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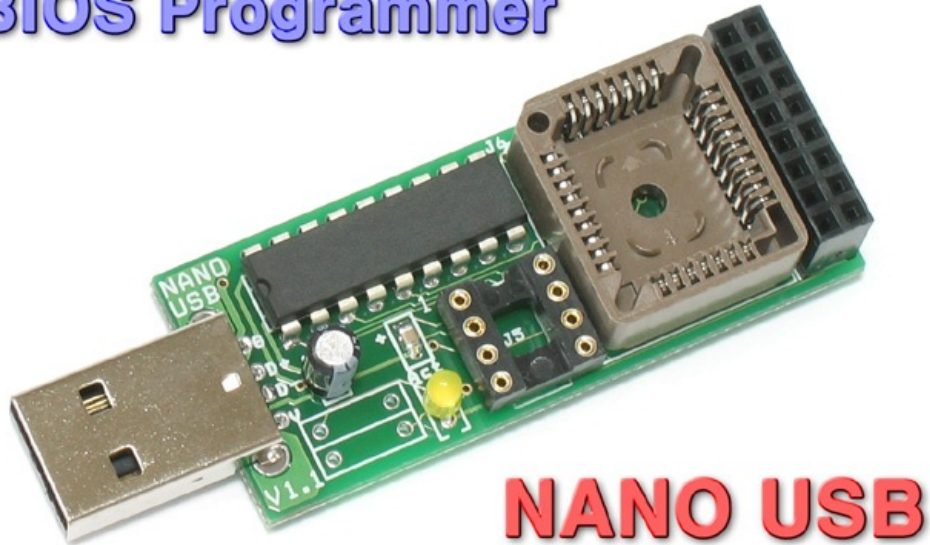
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NANO USB Programmer Specific

BIOS Programmer



Overview

NANO USB Programmer supports read and write operation with popular BIOS flashrom that used in IBM compatible PC.

All function is easy to use with simple software interface.

Also, NANO BIOS Programmer supports external adaptor for wide extension.

Feature

- Suitable with PC BIOS repairing.
- Supports Most FWH/LPC/SP/I2C/Legacy flashrom
- Easy to use and Full Auto Detect, even I2C.
- Tiny size.
- Include PLCC32 and DIP8 socket.
- USB interface and self-power
- Easy and wide expandable with External adaptor connector.

