting

In fact, chips of this brand cannot be reset. However, through the efforts of our customers, we have learned how to modify the contents of the chip memory so that the printer thought that the chip is reset. Complexity in resetting these chips is related to limitations of the chip and at the moment (2014/02/16) no programmers can reset these chips - only to mask resetting in like manner. To reset this chip, open in the program the dump for this printer model and click on "write" in the programmer. The programmer will attempt to lock the progress bar (or what is left of the progress bar), to lock the byte "Exhaust Toner", if it is used, and reset the counters area EEPROM.
Serial number of the chip is required to change after the reset. The printer remembers the serial number of the last chip and the rest of the pages for that serial number. If the serial number is not changed, and the rest of the pages reset, the printer will lock printing.
Solution: to have a few chips and change them from one printer to another. Any printer will read the serial number of this chip from another printer as a new one. And it will accept such serial number. Basically, the printer remembers the serial number of just one last chip. There are exceptions, some printers do not remember the serial number at all; the others remember a few numbers.
Progress bar is the next chip protection against reset. Progress bar is a line in OTP zone of 16 bytes (refer string address in the tables for a particular chip), each of which initially equal to FF. After printing about 6% of pages of the total cartridge capacity, the printer will change one byte in the progress bar from FF to A5. Since in the OTP zone you can change the value from FF to any other only once, to bring back the progress bar in the zero state is no longer possible. If you reset the chip, but leave the values A5 in the progress bar, the printer will calculate wear of the progress bar in percent and correct page counters in accordance with the progress bar.
Solution: take a NEW cartridge and fill in the progress bar in the chip with values other than A5 (for example, the value 01). Thus, you will make the progress bar unusable to change by the printer. So you will be the first to occupy the progress bar and it will be possible to reset the chip 100% after use.
Exhaust Toner byte is another chip protection from reset. This byte is also located in the OTP zone and initially equals FF. After the toner printed 100% of its resource, the printer stores the value 01 in this byte. If the printer sees the value 01 in this byte, printing will be disabled, regardless of page counters and progress bar status.

Solution: just as in the case of the progress bar, it is also possible to occupy this byte earlier than the printer will do it. If you store a value other than 01 (e.g. store 00) in it, the printer will never be able to change your value to 01 and the chip will not be locked.
Region lock of the chip is just as important. Each printer has a regional anchor. The cartridge bought in China (region CHN) will not work in the printer from Latvia (region EUR). When exchanging chips from another printer, check the coincidence of chips' region locks.

S3CC921 series supports the following cartridges:
MLT-D103: Samsung ML-2950/2951/2955, SCX-4727/4728/4729
MLT-D104: Samsung ML-1660/1665/1667, SCX-3200/3205/3207/3217
MLT-D105: Samsung ML-1910/1915/2525/2580, SCX-4600/4623, SF-650
MLT-D106: Samsung ML-2245
MLT-D108: Samsung ML-1640/1641/1645/2240/2241
MLT-D109: Samsung SCX-4300
MLT-D205: Samsung ML-3310/3710, SCX-4833/5637
MLT-D209: Samsung ML-2855, SCX-4824/4828
MLT-D307: Samsung ML- 4510,4512,5010,5012
MLT-D309: Samsung ML- 5510,5512,6510,6512
CLT-407: Samsung CLP-320/325, CLX-3185
CLT-409: Samsung CLP-310/315, CLX-3170/3175
CLT-508: Samsung CLP-620/670, CLX-6220/6250
CLT-609: Samsung CLP-770
Xerox3140/3155/3160
Xerox WC 3210/3220
Xerox WC 3550 05/2014

MLT-D103: Samsung ML-2950/2951/2955, SCX-4727/4728/4729



Dump1 | Dump2 | Dump3 | Dump4 | Dump5 | Dump6 | Dump7 | Dump8 | System Tab

```
          00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000  00 00 00 01 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000010  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000020  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000030  00 00 00 00 00 00 00 00 00 00 00 00 02 01 00 00  ................
00000040  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000050  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000060  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000070  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000080  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000090  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000A0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000B0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000C0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000D0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000E0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000F0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 08  ................
00000100  FF FF FF FF FF FF FF FF 43 52 55 4D 2D 31 31 30  яяяяяяяяCRUM-110
00000110  38 32 30 37 35 39 39 33 50 54 32 39 30 45 58 50  82075993PT290EXP
00000120  53 41 4D 53 55 4E 47 FF 01 32 DD E4 04 F6 C0 80  SAMSUNGя.2Эд.цА.
00000130  FF FF FF FF 00 02 49 F0 00 00 09 C4 FF 52 FF 00  яяяя..Iр...ДяRя.
00000140  01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01  ................
00000150  01 C0 4D A0 00 00 0C E4 00 00 9C 40 FF FF FF FF  .AM ...д...@яяяя
00000160  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000170  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
```

Cartridge Serial Number. Always be altered.

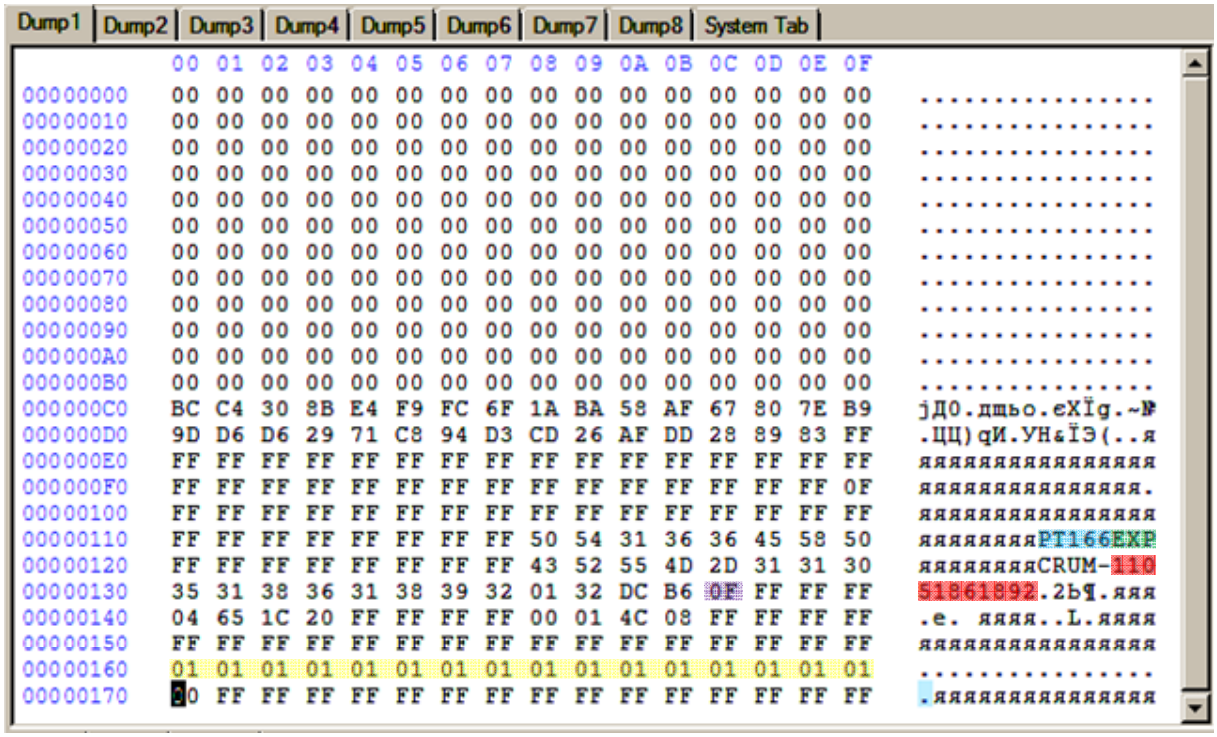
Cartridge Model PT290 = MLT-D103.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x09C4 => (dec) 2500 pages.

Progress Bar. Need to fill in by values 01.

MLT-D104: Samsung ML-1660/1665/1667, SCX-3200/3205/3207/3217



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000C0	BC	C4	30	8B	E4	F9	FC	6F	1A	BA	58	AF	67	80	7E	B9	jД0.дщьo.eXЇg.~№
000000D0	9D	D6	D6	29	71	C8	94	D3	CD	26	AF	DD	28	89	83	FF	.ЦЦ)qИ.УН&ЇЭ(..я
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0F	яяяяяяяяяяяяяя.
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	50	54	31	36	36	45	58	50	яяяяяяяяPT166EXP
00000120	FF	FF	FF	FF	FF	FF	FF	FF	43	52	55	4D	2D	31	31	30	яяяяяяяяCRUM-110
00000130	35	31	38	36	31	38	39	32	01	32	DC	B6	0F	FF	FF	FF	51861892.2Ь¶.яяя
00000140	04	65	1C	20	FF	FF	FF	FF	00	01	4C	08	FF	FF	FF	FF	.e. яяяя..L.яяяя
00000150	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	.....
00000170	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.яяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

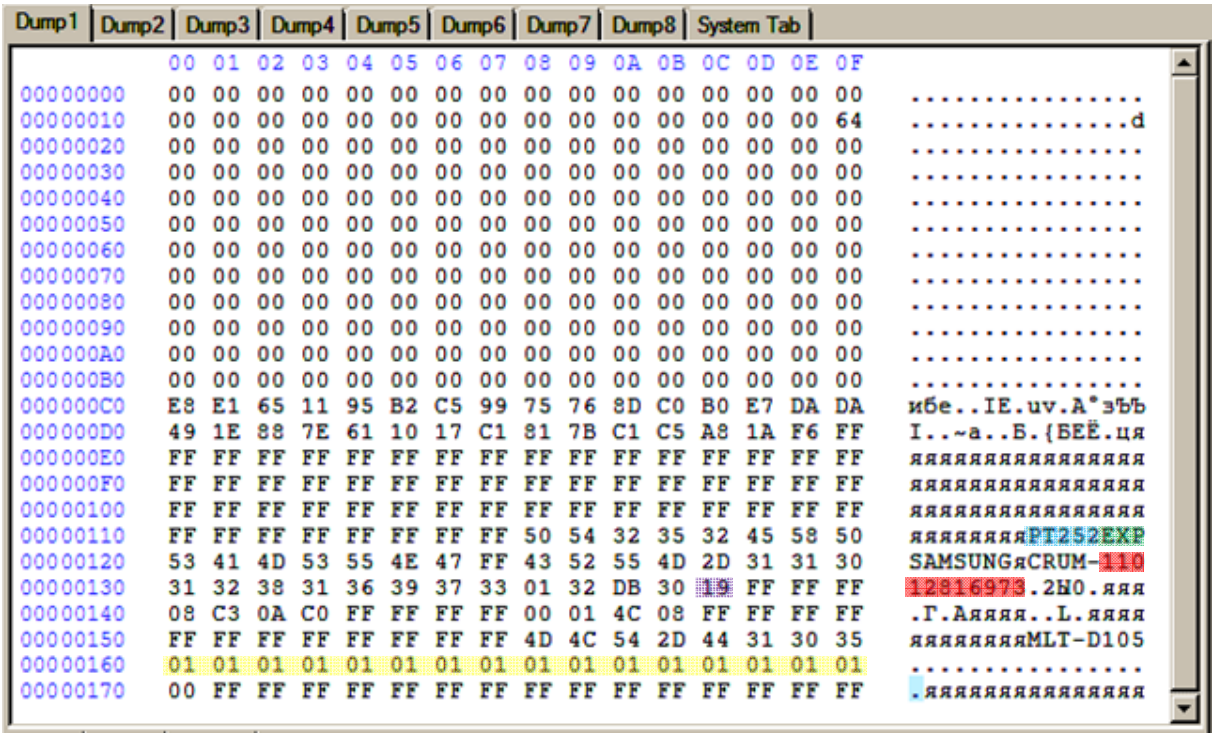
Cartridge Model PT166 = MLT-D104.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x0F => (dec) 1.5k pages.

Progress Bar. Need to fill in by values 01.

MLT-D105: Samsung ML-1910/1915/2525/2580, SCX-4600/4623, SF-650



00000000	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000010	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 64	.....d
00000020	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000030	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000040	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000050	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000060	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000070	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000080	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000090	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000A0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000B0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000C0	E8 E1 65 11 95 B2 C5 99 75 76 8D C0 B0 E7 DA DA	иба..IE.uv.А°зЪЪ
000000D0	49 1E 88 7E 61 10 17 C1 81 7B C1 C5 A8 1A F6 FF	I..~a..Б.{БЕЁ.ця
000000E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	яяяяяяяяяяяяяяяя
000000F0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	яяяяяяяяяяяяяяяя
00000100	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	яяяяяяяяяяяяяяяя
00000110	FF FF FF FF FF FF FF FF 50 54 32 35 32 45 58 50	яяяяяяяяPT252EXP
00000120	53 41 4D 53 55 4E 47 FF 43 52 55 4D 2D 31 31 30	SAMSUNGяCRUM-110
00000130	31 32 38 31 36 39 37 33 01 32 DB 30 19 FF FF FF	12816973.2Ы0.яяя
00000140	08 C3 0A C0 FF FF FF FF 00 01 4C 08 FF FF FF FF	.Г.Аяяяя..L.яяяя
00000150	FF FF FF FF FF FF FF FF 4D 4C 54 2D 44 31 30 35	яяяяяяяяMLT-D105
00000160	01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01	.....
00000170	00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.яяяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