Layout

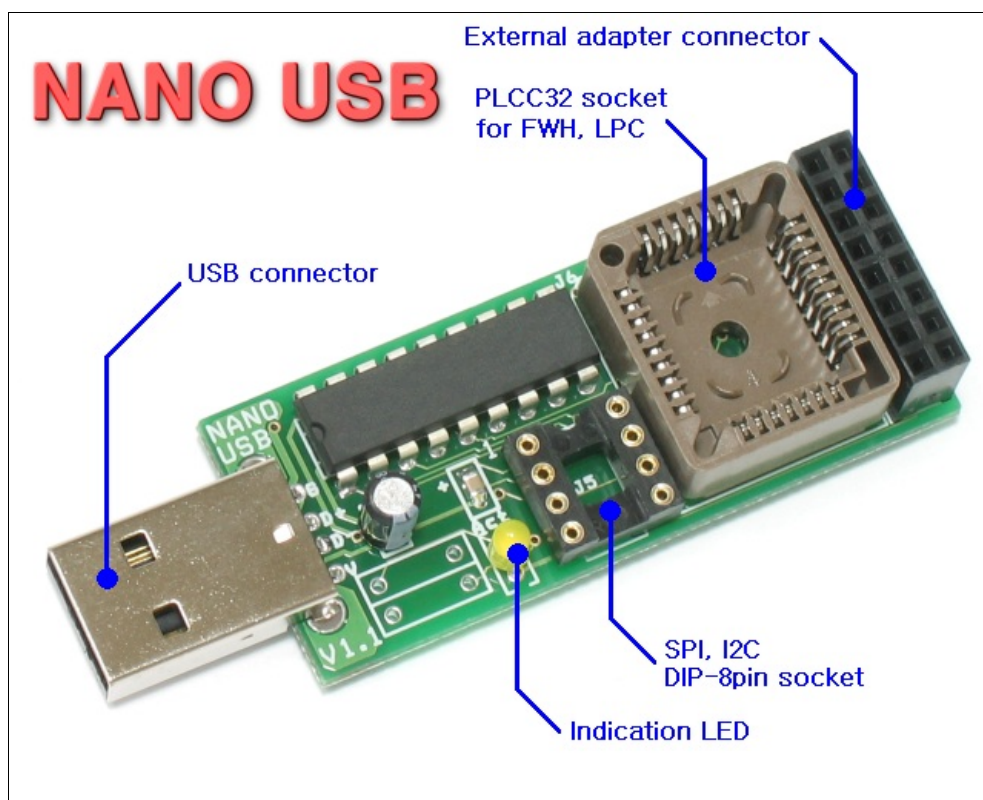


Figure 1. Programmer layout

- **USB Connector**
Standard USB type-A connector.
Programmer must be plugged to PC USB port with this connector.
 - **Indication LED.**
Light is ON, when any read/write operation.
 - **J5 : DIP-8pin socket.**
DIP-8pin socket for SPI flashrom and I2C EEPROM.
 - **J6 : PLCC32 socket**
PLCC32 socket for FWH and LPC flashrom.
- CAUTION:** Not support Legacy flashrom
Please use extension adapter.
- **J1/J2 : External adapter connector**
Connector for external adapter like Legacy adapter, 3in1 adapter or ETC...

Software

Overview

NANO UBS Software is unique software for NANO USB PROGRAMMER

Requirements

In order to be able to install and run , the following requirements must be met.

- **Hardware**
x86 or x64 based Microsoft Windows compatible system with USB port(1.0/2.0/3.0).

* Programmer may work slow, when it was plugged to ROOT HUB of UHCI or EHCI Host controller.
Recommend to use with OHCI or USB 2.0 HUB with USB 2.0(or higher) Host controller.
- **Operating system**
Microsoft Windows XP, Windows Vista, Windows 7.

* Required to install USB driver.
* Local Administrative rights during installation of USB driver
- **Platform support**
32-bit or 64-bit platforms

Software Layout and Button description

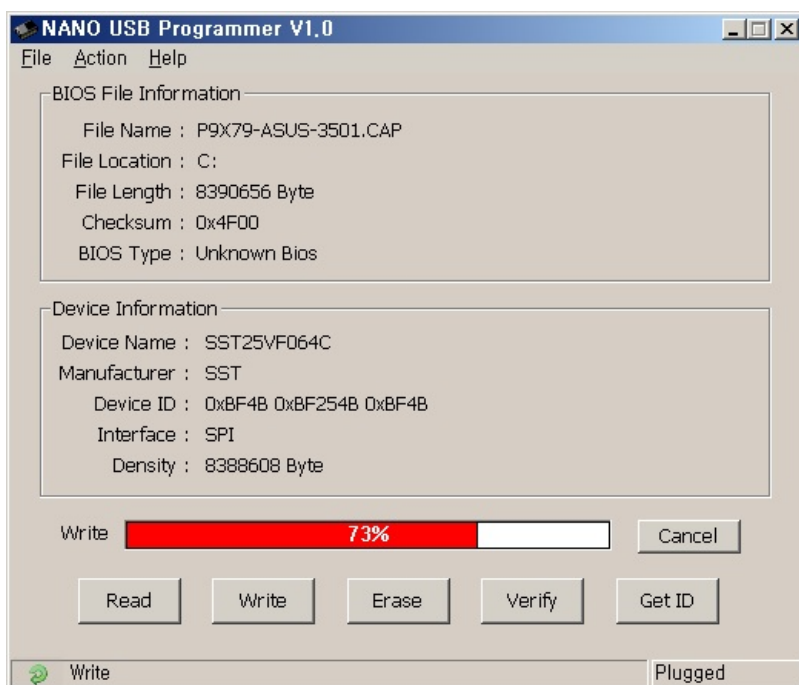


Figure 2. Software Layout

[BIOS File Information]

File Name : View the user selected file's name.
File Location : View the file location folder.
File Length : Length of selected file.(decimal)
Checksum : 16bit checksum for file identification.
BIOS Type : BIOS Vender.

[Device Information]

Device Name : View of detected FLASH-ROMs conventional name.
Manufacture : The FLASH-ROM manufacture.
Device ID : The device identification code.
Interface : Working interface.
Density : The FLASH-ROM capacity (Decimal BYTE)

[Operation indicator]

Progress bar : Indicate current progress visually.
Status bar : Indicate last operation result.
Plugged status : Indicate a current plugged status.

Buttons

- **Read(Ctrl+R)**

Read data from attached FLASHROM, then save it to the user specific file.

- **Write(Ctrl+W)**

Write data to attached FLASHROM with the user specific file.

- **Erase(Ctrl+E)**

Erase(Clear to 0xFF) all data area in the attached FLASHROM

* I2C EEPROM does not support Erase function.

- **Verify(Ctrl+V)**

Compare the attached FLASHROM data with an user specific file.

- **Get ID(Ctrl+I)**

Recognize the attached FLASHROM automatically

- **Cancel**

Stop current operation.