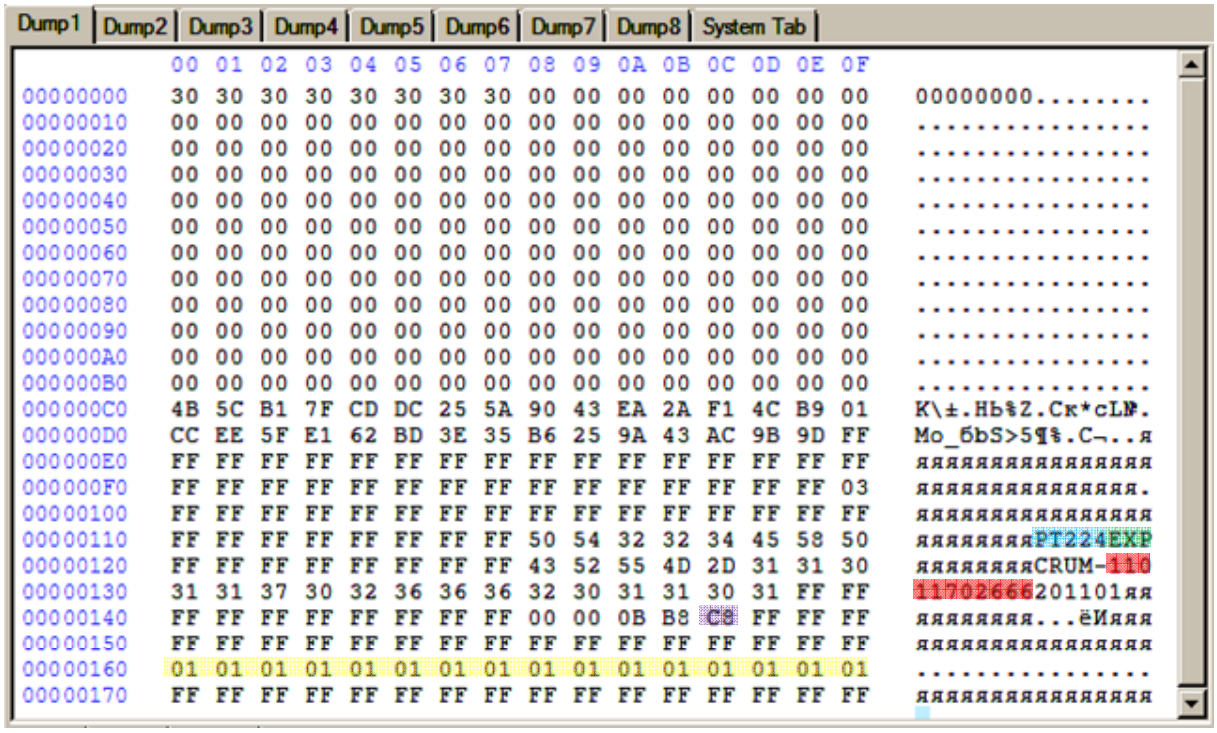
Cartridge Model PT252 = MLT-D105.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x19 => (dec) 2.5k pages.

Progress Bar. Need to fill in by values 01.

MLT-D106: Samsung ML-2245



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	30	30	30	30	30	30	30	30	00	00	00	00	00	00	00	00	00000000........
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000C0	4B	5C	B1	7F	CD	DC	25	5A	90	43	EA	2A	F1	4C	B9	01	K\±.Нb%Z.Ск*cLЉ.
000000D0	CC	EE	5F	E1	62	BD	3E	35	B6	25	9A	43	AC	9B	9D	FF	Мо_бЬS>5¶%.С¬..я
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	03	яяяяяяяяяяяяяяя.
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	50	54	32	32	34	45	58	50	яяяяяяяяPT224EXP
00000120	FF	FF	FF	FF	FF	FF	FF	FF	43	52	55	4D	2D	31	31	30	яяяяяяяяCRUM-110
00000130	31	31	37	30	32	36	36	36	32	30	31	31	30	31	FF	FF	11702666201101яя
00000140	FF	FF	FF	FF	FF	FF	FF	FF	00	00	0B	B8	C8	FF	FF	FF	яяяяяяяя...ёИяяя
00000150	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	....
00000170	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

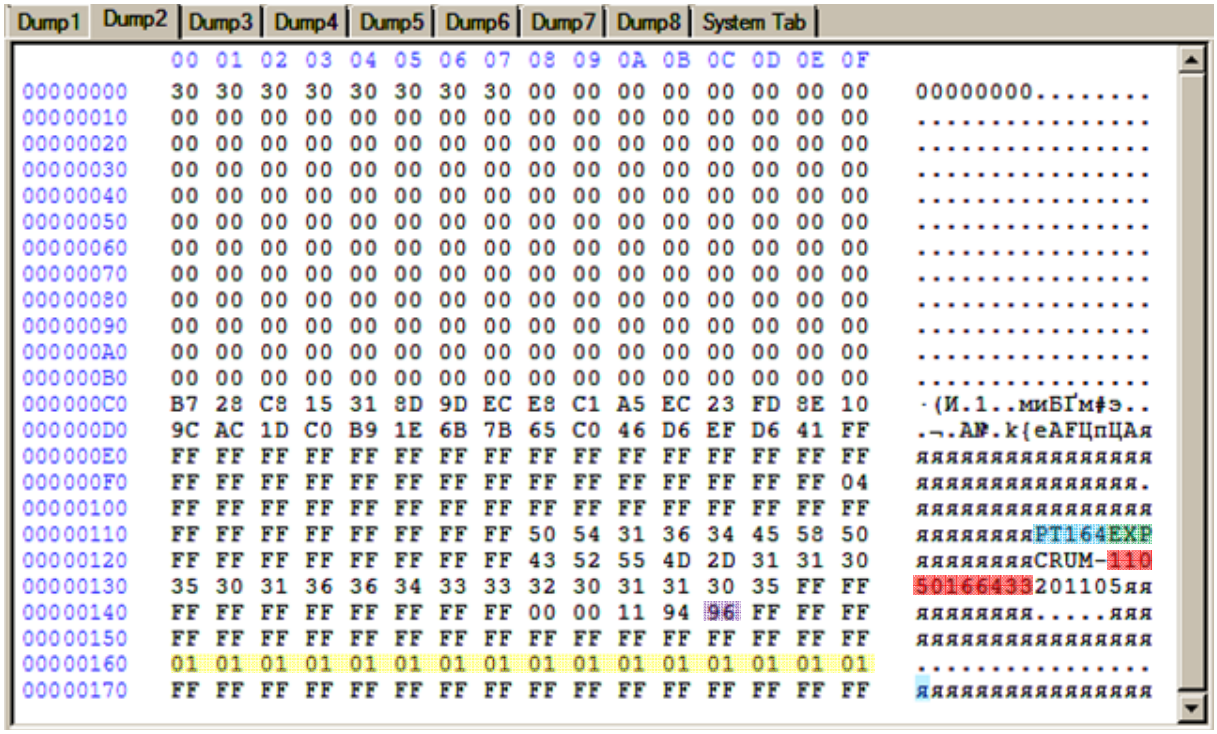
Cartridge Model PT224 = MLT-D106.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0xC8=> (dec) 2.0k pages.

Progress Bar. Need to fill in by values 01.

MLT-D108: Samsung ML-1640/1641/1645/2240/2241



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	30	30	30	30	30	30	30	30	00	00	00	00	00	00	00	00	00000000........
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
000000C0	B7	28	C8	15	31	8D	9D	EC	E8	C1	A5	EC	23	FD	8E	10	·(И.1..миБҐм#э..
000000D0	9C	AC	1D	C0	B9	1E	6B	7B	65	C0	46	D6	EF	D6	41	FF	.¬.А№.k{eAFЦпЦАя
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	04	яяяяяяяяяяяяяяя.
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	50	54	31	36	34	45	58	50	яяяяяяяяPT164EXP
00000120	FF	FF	FF	FF	FF	FF	FF	FF	43	52	55	4D	2D	31	31	30	яяяяяяяяCRUM-110
00000130	35	30	31	36	36	34	33	33	32	30	31	31	30	35	FF	FF	50166433201105яя
00000140	FF	FF	FF	FF	FF	FF	FF	FF	00	00	11	94	96	FF	FF	FF	яяяяяяяя.....яяя
00000150	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	....
00000170	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

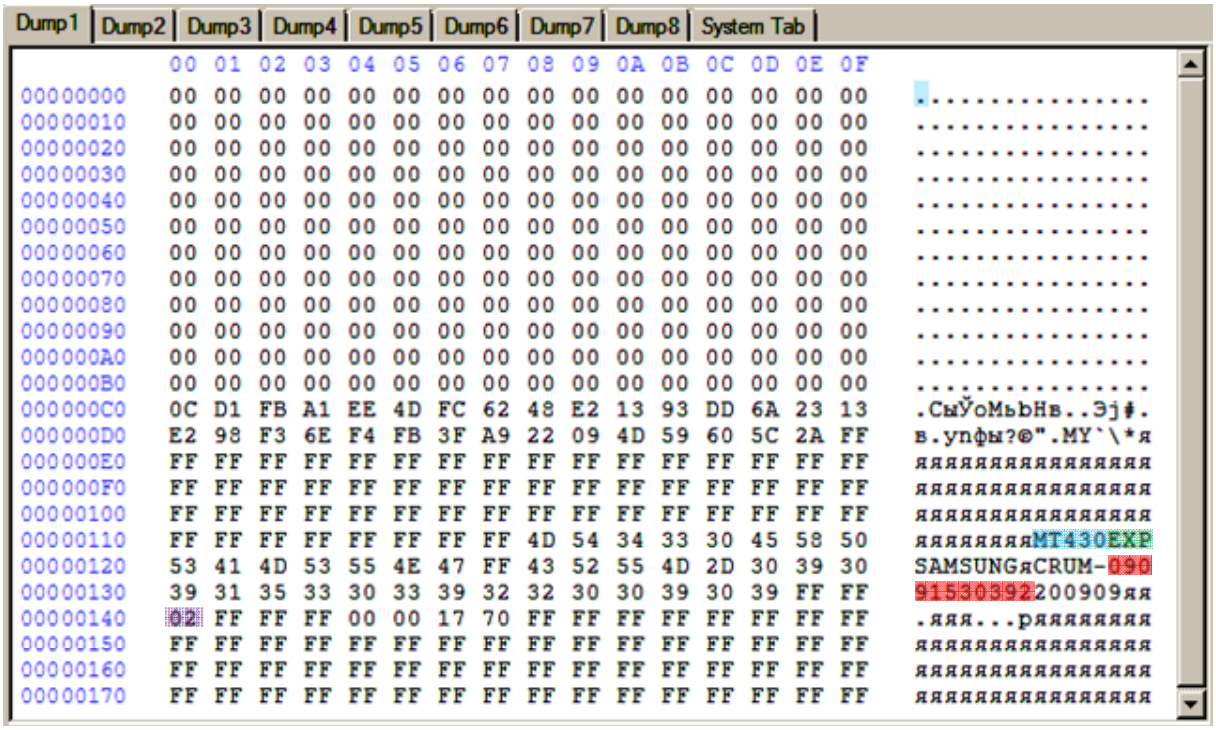
Cartridge Model PT164 = MLT-D108.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x96 => (dec) 1.5k pages.

Progress Bar. Need to fill in by values 01.

MLT-D109: Samsung SCX-4300



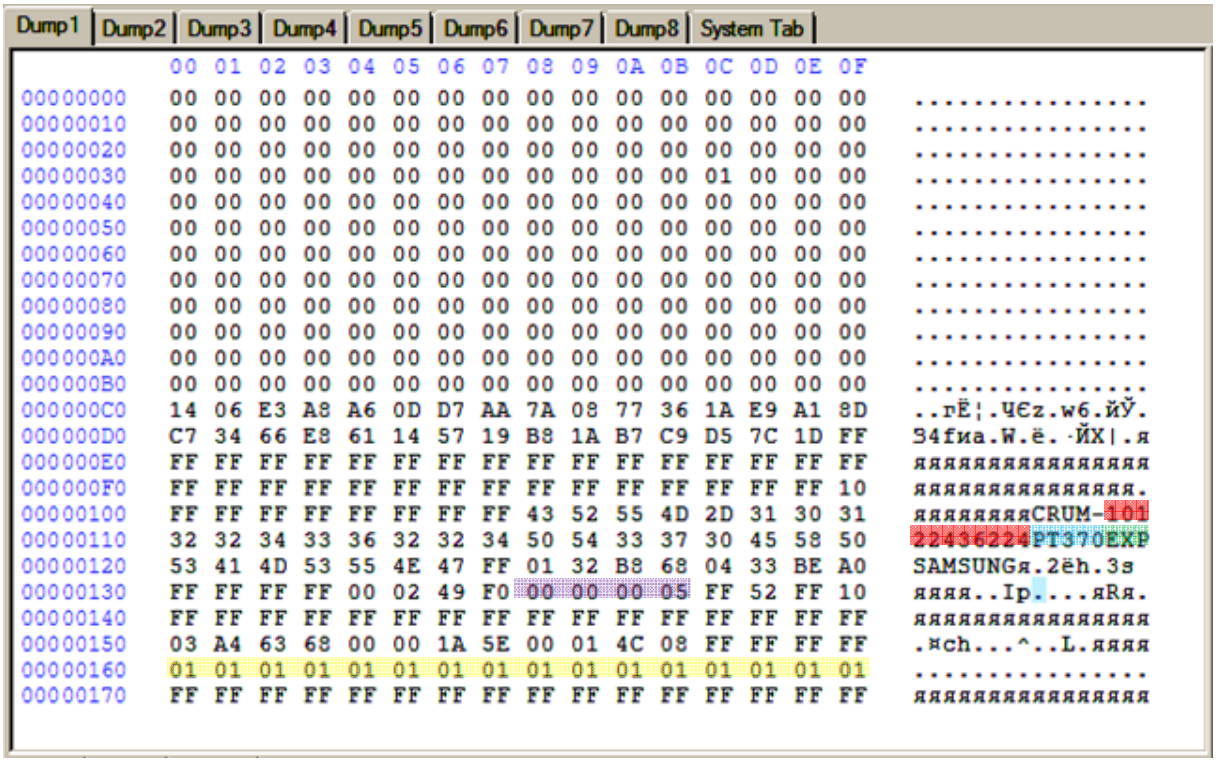
Cartridge Serial Number.

Cartridge Model MT430 = MLT-D109.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x02 => (dec) 2.0k pages.