MENU Description

- **File Menu**

(1) Exit(Alt+F4)

Close the NANO BIOS PROGRAMMER software.

- **Action Menu**

Same as function buttons

- **Help Menu**

(1) How to use : This help.

(2) About : Software description.

Hotkey Table

Function	Hotkey
Read	Ctrl + R
Write	Ctrl + W
Erase	Ctrl + E
Verify	Ctrl + V
Get ID	Ctrl + A
Config	Ctrl + C
Exit	Alt + F4

How to use?

Example - Fixing a BIOS flashrom

Step.1

Find a flashrom(IC-CHIP) on Mainboard.

Most of case, a BIOS flashrom is near South Bridge and it is plugged on removeable socket.

And check the flashrom is removeable from MB.

If flashrom is plugged on socket, it is removeable.

or If the flashrom is SMD(soldered) type, you have to use other method* to handle it.

* SMD reworks Tool, Reverse socket, Online adapter or ETC...

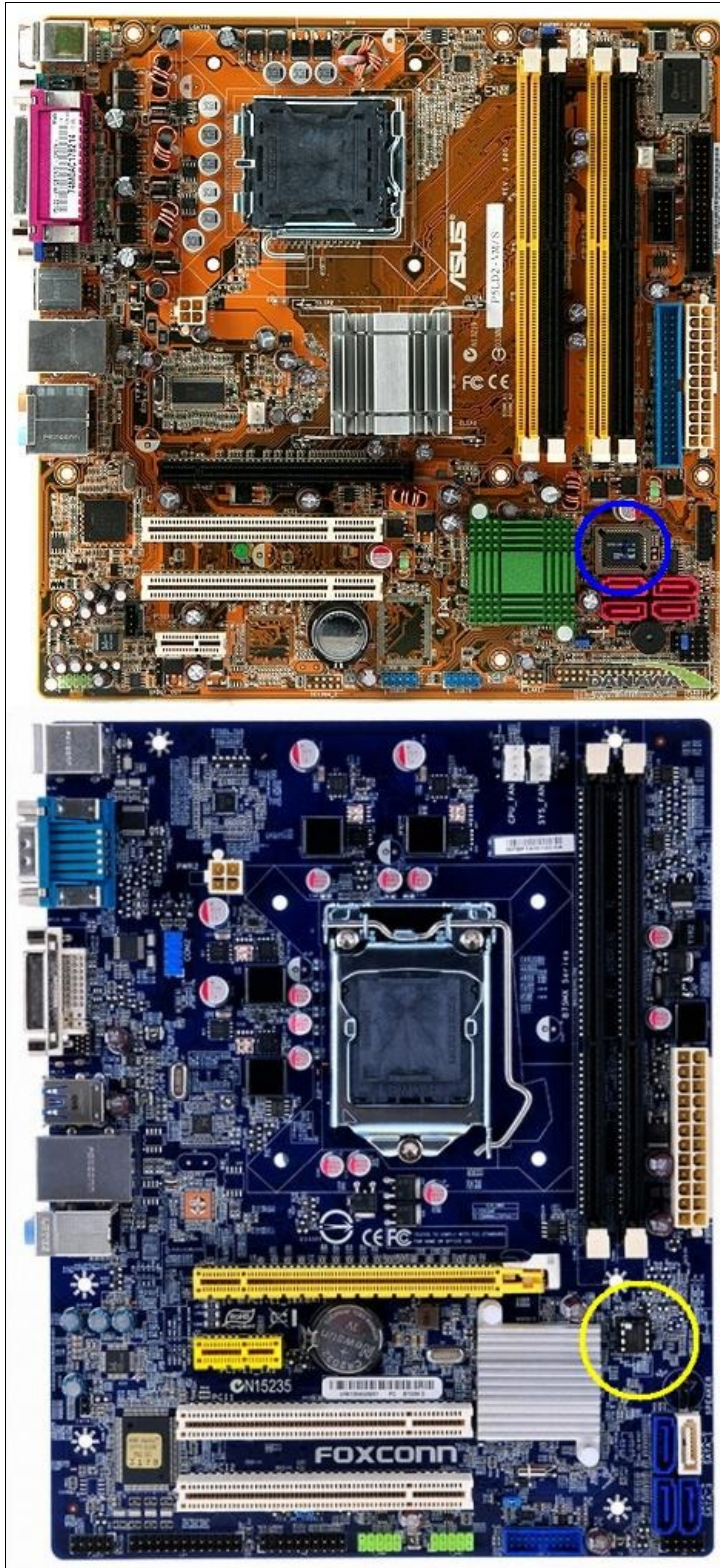


Figure.1 . Flashrom on Mainboard

Step.2

Then, check your flashrom is in compatible list and it is supported package*.

If not, programmer can not work with the flashrom.

You can confirm flashrom's name on top surface of flashrom.

If there is a sticker on it, remove it first.

* Programmer default socket supports only DIP8 and PLCC32 package flashrom.

If other package, please use external adapter.

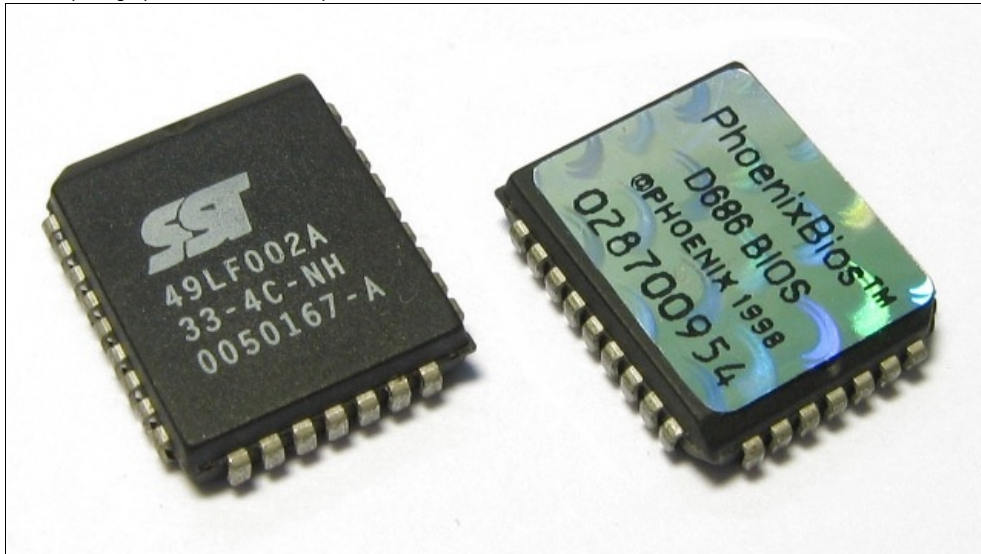


Figure.2 Confirm Device name.

Step.3

Carefully, unplug the flashrom from its socket.

**** Socket and flashrom leg is not HARD.**

**** Remove All power (AC and battery) before do it.**

**** If you don't have PLOC ejector, follow next method to unplug the PLCC32 type flashrom.**

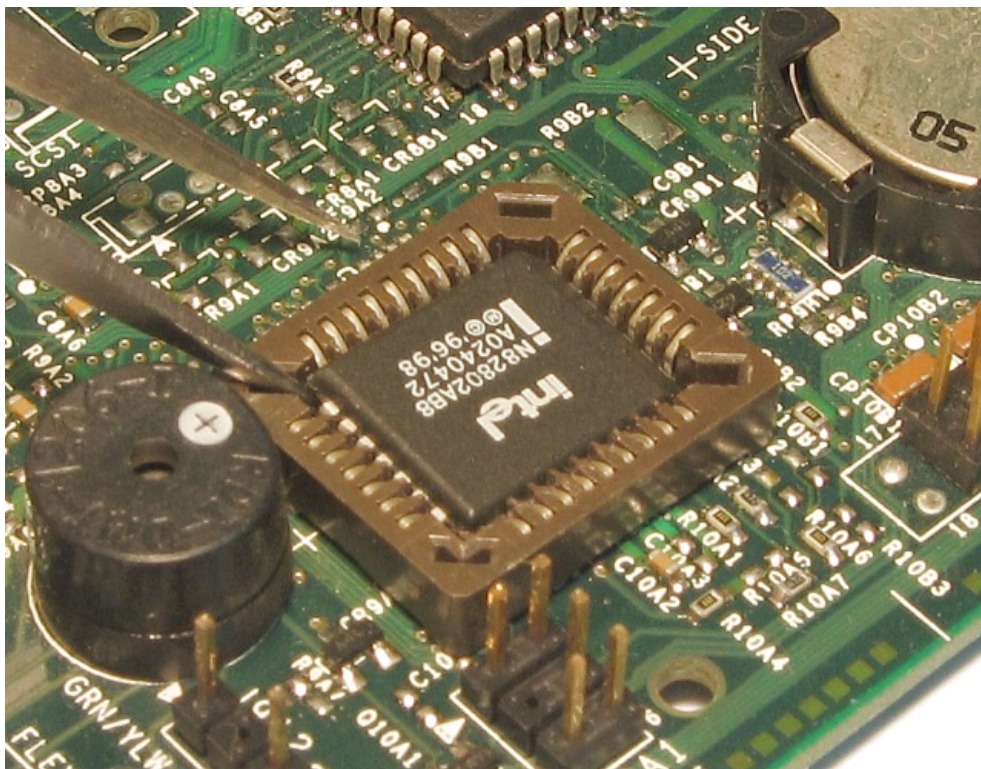


Figure.3 - Pull up little just one corner.