MLT-D205: Samsung ML-3310/3710, SCX-4833/5637




```
          00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000010  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000020  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000030  00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00  ................
00000040  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000050  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000060  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000070  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000080  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000090  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000A0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000B0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000C0  14 06 E3 A8 A6 0D D7 AA 7A 08 77 36 1A E9 A1 8D  ..rЁ¦.Ч€z.w6.йЎ.
000000D0  C7 34 66 E8 61 14 57 19 B8 1A B7 C9 D5 7C 1D FF  З4fиа.W.ё.·ЙХ|.я
000000E0  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
000000F0  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 10  яяяяяяяяяяяяяяя.
00000100  FF FF FF FF FF FF FF FF 43 52 55 4D 2D 31 30 31  яяяяяяяяCRUM-101
00000110  32 32 34 33 36 32 32 34 50 54 33 37 30 45 58 50  22436224PT370EXP
00000120  53 41 4D 53 55 4E 47 FF 01 32 B8 68 04 33 BE A0  SAMSUNGя.2ёh.3s
00000130  FF FF FF FF 00 02 49 F0 00 00 00 05 FF 52 FF 10  яяяя..Iр....яRя.
00000140  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000150  03 A4 63 68 00 00 1A 5E 00 01 4C 08 FF FF FF FF  .¤ch...^..L.яяяя
00000160  01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01  ................
00000170  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
```

Cartridge Serial Number. Always be altered.

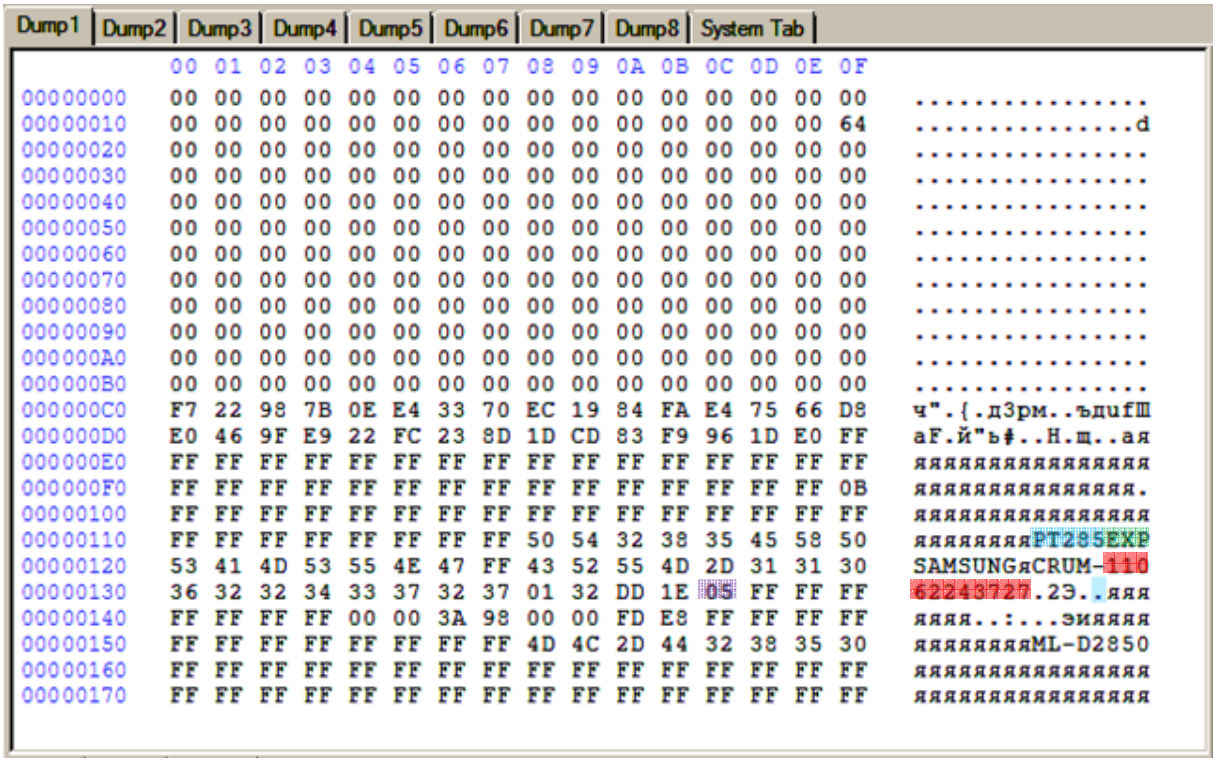
Cartridge Model PT370 = MLT-D205

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x05=> (dec) 5k pages.

Progress Bar. Need to fill in by values 01.

MLT-D209: Samsung ML-2855, SCX-4824/4828



Dump1 | Dump2 | Dump3 | Dump4 | Dump5 | Dump6 | Dump7 | Dump8 | System Tab

```
            00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000010    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 64    ...............d
00000020    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000030    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000040    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000050    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000060    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000070    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000080    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000090    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000A0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000B0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000C0    F7 22 98 7B 0E E4 33 70 EC 19 84 FA E4 75 66 D8    ч".{.д3рм..ъдufШ
000000D0    E0 46 9F E9 22 FC 23 8D 1D CD 83 F9 96 1D E0 FF    аF.й"ь#..Н.ш..ая
000000E0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
000000F0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 0B    яяяяяяяяяяяяяяя.
00000100    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000110    FF FF FF FF FF FF FF FF 50 54 32 38 35 45 58 50    яяяяяяяяPT285EXP
00000120    53 41 4D 53 55 4E 47 FF 43 52 55 4D 2D 31 31 30    SAMSUNGяCRUM-110
00000130    36 32 32 34 33 37 32 37 01 32 DD 1E 05 FF FF FF    62243727.2Э..яяя
00000140    FF FF FF FF 00 00 3A 98 00 00 FD E8 FF FF FF FF    яяяя..:...эияяяя
00000150    FF FF FF FF FF FF FF FF 4D 4C 2D 44 32 38 35 30    яяяяяяяяML-D2850
00000160    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000170    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
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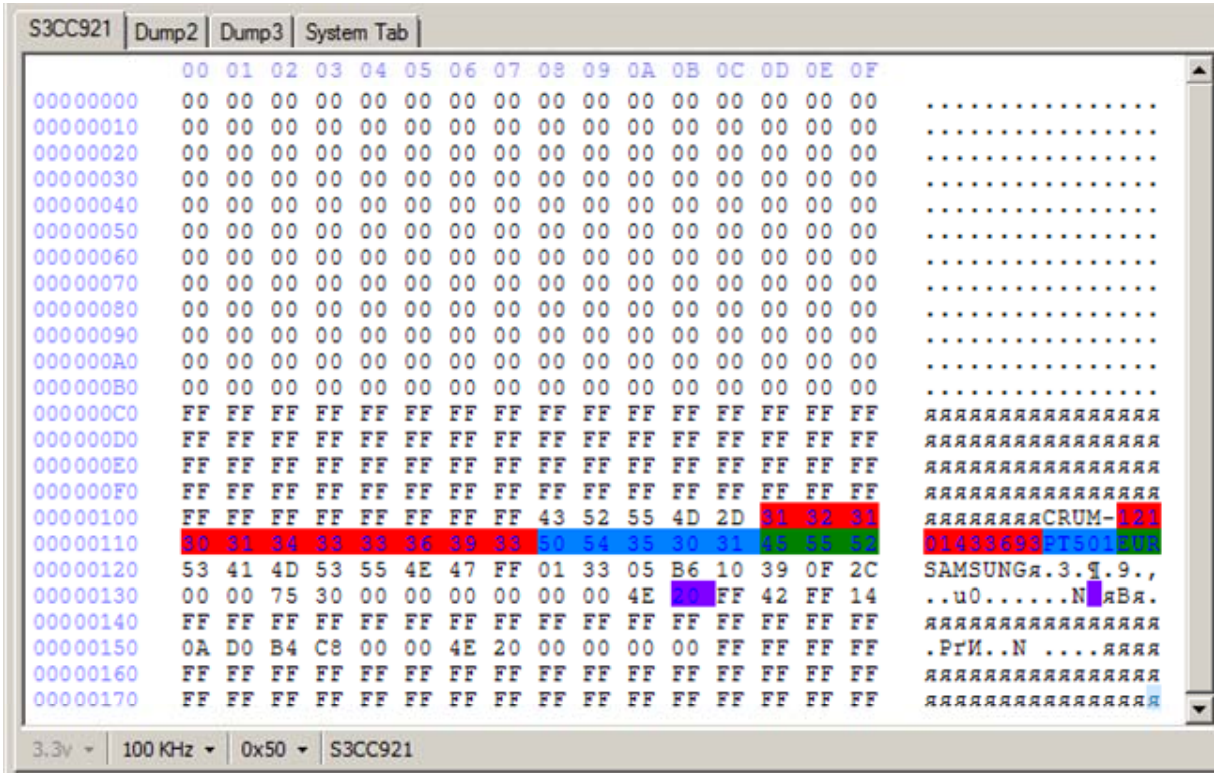
Cartridge Serial Number. Always be altered.

Cartridge Model PT285 = MLT-D209.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x05=> (dec) 5k pages.

MLT-D307: Samsung ML- 4510,4512,5010,5012



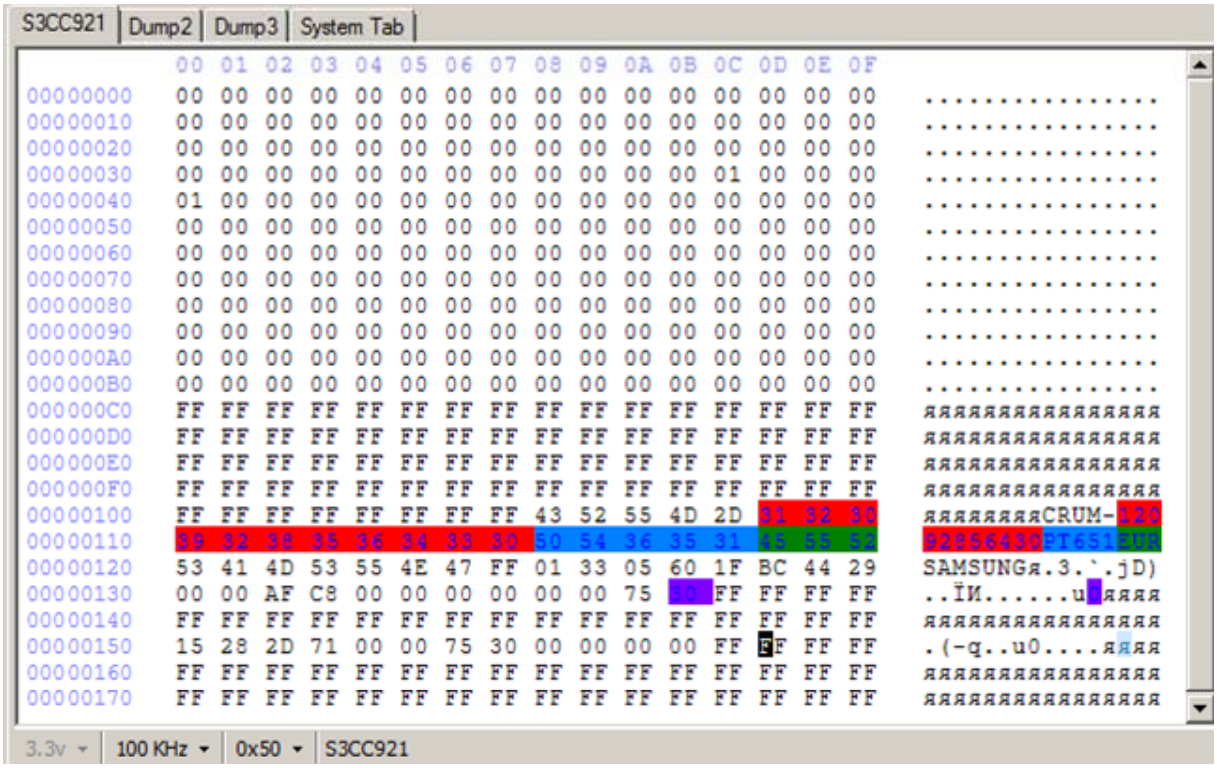
Cartridge Serial Number. Always be altered.

Cartridge Model PT501 = MLT-D307.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x20 = 20000 pages.

MLT-D309: Samsung ML- 5510,5512,6510,6512



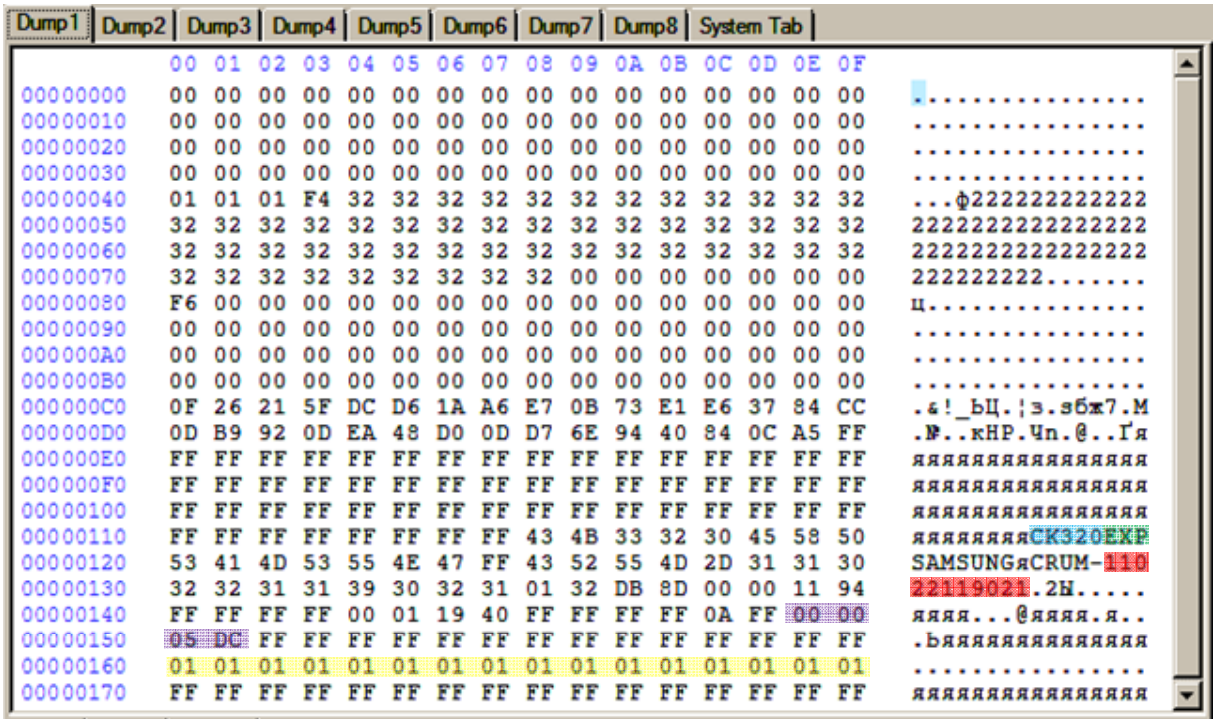
Cartridge Serial Number. Always be altered.

Cartridge Model PT651 = MLT-D309.

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x30 = 30000 pages.

CLT-407: Samsung CLP-320/325, CLX-3185



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00000040	01	01	01	F4	32	32	32	32	32	32	32	32	32	32	32	32
00000050	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
00000060	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
00000070	32	32	32	32	32	32	32	32	32	00	00	00	00	00	00	00
00000080	F6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
000000C0	0F	26	21	5F	DC	D6	1A	A6	E7	0B	73	E1	E6	37	84	CC
000000D0	0D	B9	92	0D	EA	48	D0	0D	D7	6E	94	40	84	0C	A5	FF
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
00000110	FF	FF	FF	FF	FF	FF	FF	FF	43	4B	33	32	30	45	58	50
00000120	53	41	4D	53	55	4E	47	FF	43	52	55	4D	2D	31	31	30
00000130	32	32	31	31	39	30	32	31	01	32	DB	8D	00	00	11	94
00000140	FF	FF	FF	FF	00	01	19	40	FF	FF	FF	FF	0A	FF	00	00
00000150	05	DC	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
00000170	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

Cartridge Serial Number. Always be altered.

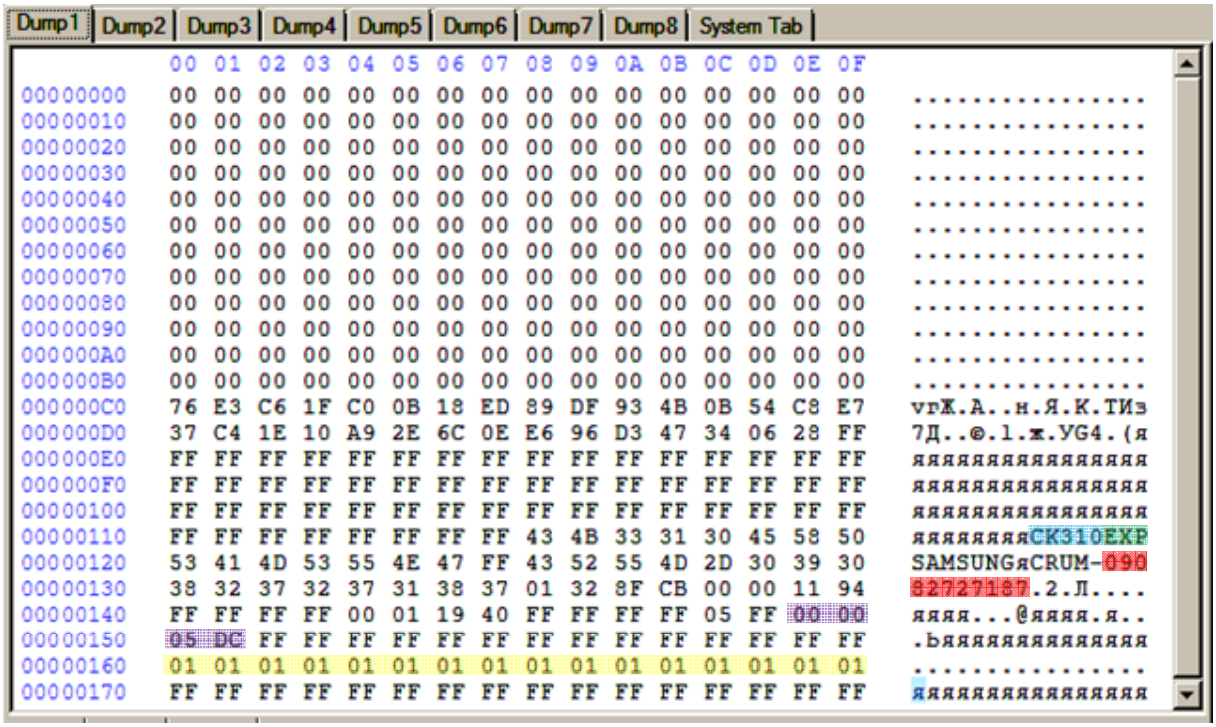
Cartridge Model CK320 = CLT-407. K=Black

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x05DC=> (dec) 1500 pages.

Progress Bar. Need to fill in by values 01.

CLT-409: Samsung CLP-310/315, CLX-3170/3175



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000C0	76	E3	C6	1F	C0	0B	18	ED	89	DF	93	4B	0B	54	C8	E7	vгЖ.А..н.Я.K.TИз
000000D0	37	C4	1E	10	A9	2E	6C	0E	E6	96	D3	47	34	06	28	FF	7Д..©.l.ж.УG4.(я
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	43	4B	33	31	30	45	58	50	яяяяяяяяCK310EXP
00000120	53	41	4D	53	55	4E	47	FF	43	52	55	4D	2D	30	39	30	SAMSUNGяCRUM-090
00000130	38	32	37	32	37	31	38	37	01	32	8F	CB	00	00	11	94	827271870.2.Л....
00000140	FF	FF	FF	FF	00	01	19	40	FF	FF	FF	FF	05	FF	00	00	яяяя...@яяяя.я..
00000150	05	DC	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.Ьяяяяяяяяяяяяя
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	.....
00000170	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

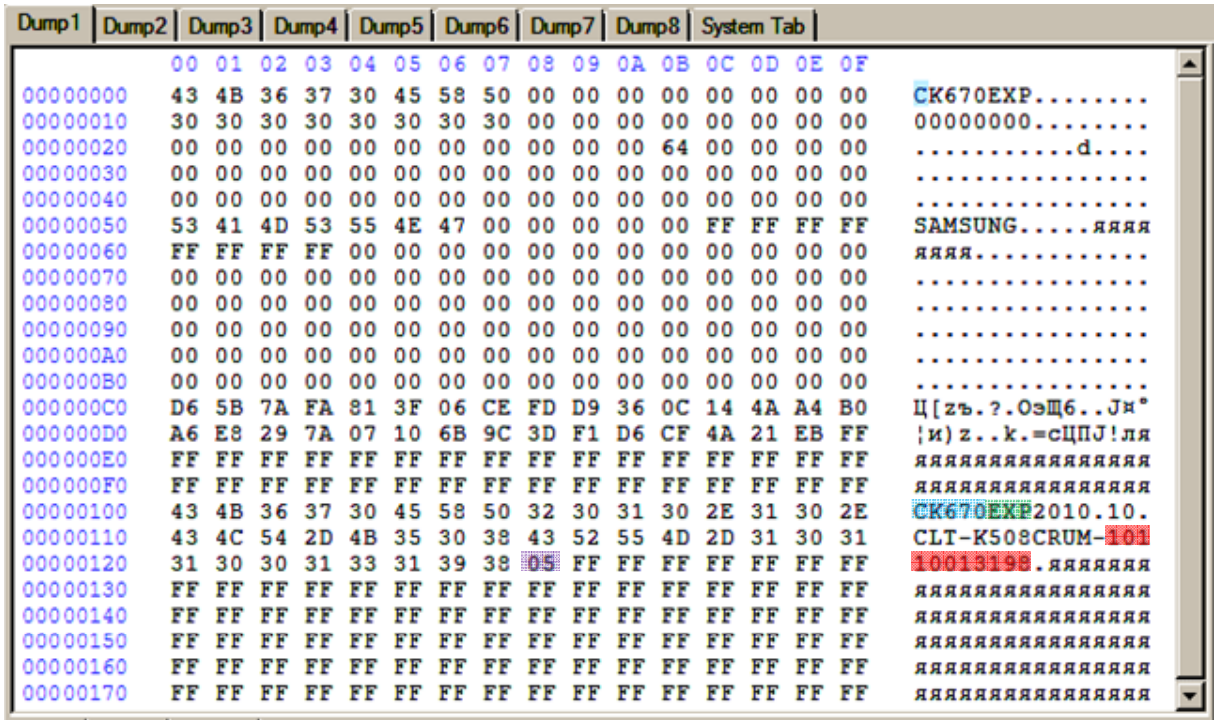
Cartridge Model CK310 = CLT-409. K=Black

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x05DC=> (dec) 1500 pages.

Progress Bar. Need to fill in by values 01.

CLT-508: Samsung CLP-620/670, CLX-6220/6250



Dump1 | Dump2 | Dump3 | Dump4 | Dump5 | Dump6 | Dump7 | Dump8 | System Tab

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            00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000    43 4B 36 37 30 45 58 50 00 00 00 00 00 00 00 00    CK670EXP........
00000010    30 30 30 30 30 30 30 30 00 00 00 00 00 00 00 00    00000000........
00000020    00 00 00 00 00 00 00 00 00 00 00 64 00 00 00 00    ...........d....
00000030    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000040    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000050    53 41 4D 53 55 4E 47 00 00 00 00 00 FF FF FF FF    SAMSUNG.....яяяя
00000060    FF FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00    яяяя............
00000070    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000080    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000090    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000A0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000B0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000C0    D6 5B 7A FA 81 3F 06 CE FD D9 36 0C 14 4A A4 B0    Ц[zъ.?.Оэў6..Jд°
000000D0    A6 E8 29 7A 07 10 6B 9C 3D F1 D6 CF 4A 21 EB FF    ¦и)z..k.=сЦПJ!ля
000000E0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
000000F0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000100    43 4B 36 37 30 45 58 50 32 30 31 30 2E 31 30 2E    CK670EXP2010.10.
00000110    43 4C 54 2D 4B 35 30 38 43 52 55 4D 2D 31 30 31    CLT-K508CRUM-101
00000120    31 30 30 31 33 31 39 38 05 FF FF FF FF FF FF FF    10013198.яяяяяяя
00000130    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000140    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000150    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000160    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000170    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
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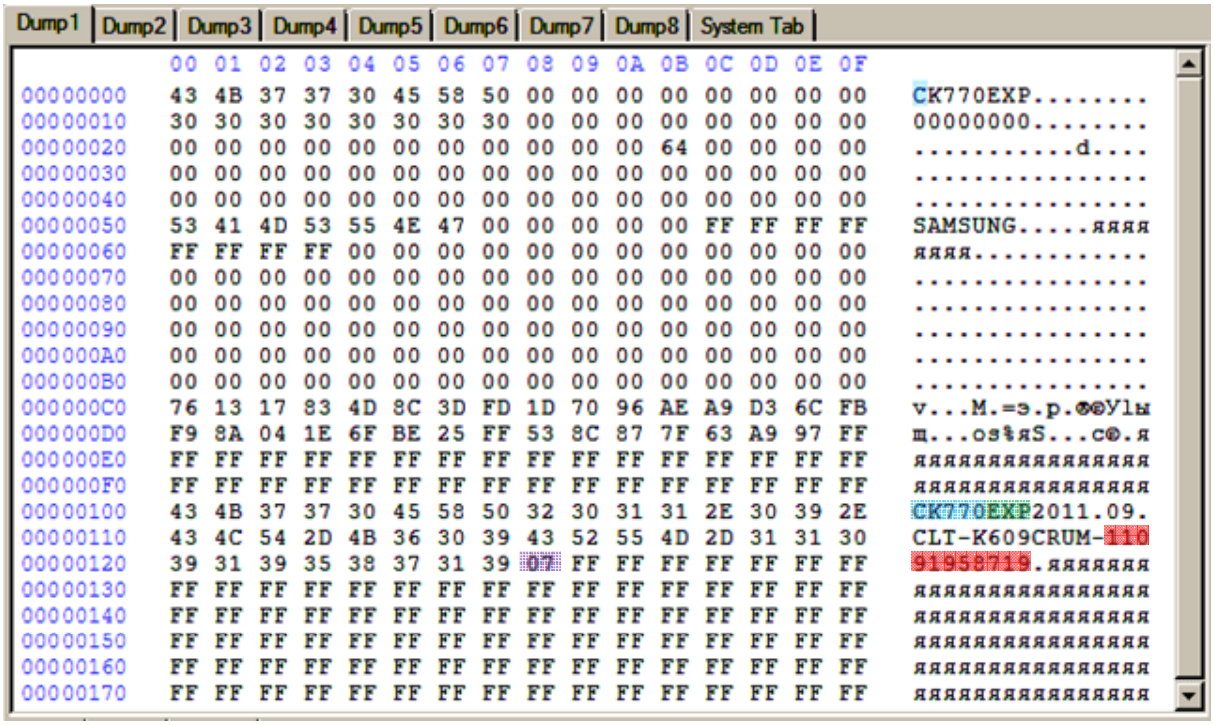
Cartridge Serial Number. Always be altered.

Cartridge Model CK670 = CLT-508. K=Black

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x05=> (dec) 5k pages.

CLT-609: Samsung CLP-770



Dump1 | Dump2 | Dump3 | Dump4 | Dump5 | Dump6 | Dump7 | Dump8 | System Tab