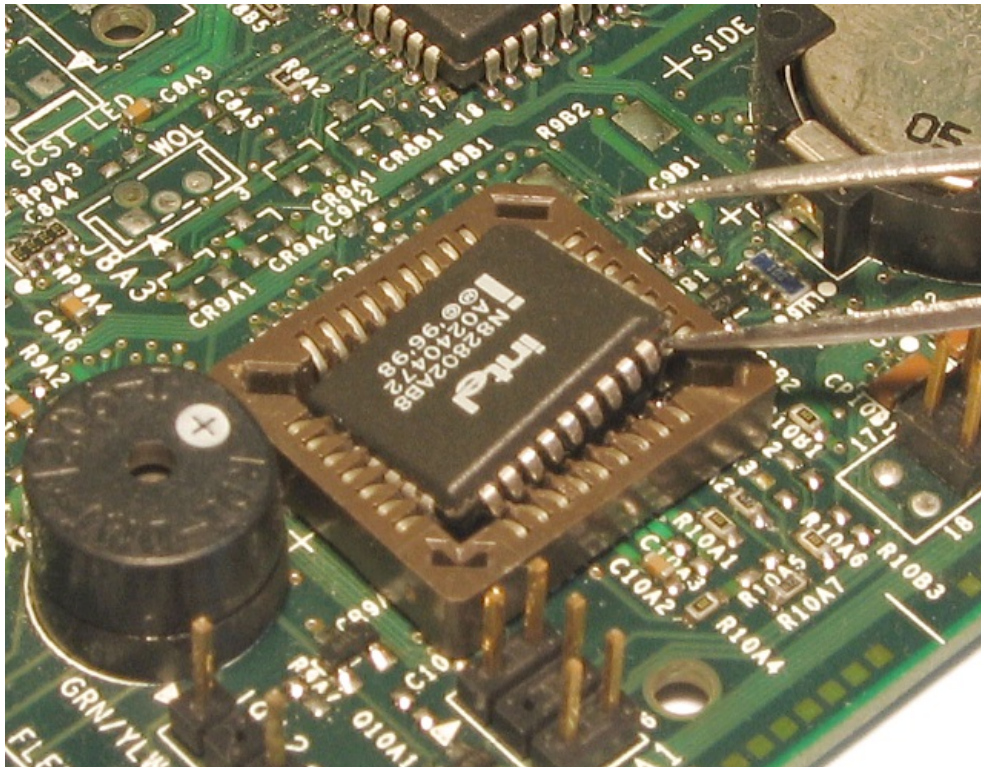


Figure.4 - Pull up other corner. and again...

CAUTION: If flashrom is soldered directly on MB surface(it is called SMD type),
You have to de-solder it from MB with SMD reworks tools.
Then, please use SMD adapter.
or Some MB supports on-line adapter.
In this case, reverse socket is useable.

- * PLCC32 flashrom can be used with reverse socket.
- * TSOP32/40 FWH/LPC flashrom can be used with 9~10 soldering points.
- * SP flashrom can be used with some soldering points or reverse socket.
- * All these work are dependent on MB design. Contact me.

Step.4

Plug the flashrom to PROGRAMMER's socket.

*** All flashrom has direction and pin-order.**

The PLCC32 flashrom has corner notch and DIP-8pin flashrom has half-moon notch at upside edge.

In SOP-8 flashrom, pin-1 has dot-mark or taped edge.