```
          00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000  43 4B 37 37 30 45 58 50 00 00 00 00 00 00 00 00  CK770EXP........
00000010  30 30 30 30 30 30 30 30 00 00 00 00 00 00 00 00  00000000........
00000020  00 00 00 00 00 00 00 00 00 00 00 64 00 00 00 00  ...........d....
00000030  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000040  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000050  53 41 4D 53 55 4E 47 00 00 00 00 00 FF FF FF FF  SAMSUNG.....яяяя
00000060  FF FF FF FF 00 00 00 00 00 00 00 00 00 00 00 00  яяяя............
00000070  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000080  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00000090  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000A0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000B0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
000000C0  76 13 17 83 4D 8C 3D FD 1D 70 96 AE A9 D3 6C FB  v...M.=э.p.®©Ыы
000000D0  F9 8A 04 1E 6F BE 25 FF 53 8C 87 7F 63 A9 97 FF  щ...os%яS...c©.я
000000E0  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
000000F0  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000100  43 4B 37 37 30 45 58 50 32 30 31 31 2E 30 39 2E  CK770EXP2011.09.
00000110  43 4C 54 2D 4B 36 30 39 43 52 55 4D 2D 31 31 30  CLT-K609CRUM-110
00000120  39 31 39 35 38 37 31 39 07 FF FF FF FF FF FF FF  91958719.яяяяяяя
00000130  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000140  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000150  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000160  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
00000170  FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF  яяяяяяяяяяяяяяяя
```

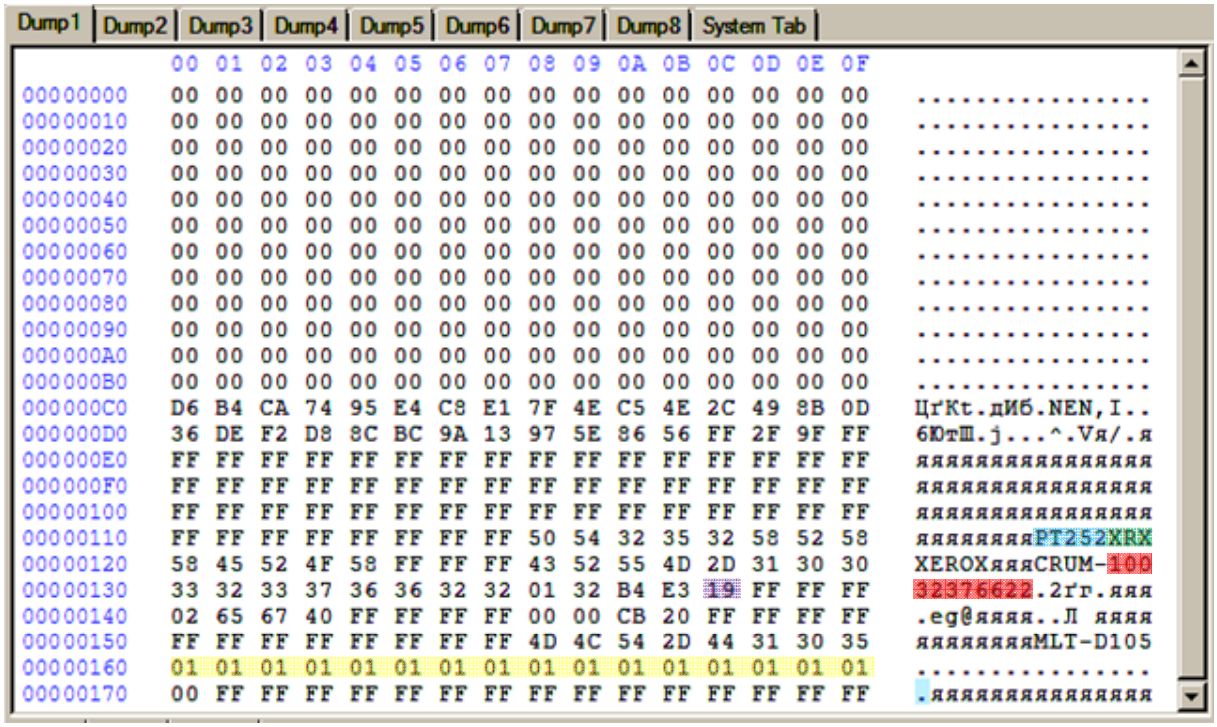
Cartridge Serial Number. Always be altered.

Cartridge Model CK770 = CLT-609. K=Black

Cartridge Region. Must match the printer region.

Cartridge Capacity. 0x07=> (dec) 7k pages.

Xerox 3140/3155/3160



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000C0	D6	B4	CA	74	95	E4	C8	E1	7F	4E	C5	4E	2C	49	8B	0D	ЦґКt.дИб.NEN,I..
000000D0	36	DE	F2	D8	8C	BC	9A	13	97	5E	86	56	FF	2F	9F	FF	6ЮтШ.j...^.Vя/.я
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	50	54	32	35	32	58	52	58	яяяяяяяяPT252XRX
00000120	58	45	52	4F	58	FF	FF	FF	43	52	55	4D	2D	31	30	30	XEROXяяяCRUM-100
00000130	33	32	33	37	36	36	32	32	01	32	B4	E3	19	FF	FF	FF	32376622.2ґг.яяя
00000140	02	65	67	40	FF	FF	FF	FF	00	00	CB	20	FF	FF	FF	FF	.eg@яяяя..Л яяяя
00000150	FF	FF	FF	FF	FF	FF	FF	FF	4D	4C	54	2D	44	31	30	35	яяяяяяяяMLT-D105
00000160	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	.....
00000170	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.яяяяяяяяяяяяяя

Cartridge Serial Number. Always be altered.

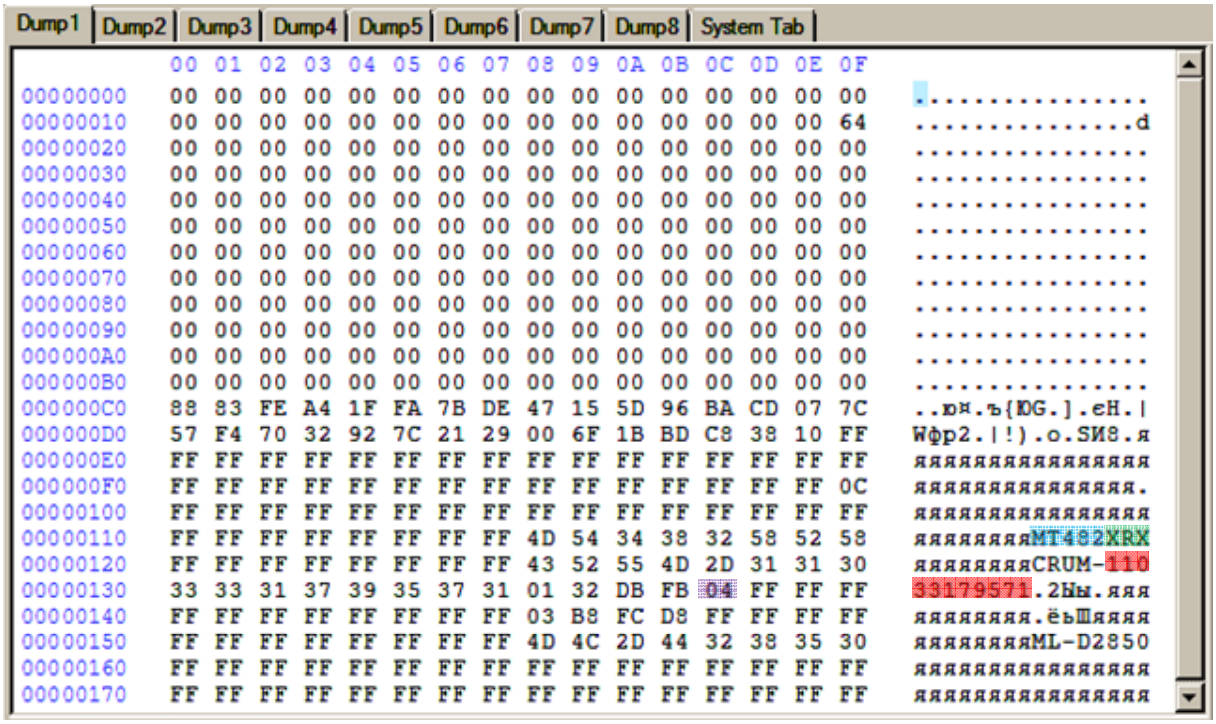
Cartridge Model PT252 = MLT-D105.

Manufacturer code

Cartridge Capacity. 0x19 => (dec) 2.5k pages.

Progress Bar. Need to fill in by values 01.

Xerox WC 3210/3220



	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	64	.....d
00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
000000C0	88	83	FE	A4	1F	FA	7B	DE	47	15	5D	96	BA	CD	07	7C	..юя.ъ{ЮG.].еН.|
000000D0	57	F4	70	32	92	7C	21	29	00	6F	1B	BD	C8	38	10	FF	Wфр2.|!).o.Ѕ И8.я
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0C	яяяяяяяяяяяяяяя.
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000110	FF	FF	FF	FF	FF	FF	FF	FF	4D	54	34	38	32	58	52	58	яяяяяяяяMT482XRX
00000120	FF	FF	FF	FF	FF	FF	FF	FF	43	52	55	4D	2D	31	31	30	яяяяяяяяCRUM-110
00000130	33	33	31	37	39	35	37	31	01	32	DB	FB	04	FF	FF	FF	33179571.2Ыы.яяя
00000140	FF	FF	FF	FF	FF	FF	FF	FF	03	B8	FC	D8	FF	FF	FF	FF	яяяяяяяя.ёьШяяяя
00000150	FF	FF	FF	FF	FF	FF	FF	FF	4D	4C	2D	44	32	38	35	30	яяяяяяяяML-D2850
00000160	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
00000170	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя

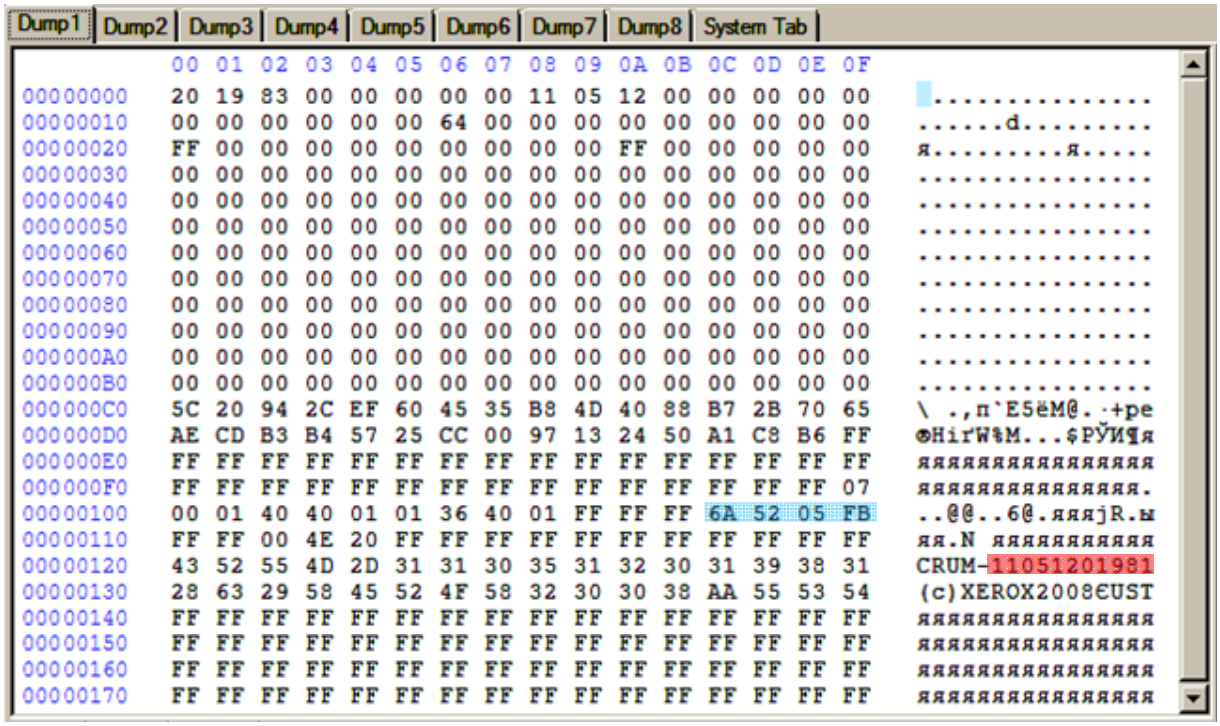
Cartridge Serial Number. Always be altered.

Cartridge Model MT482 = Xerox WC 3210/3220.

Manufacturer code

Cartridge Capacity. 0x04=> (dec) 4k pages.

Xerox WC 3550



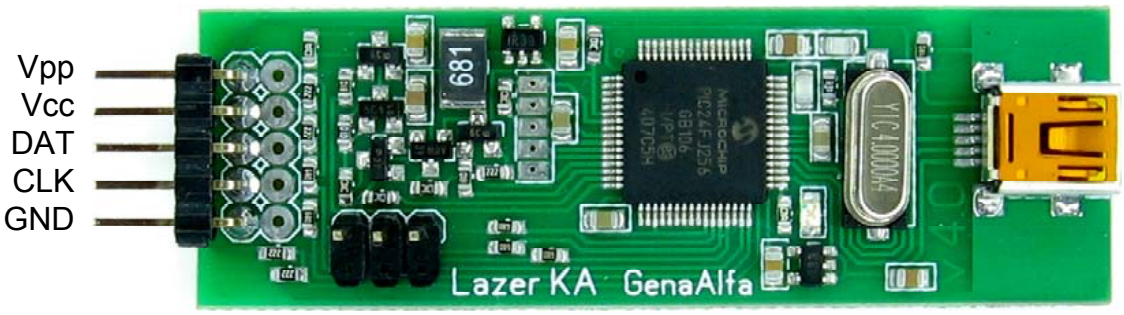
Dump1 | Dump2 | Dump3 | Dump4 | Dump5 | Dump6 | Dump7 | Dump8 | System Tab

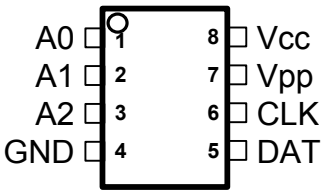
```
            00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00000000    20 19 83 00 00 00 00 00 11 05 12 00 00 00 00 00    ................
00000010    00 00 00 00 00 00 64 00 00 00 00 00 00 00 00 00    ......d.........
00000020    FF 00 00 00 00 00 00 00 00 00 FF 00 00 00 00 00    я.........я.....
00000030    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000040    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000050    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000060    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000070    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000080    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
00000090    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000A0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000B0    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00    ................
000000C0    5C 20 94 2C EF 60 45 35 B8 4D 40 88 B7 2B 70 65    \ .,п`E5ёM@.·+pe
000000D0    AE CD B3 B4 57 25 CC 00 97 13 24 50 A1 C8 B6 FF    ®НiґW%М...$РЎИ¶я
000000E0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