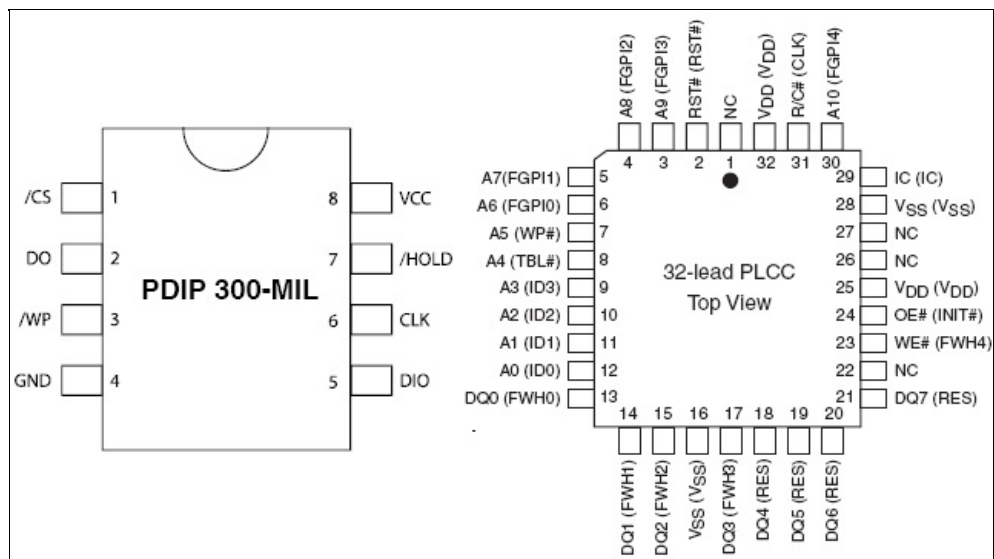


Figure.5 Pin-order

Step.5

NANO BIOS PROGRAMMER

Plug NANO USB PROGRAMMER to USB port of PC.
* Install USB driver and S/W before this.

Step.6

Run NANO BIOS programmer software.
If there is no problem, S/W will show's Plugged Status.

Step.7

* **Important** : To work NANO USB Programmer, S/W must recognize what flashrom is plugged on programmer.
To confirm this, press [Get ID] button first.

If there is no problem, you can see the recognized device in [Device information] box.

* If Programmer is plugged, and S/W + driver is installed correctly, **LED** will blink one time at this moment.

* If you can not see the correct device information, programmer will not work with the flashrom.

Please check the forward steps.

Even if you do that, device information was fail, try with other flashrom or contact me.

* Tip

Some times, some Pins in PLCC32 socket is bended to inside.

This can make disconnection problems.

You can fix it like next photo.

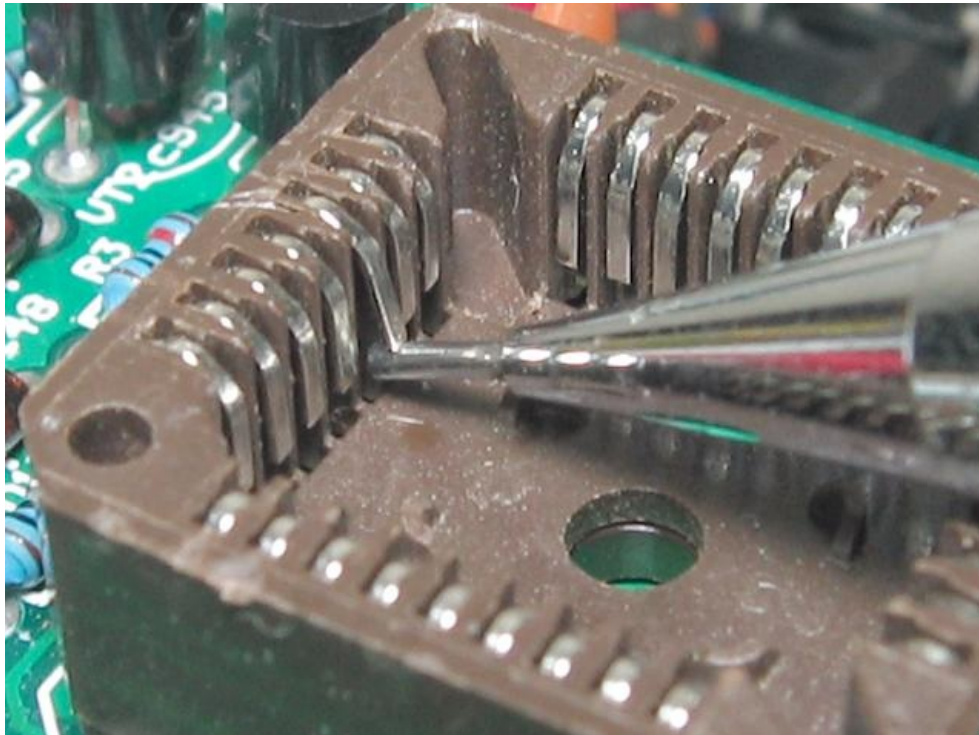


Figure.6 - Pull out bended pin to out-side.

Step.8

Press any function button you want. (Write, Read, Verify or Erase)

Then, software will ask you a necessary filename or agreement of progress.

You can see the **[Green progress bar]** when reading/verifying the flashrom, and **[Red progress bar]** when programming/erasing.

And the LED is turned on while PROGRAMMER is running.

When operation is complete without error, you can see the Success message on status bar.

* When writing, download BIOS file first from Homepage of the M/B manufacturer.

Step.9

Unplug flashrom from NANO USB PROGRAMMER

Then turn it back to the socket on first mainboard.

* If the PC doesn't work after updating, re-try the first step.

>however, if the "Verifying" was succeed, it would not be programmer's problem.