000000F0    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 07    яяяяяяяяяяяяяяя.
00000100    00 01 40 40 01 01 36 40 01 FF FF FF 6A 52 05 FB    ..@@..6@.яяяjR.ы
00000110    FF FF 00 4E 20 FF FF FF FF FF FF FF FF FF FF FF    яя.N яяяяяяяяяяя
00000120    43 52 55 4D 2D 31 31 30 35 31 32 30 31 39 38 31    CRUM-110512019881
00000130    28 63 29 58 45 52 4F 58 32 30 30 38 AA 55 53 54    (c)XEROX2008ЄUST
00000140    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000150    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000160    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
00000170    FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF    яяяяяяяяяяяяяяяя
```

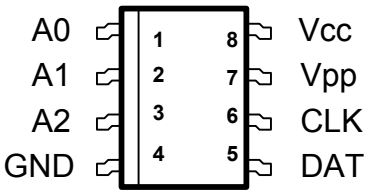
Cartridge Serial Number. Always be altered.

Cartridge Model 6A5205FB = 106R01531 11k

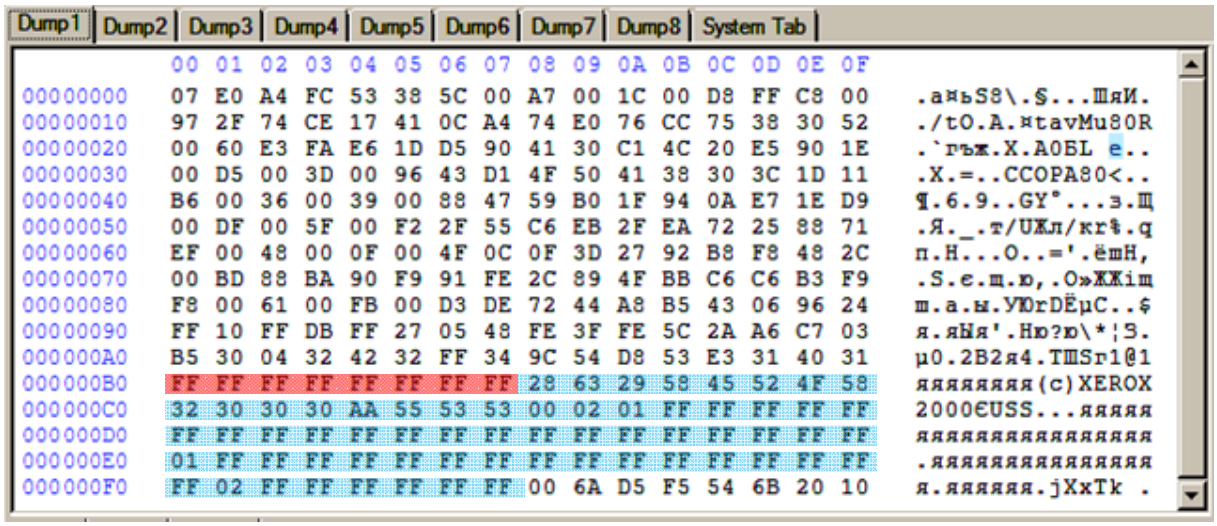
XC-01; Xrx153 xxxL. Connection







XC-01 (BN/53S, BN/53SR, BN/53SP) Xrx153 xxxL

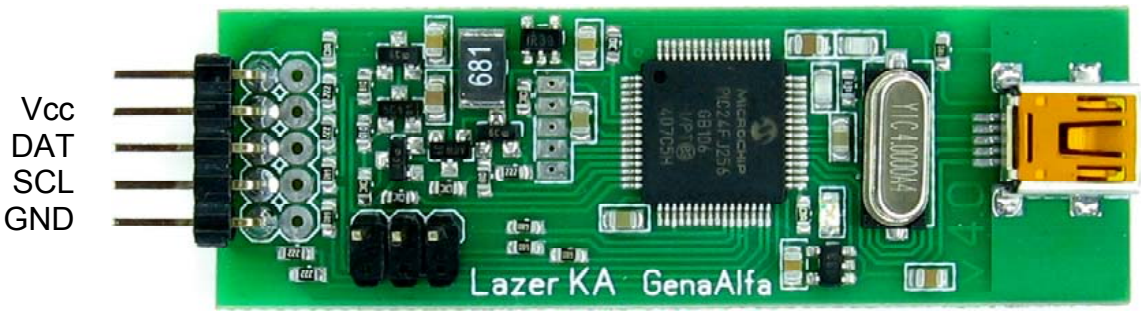


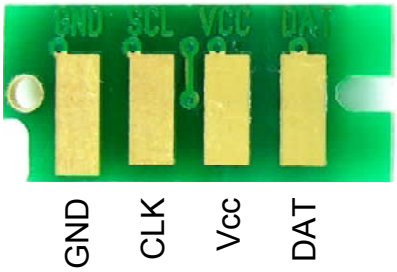
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
00000000	07	E0	A4	FC	53	38	5C	00	A7	00	1C	00	D8	FF	C8	00	.аЄьS8\.§...ШяИ.
00000010	97	2F	74	CE	17	41	0C	A4	74	E0	76	CC	75	38	30	52	./tO.A.¤tavMu80R
00000020	00	60	E3	FA	E6	1D	D5	90	41	30	C1	4C	20	E5	90	1E	.`гъж.X.A0БL е..
00000030	00	D5	00	3D	00	96	43	D1	4F	50	41	38	30	3C	1D	11	.X.=..CCOPA80<..
00000040	B6	00	36	00	39	00	88	47	59	B0	1F	94	0A	E7	1E	D9	¶.6.9..GY°...з.Щ
00000050	00	DF	00	5F	00	F2	2F	55	C6	EB	2F	EA	72	25	88	71	.Я._.т/UЖл/кr%.q
00000060	EF	00	48	00	0F	00	4F	0C	0F	3D	27	92	B8	F8	48	2C	п.H...O..='.ёmH,
00000070	00	BD	88	BA	90	F9	91	FE	2C	89	4F	BB	C6	C6	B3	F9	.S.е.ш.ю,.O»ЖЖiш
00000080	F8	00	61	00	FB	00	D3	DE	72	44	A8	B5	43	06	96	24	ш.а.ы.УЮrDЁµC..$
00000090	FF	10	FF	DB	FF	27	05	48	FE	3F	FE	5C	2A	A6	C7	03	я.яЫя'.Ню?ю*¦З.
000000A0	B5	30	04	32	42	32	FF	34	9C	54	D8	53	E3	31	40	31	µ0.2B2я4.TШSr1@1
000000B0	FF	FF	FF	FF	FF	FF	FF	FF	28	63	29	58	45	52	4F	58	яяяяяяяя(c)XEROX
000000C0	32	30	30	30	AA	55	53	53	00	02	01	FF	FF	FF	FF	FF	2000ЄUSS...яяяяя
000000D0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	яяяяяяяяяяяяяяяя
000000E0	01	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	.яяяяяяяяяяяяяяя
000000F0	FF	02	FF	FF	FF	FF	FF	FF	00	6A	D5	F5	54	6B	20	10	я.яяяяяя.jXxTk .

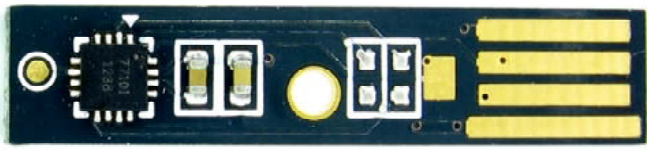
"Secret" zone
OTP zone

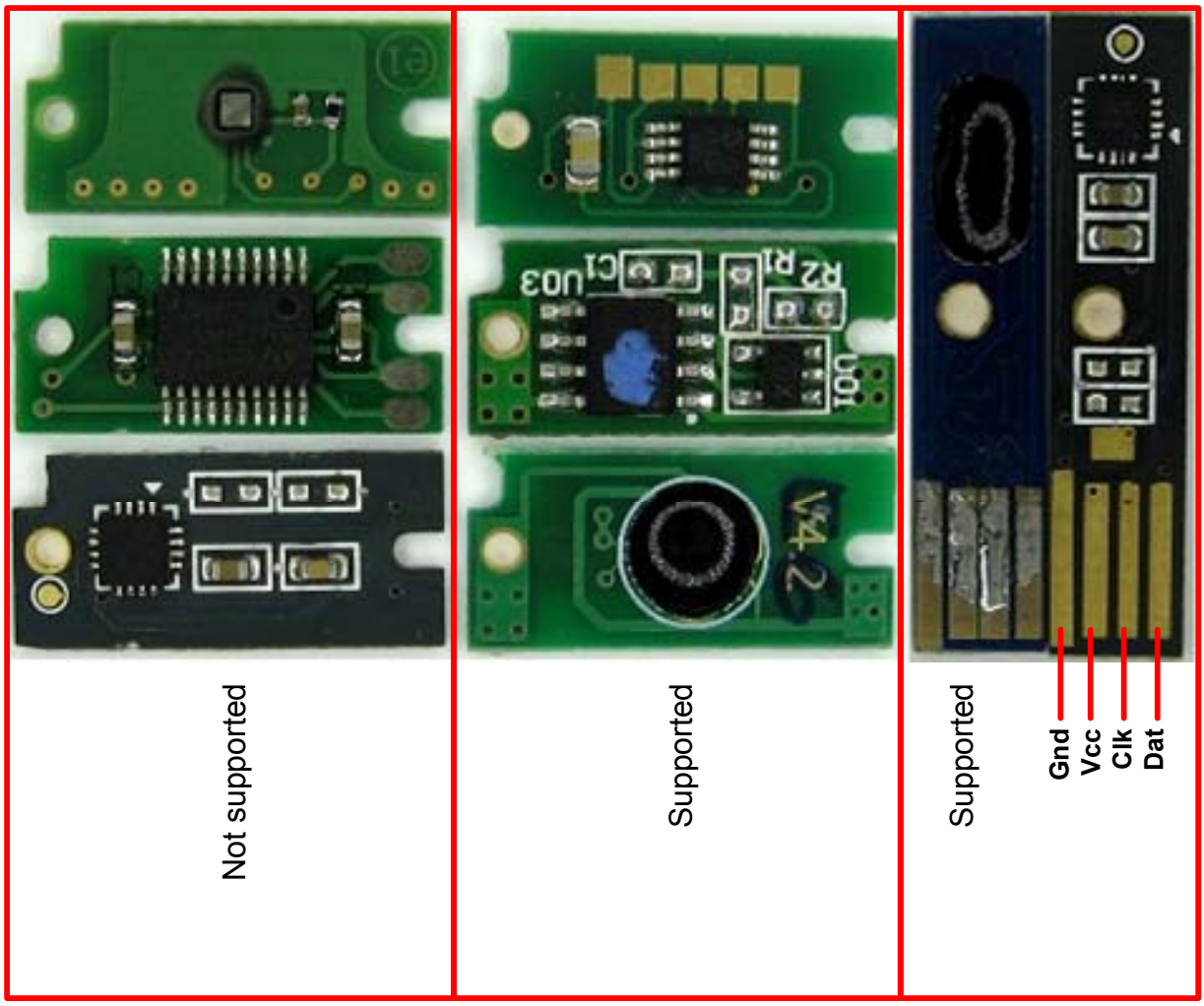
Xerox-01 (XC-01) chips use I2C data-exchange protocol and have an address on the bus 0xA0 – 0xAE depending on cartridge color. In general, their protocol is fully conformant 24C02 chips, but an attempt to read/write this chip as 24C02 will destroy it. The chip XC-01 is damaged as a consequence of attempts to access to its "Secret" zone. **"Secret"** supposedly is bytes of chip configuration and their reading/change is not acceptable. Never try to read the chip XC-01 in the menu 24Cxx. Also the chip XC-01 has the **OTP zone**. To change the data in this area you should connect the programmer's Vpp pin to the 7th pin of the chip. A high-voltage synchronous writing pulse is formed on this pin during writing in the OTP zone. If the Vpp pin is not connected, then the entry in the OTP zone is not possible. The rest of the chip memory is occupied by conventional EEPROM memory.

Xerox 3010. Connection

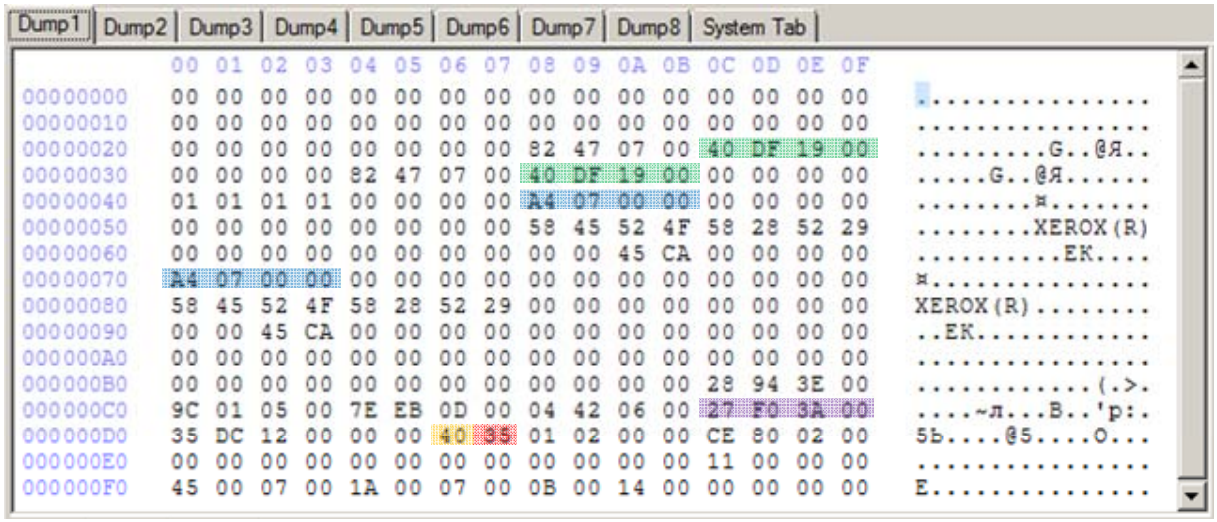




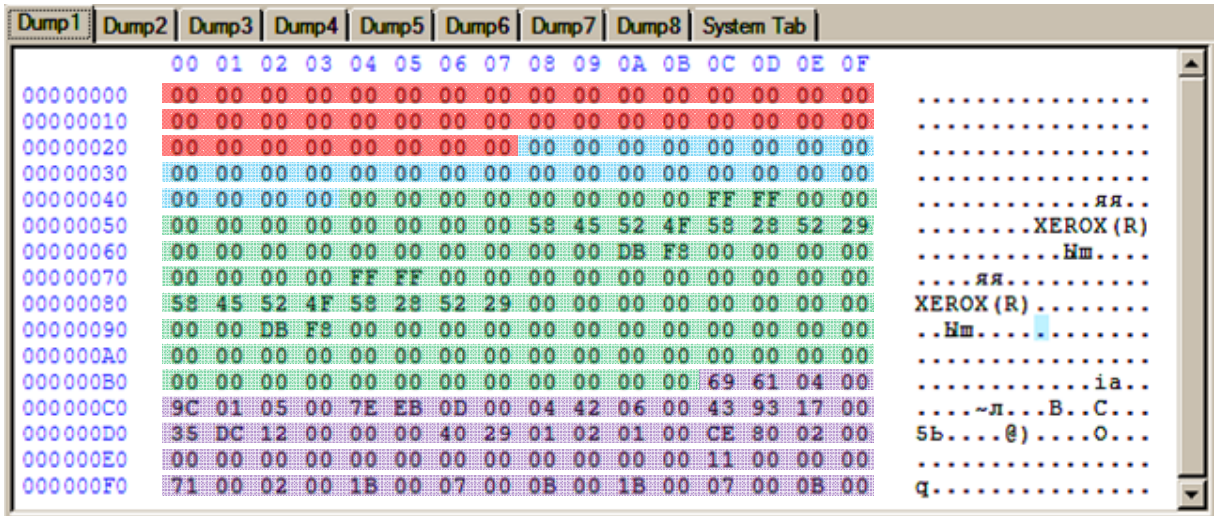




Xerox 3010, 6000, 6010, WC-6015, 6500, 6505



The amount of toner in the cartridge. 0x003AF027
The amount of toner used. 0x0019DF40
Number of printed pages. 0x000007A4
Manufacturer Code
Region



"Secret" zone
32-bit OTP zone.
EEPROM
ROM

Xerox 3010, 6000, 6010, WC-6015, 6500, 6505

"Secret" zone. In this area nothing is stored and nothing from there can be read. If you fill in the dump with the values in this area, the programmer will display an error when checking.

OTP zone. This zone is organized as 7 32-bit numbers with the Little-endian sequence of bytes. This means that in the 32-bit number the leftmost byte is LSB, and the rightmost - Senior. If in the dump we see 65 43 21 00, this sequence corresponds to a 32-bit number 0x00214365. The arithmetic OTP zone is made according to the rules of availability of change of a smaller number to the bigger one. If we have the number 0x00214365 stored, it can be replaced by 0x00214366 or 0x05214365 and cannot be replaced by 0x00214364 or 0x00114365.

EEPROM zone changes whatever you like.

ROM zone is programmed once at the factory and is not altered in any way.

Due to the presence of OTP and ROM zones in the **original chip, this chip cannot be reset**. However, many **manufacturers of emulators do not protect their chips by OTP zones and the chips can be reset.** Below are photos of known chip and the possibility to reset them.

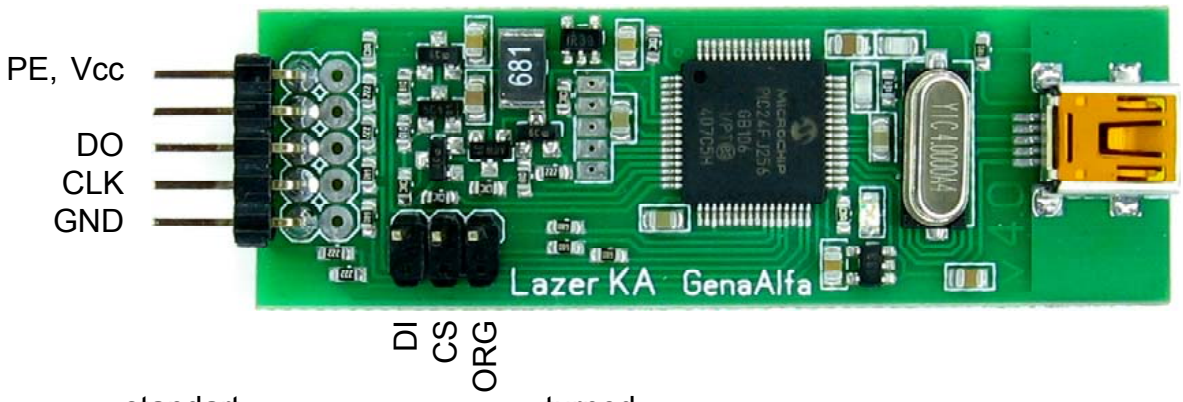
Addressing chips on the I2C bus
(Xerox 6000, 6010, WC-6015)

E6 - black
E0 - yellow
E2 - magenta
E4 - cyan

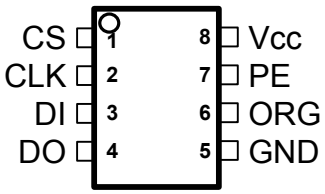
Addressing chips on the I2C bus.
(Xerox 6500, 6505)

EE - black
E8 - yellow
EA - magenta
EC - cyan

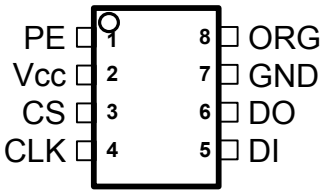
93Cxx. Connection

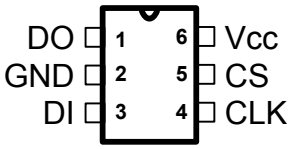


standart



turned





93Cxx

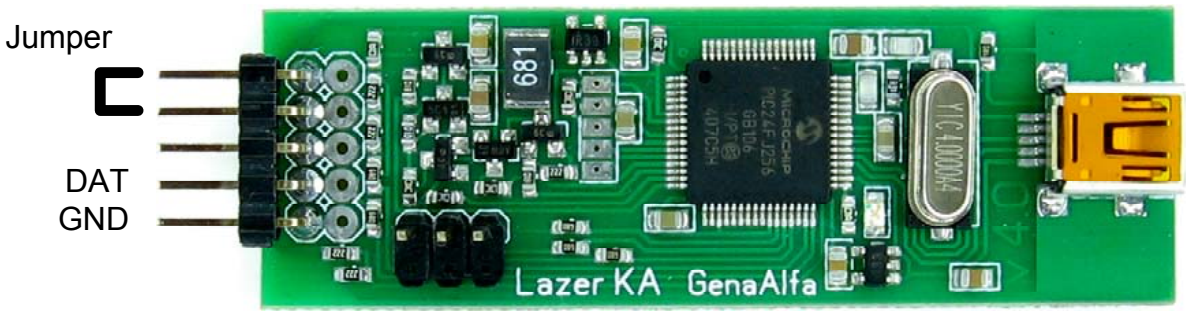
These chips utilize the Microwire communication protocol and are connected via four-wire. Also, some chips have an additional pin for switch between 8-bit and 16-bit memory organization. The choice of the proper memory organization is a reason of major difficulty in work with this series of chips.

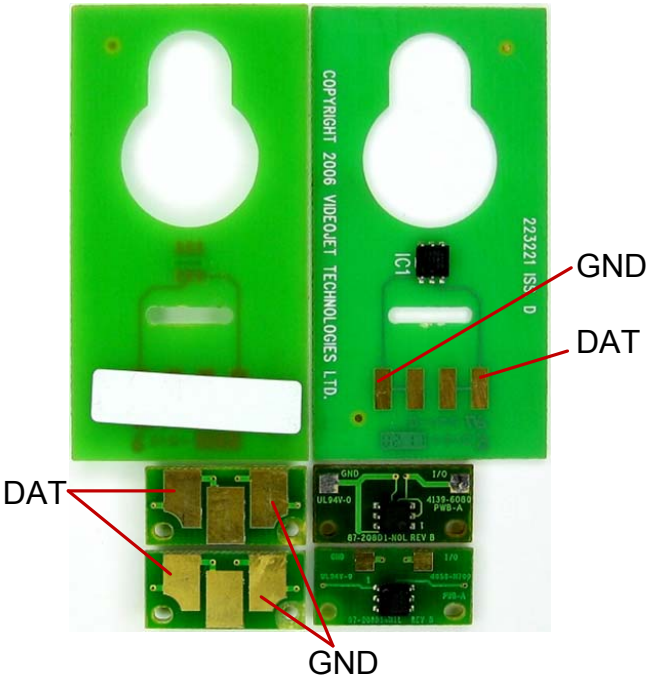
Memory organization can be either fixed or has an additional output to select between the two organizations, 8-bit and 16-bit. Organization of the chip can be found only in the documentation for a particular chip. The difference between 8-bit and 16-bit organization lies in a method of obtaining data from the chip. When 8-bit organization, the chip will output 1 byte of information at a time, when 16-bit organization - 2 bytes. Accordingly, communication protocols are different for different organizations and if make the wrong choice, you will get distorted data. Even if the chip supports switching of memory organization, physical data can be stored in different memory cells, and they (the data) are assembled from memory and glued in the chip just before sending to the bus. For example, the chip HOLTEK HT93LC46 stores the even bytes in the Upper Memory Area, and odd ones – in the LMA. After writing to it in the 16-bit mode, when reading the chip as an 8-bit, you'll get a valid set of bytes, but all of them will be scattered in the memory in a different order. For this reason, all of the chips must be read exactly in the mode in which they were written, even those chips that support both types of organization. Chip protocols do not allow you to find out chip organization through the data exchange, the organization must be chosen on one’s own and not to be mistaken with it. What to do if you do not have documentation on the chip and no way to know the organization? My advice is: read the chip 2 times by different organizations and save the data in two files. Then write any value in the first two memory cells by both ways and check what is written in the chip. If you are right with the choice of organization, the chip will store your data, if not, it will write garbage or will not write anything. Do not forget to remove the wrong file of the two saved ones and do not forget to restore the data that you messed with the trial record.

The second issue, on which there is also controversy, is the issue of placement of bytes in a 16-bit word. There are two ways to display the 16-bit word in the editor:
1. The LSB of the word occupies the Low Memory Address (Little-endian) (the number 0x1234 will be stored in the memory as 0x34 0x12),
2. The leftmost digit of the word occupies the left position in the dump (Big-endian) (the number 0x1234 will be stored as 0x12 0x34). The format of number storage in memory is not chosen by the programmer, but by the controller which used this chip and stored the data in it.

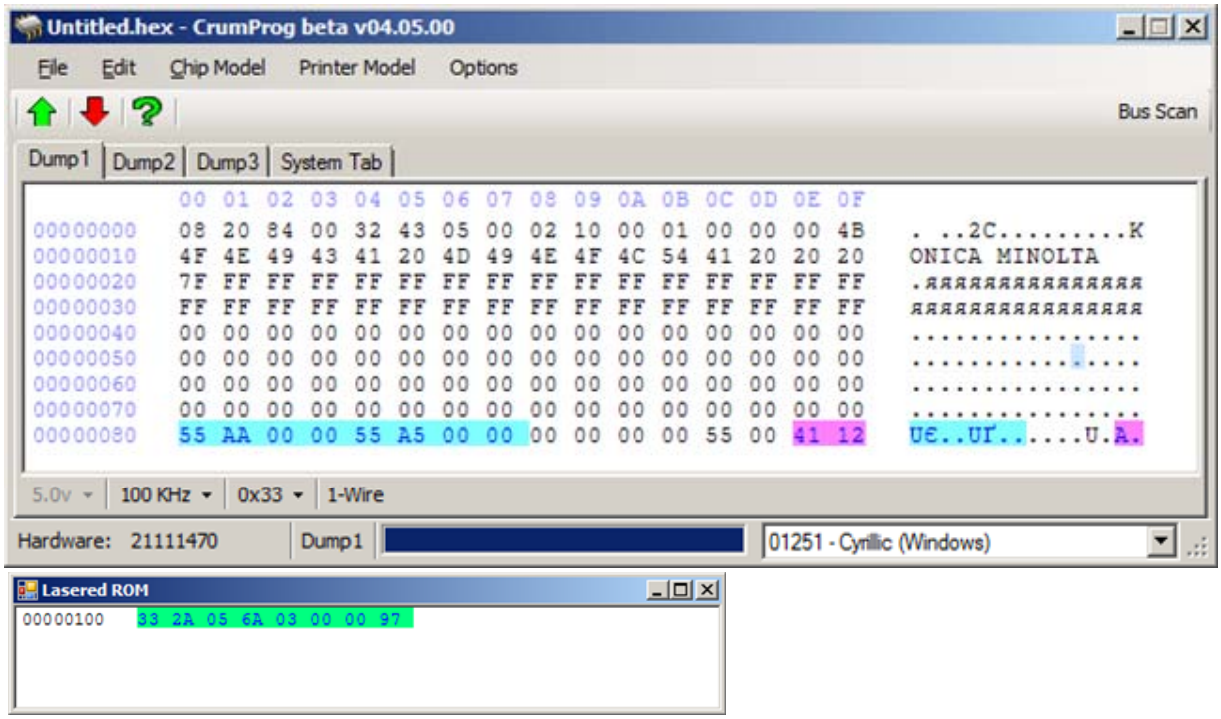
That is, in whatever way I display the bytes in a word, this method would be correct for one chip and incorrect for another. Moreover, chips themselves confuse this issue. Some chips store in one way, the other chips – in the other (e.g. a Microchip will store the word in the format Little-endian, and an Atmel – in the format Big-endian). As you can see there are quite many questions and we have to get used to the confusion in these chips. Most (in my opinion) controllers use Little-endian format, and I will display bytes in the word this way. Connecting chip also has a few options. More often we see the Standard variant of connection, rarely - Rotated. Connectivity option can be found in the documentation. Chip and programmer protection against wrong connection is implemented in the programmer. As with any electronic device protection, I would not advise testing for strength. Always make sure the correct connection. If you cannot find the wiring diagram in the documentation, you can check with the tester. In the regime of diode examination you can find the pin of the chip GND, the protection diodes of all communication pins and power output will be tested for continuity to this pin. The most powerful diode with the lowest voltage of the opening (smaller numbers on the tester) will be installed on the power output. Some chips have an additional pin PE (Program Enable). If the chip has this pin, it should be connected to Vcc pin, then the storage will be available. Unlike 24Cxx series chips, manufacturers do not allow to leave PE pin on the series chips 93Cxx without connection. Bus scan to search for this chip is not possible. When working with this chip it must be selected manually.

1-wire DSQ8, DS2431 and DS2432. Connection





1-wire DSQ8, DS2431 and DS2432



“Secret” and configuration

Manufacturer code

Lasered ROM. 33 – Series code DS2432 and DSQ8; 2D – Series code DS2431