Please check the BIOS file and M/B version and file size.

Most of case, file size must be same with flashrom size.

And check PC state and there is not bended pins in the flashrom legs and socket.

Caution

- Basic component of NANO USB PROGRAMMER supports only PLCC32 , DIP8 package flashrom.
Other package flashrom needs a compatible adapter (like DIP8 to SOP8 adapter).
- Basic component of NANO USB PROGRAMMER does not support legacy parallel flashrom like 29C0x0, 49F0xx, 39SF0x0, 28F0xx, 27Cxxx.
This flashrom was used old INTEL BX/LX/EX/TX/HX/VX/FX chipset MB and old VIA/SIS/Al's P-III, P4 MB and old AMD CPU MB.
- Legacy parallel flashrom needs a legacy adapter and suitable package (DIP32 to "TSOP32/40A/40B/48-8bit/48-16bit") converter adapter.
- Don't plug flashrom with wrong direction.
Programmer and flashrom would be damaged.
- Use programmer on electric isolated place.

Appendix A

TERM DESCRIPTION

- FWH: Intel Firmware Hub interface, there is FLOC32/TSP32/TSOP40 package.
- LPC: Intel Low Pin Count bus interface, there is FLOC32/TSP32/TSOP40 package.
- SPI: Motorola Serial Peripheral Interface, there is DIP8/SOP8-150mil/SOP8-200mil/WSON/SOP16-300mil package.
- Legacy parallel: ISA bus compatible Interface, there is DIP32/FLOC32/TSP32/TSOP40/TSOP48 package.
- PIC: Microchip PIC-family Microprocessor
- I2C: Phillips 2-wire communication bus, there is DIP8/SOP8-150mil package.
- MICROWIRE: National Semiconductor Serial Peripheral Interface
- FLOC-32: JEDEC - 32 lead Plastic Leaded Chip Carrier Package
- DIP-8: JEDEC - 8 pin Dual In-line Package
- SOP-8: JEDEC - 8 pin Small Out-line Package
There is 150mil, 200mil(wide) package.

Appendix B

SUPPORT DEVICE LIST

* Jun/2013

FWH

- AMIC -
A49LF004
- ATMEL -
AT49LW040
AT49LW080
AT49LH002
AT49LH004
AT49LH00B4
- INTEL -
Intel82802AB
Intel82802AC
- PMC -
Pm49FL002T
Pm49FL004T
Pm49FL008T
- SST -
SS49LF004
SS49LF002A
SS49LF003A
SS49LF004A
SS49LF008A
- STmicro -
M50FW002
M50FW040
M50FW080
M50FW016
M50FLW040A
M50FLW040B
- WINBOND -
W39V040FA
W39V040FB
W39V040FC
W39V080F
W49V002FA

LPC

- AMIC -
A49LF040(AT)
- SST -
SST49LF020
SST49LF020A
SST49LF040
SST49LF004B
SST49LF080A
SST49LF004C
SST49LF008C
SST49LF016C
- STmicro -
M50LPW002
M50LPW012
M50LPW040
M50LPW041
M50LPW080
M50LPW116
- WINBOND -

W49V002(A/P/T)
W39V040A
W39V040B
W39V040C
W39V080CT

* Default package is PLCC32, other package needs suitable adapter.

SPI

- AMIC -
A25L05PT
A25L10PT
A25L20PT
A25L40P
A25L80P
A25L16PT
A25L05PU
A25L10PU
A25L20PU
A25L16PU
A25L40P
A25L80P
A25L512
A25L512
A25L010
A25L10
A25L020
A25L20
A25L040
A25L080
A25L016
A25L032
A25LQ016
A25LQ032

- ATMEL -
AT25F512A
AT25F1024A
AT25F2048
AT25F4096
AT25F512B
AT25FS010
AT25FS040
AT25DF021
AT25DF041A
AT25DF081
AT25DF161
AT25DF321
AT25DF321A
AT25DF641

- EON -
EN25B05
EN25B05T
EN25B10
EN25B10T
EN25B20
EN25B20T
EN25B40
EN25B40T
EN25B80
EN25B80T
EN25B16
EN25B16T
EN25B32
EN25B32T
EN25B64
EN25B64T
EN25D80
EN25D16
EN25F05
EN25(L)F10

EN25(L)F20
EN25(L)F40
EN25F80
EN25F16
EN25F32
EN25P05
EN25P10
EN25P20
EN25P40
EN25P80
EN25P16
EN25P32
EN25P64
EN25Q40
EN25Q80A
EN25Q16
EN25Q16A
EN25Q32A
EN25Q32B
EN25Q64
EN25Q128
EN25QH32
EN25S10
EN25S20
EN25S40
EN25S80
EN25T80
EN25T16