DALLAS has developed a 1-wire communication bus. Chips utilizing 1-wire protocol are connected by two (GND, DAT) or three (GND Vcc, DAT) wires. If the chip is connected by two wires, the power is supplied into the chip on a communication wire. Support for these chips is strongly dependent on the particular configuration of the chip. Not all configuration options were added to the support list of the programmer. At the moment, the programmer works only with chips DSQ8, DS2431 and DS2432. Chip model and a storage method are determined automatically by the code of chip series and configuration. 1-wire chips are divided into families. Family`s number is stored in the chip area Lasered ROM. The code of the chip is also stored in this area. This code is unique for each chip. Lasered ROM chip area is not in shared memory of the chip, but it has a special cell for storage. For this reason, Lasered ROM is displayed in a separate window as information for the user. At the moment, the programmer does not have a function to change the password and configuration In DS2432 chip to protect the chip from accidental lock up.

Please note that the connection of the chip has changed in this version and an extra jumper to the pin of the Programmer is required.

Usually, the memory of the chip (0x00 – 0x7F) changes regardless of the state of the protection bit (0x80 - 0x88). If Your chip is not resetted on the second try, Your chip is one of the difficult resetted (it is about 10%) and requires special actions for its resetting.

We offer not do it and just to throw them out, but if You do need to reset them, we suggest to apply actions that will increase the chances of success. We do not advise by e-mail any details on the use of these actions and limit our advice to this instruction only.

So if the locked DSQ8 chip (address 0x80 = 55 AA 00 00 55 00 00 A5) is not resetted immediately, the following measures will help to reset it:

- a short wire from the chip to the programmer (max 20cm).
- Do not connect any measuring instruments to the contact of the chip during the operation. A frequency up to 8 MHz is applied to the chip and an interference from the equipment is possible.

-freeze the chip (using spray) to -30c and write data during slow defrost. Repeat the freezing if necessary (I have resetted all the chips after the first frost).
- Resetting data (0x00-0x7F address) and configuration (0x80 – 0x8F) use different resetting algorithms. Try to reset both of them.

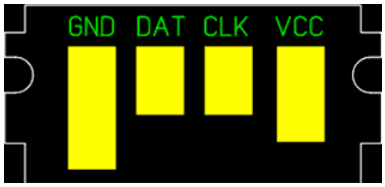
-for resetting the configuration, start with 0x84 address, it will speed up the process of resetting the rest of the configuration.
- do not try to change the Manufacturer Code (0x8E - 0x8F), it is impossible to restore it, but some printers checks it.

- programmer spends max 8 seconds on each reset byte, then the process is considered as unsuccessful and requires a change in the paragraphs told above. If you change just a lot of bytes at once in the dump, the process will be delayed. If You wish to stop the process, You have to distort USB cable of the programmer.

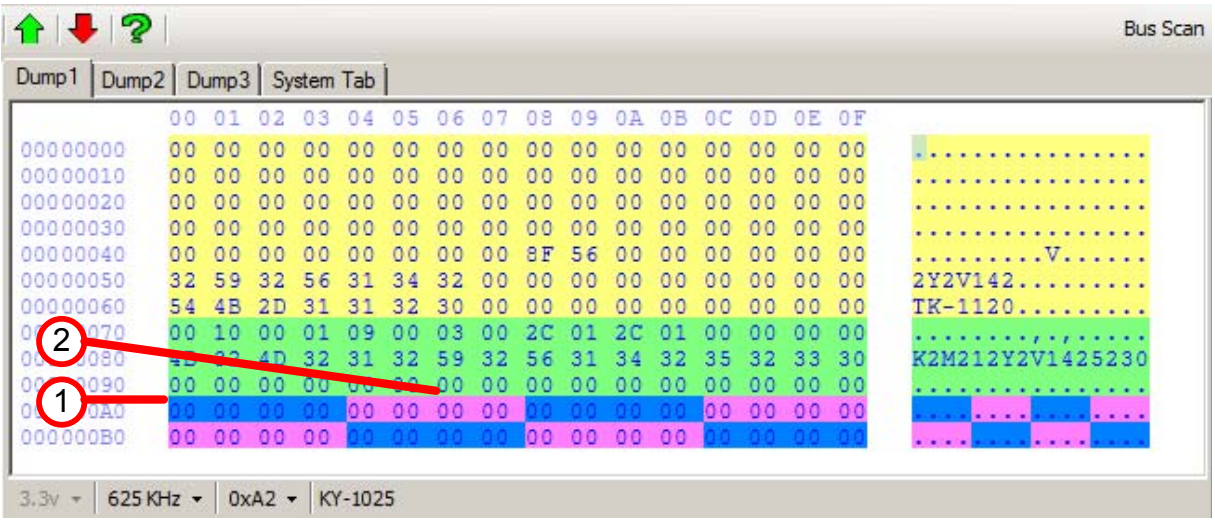
- After you have successfully resetted the configuration, do not rush to restore the protection in the configuration. Maybe a printer does not check it and the next reset will be faster.

Kyocera. Connection

Vcc
DAT
SCL
GND



Kyocera (emulators only)



EEPROM - from any value to any. No useful data (presumably)

ROM – does not change

OTP - 8 counters, 32 bits each.

OTP - 8 counters, 32 bits each.

pages counter (1) and the toner counter (2) are equal to zero in the reset status. **In attempt to reset the OEM chip, it will be damaged! Don't change the counters in OEM chips!**

Only some emulators are supported. **OEM chips are not supported!**

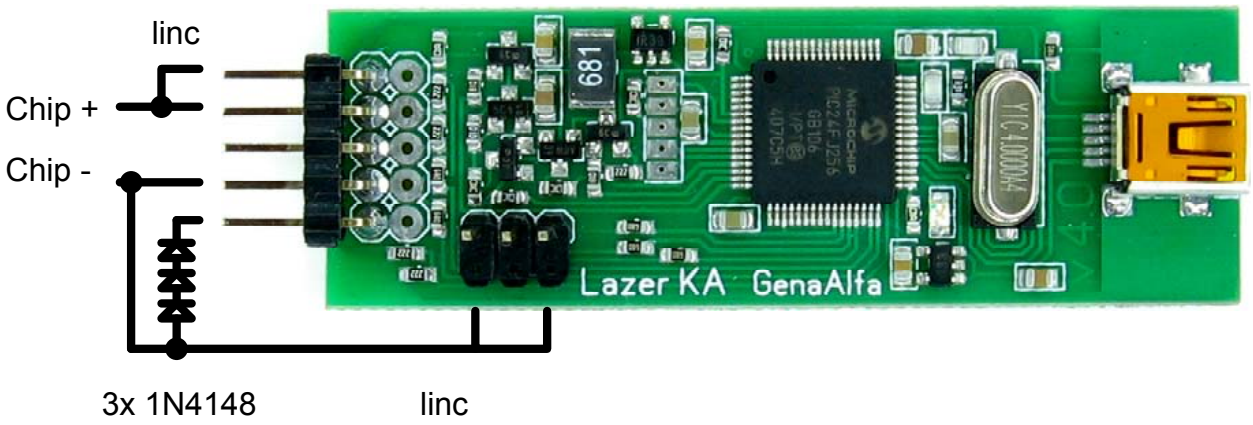
Communication with the chip on I2C bus with A0 — AF address.

The chip has several numbered areas of memory. The most simple and useless EEPROM memory can be read and written, but there is no useful data in it that can be changed and it would help to achieve at least something.

Another memory area - OTP contains counters (8 pieces). Any entry in this field will lead to an increase of the value of the counter. That is why when trying to write zeros to the counter of the original chip, it will be increased to a maximum value and will stop on it, as a result - chip will be damaged. However, the emulator does not have a stop at the maximum value and "will go on the second circle", reaching zero. It is not yet known what emulators are supported.

Writing to ROM area is not realized at all in the Resetter.

HP (Test version, will be modified later)



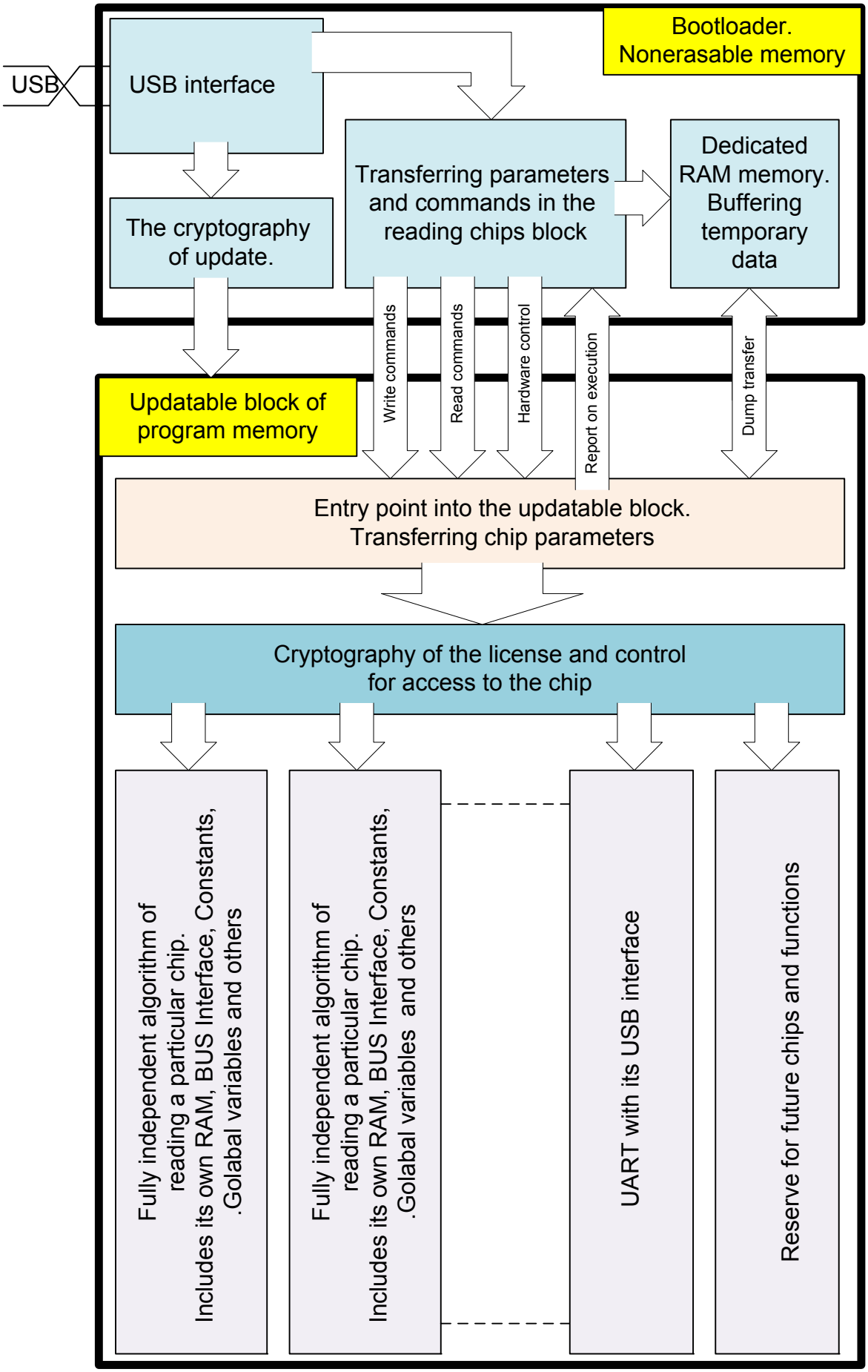
Waranty

There are no guarantees. Each programmer is tested before sale on all kinds of chips. If something stops working, then we give technical advice via e-mail. If it is not possible to solve the problem through the e-mail, then you send us the programmer and we solve the problem on the spot. If it is ascertained our problem and it can be solved by simple replacing of cheap parts, the repair will be free. If for any reason the replace of the controller is required, the device is recognized as fully unrecoverable, however, if we are able to read the serial number from the old controller (for example, if the port of the controller is damaged, but the core still works), we will replace the controller for the price of the controller. All shipment both ways is at the expense of the user.

Independent production

For those who want to produce their own programmer, you need to buy a programmed controller from us. We do not send kits "do it yourself", we just sell the controller with firmware to everyone.

Block diagram of the controller software



Programmer circuit