- ESMT -
F25L04UA
F25L04PA/004A
F25L08PA/008A
F25L16PA/016A
F25L32PA/QA
F25L04PA/004A
F25L08PA/008A
F25L16PA/016A
F25L32PA/QA
F25S04PA
F25S08PA
F25S16PA

- MICROCHIP -
25LC(AA)1024

- MXIC -
MX25L/V512(C/E)
MX25L/V1005/xx
MX25L/V2005/xx
MX25L/V4005/xx
MX25L/V8005/xx
MX25L1605/16xx
MX25L3205/32xx
MX25L6405/64xx
MX25L12805/8xx
MX25V4005
MX25V8005
MX25V4035
MX25V8035
MX25L163xD/E
MX25L3235/xxD
MX25L5121E
MX25L1021E
MX25L2026C
MX25L2033E
MX25U4033/35
MX25U8033/35E
MX25L1635E
MX25L1636E
MX25L3235E
MX25L6435E/F
MX25L12805/8xx

- Nantronic -

N25S05
N25S10
N25S20
N25S40
N25S80
N25S16
N25S32

- PMC -

Pm25LV512(A)
Pm25LV010(A)
Pm25LV020(A)
Pm25LV040(A)
Pm25LV080(A)
Pm25LV016(A)
Pm25LD256C
Pm25LD512
Pm25LD010(C)
Pm25LD020(C)
Pm25LD040(C)
Pm25LD040(C)
Pm25LD080
Pm25LD016
Pm25WD020(C)
Pm25WD040(C)

- SANYO -

LE25FU106B
LE25FU206
LE25FU406B
LE25FW203A
LE25FW403A
LE25FW418A
LE25FW808

- Spansion -

S25FL040A-I00x
S25FL040A-I01x
S25FL040A-I02x
S25FL004A
S25FL008A
S25FL016A
S25FL032A
S25FL064A
S25FL128P

- SST -

SST25VF512(A)
SST25V/LF010(A)
SST25V/LF020(A)
SST25V/LF040(A)
SST25V/LF080(A)
SST25VF020B
SST25VF040B
SST25VF080B
SST25VF016B
SST25VF032B
SST25WF512
SST25WF010
SST25WF020
SST25WF040
SST25WF080
SST26VF016
SST26VF032
SST26WF032
SST25VF064C

- STmicro/Numonyx -

M25P05
M25P05A
M25P10A
M25P20
M25P40
M25P80
M25P16

M25P32
M25P64
M25P128
M25PE10
M25PE20
M25PE40
M25PE80
M25PE16
M25PX10
M25PX20
M25PX40
M25PX80
M25PX16
M25PX32
M25PX64
M25PX128

- TERRA -
TS25L512A
TS25L010A
TS25L020A
TS25L040A
TS25L080A
TS25L160A
TS25L320A
TS25L10P
TS25L20P
TS25L40P
TS25L80P
TS25L16P
TS25L16AP
TS25L16BP

- Winbond -
W25X05(A/AL/L)
W25X10(A/AL/L)
W25X20(A/AL/L)
W25X40(A/AL/L)
W25X80(A/AL/L)
W25X16(A)
W25X32
W25X64
W25Q128
W25Q10
W25Q20
W25Q40
W25Q80
W25Q16
W25Q32
W25Q64
W25Q128
W25Q10BW
W25Q20BW
W25Q40BW
W25Q80BW
W25Q16BW
W25Q32BW
W25Q64BW
W25Q128BW
W25Q20DW/FV
W25Q40DW/FV
W25Q80DW/FV
W25Q16DW/FV
W25Q32DW/FV
W25Q64DW/FV
W25Q128DW/FV
W25Q128DW/FV
W25P10
W25P20
W25P10
W25P80
W25P16
W25P32
W25P64

W25P128
W25B40(A)-B
W25B40(A)-T
W25P05

- GigaDevice -

Gd25Q512
Gd25Q10
Gd25Q20
Gd25Q40
Gd25Q80(B)
Gd25Q16(B)
Gd25Q32(B)
Gd25Q64(B)
Gd25Q128(B)
Gd25D512
Gd25D10
Gd25D20
Gd25D40
Gd25D80
Gd25D16
Gd25D32
Gd25D64
Gd25D128
Gd25F512
Gd25F10
Gd25F20
Gd25F40
Gd25F80
Gd25F16
Gd25F32
Gd25F64
Gd25F128
Gd25T40
Gd25T80
Gd25T16

- Actrans -

AC25LV512
AC25LV010

* Default package is DIP-8, SOP-8 package flashrom needs DIP-8 to SOP-8 adaptor.

* Some device are not fully tested.
Contact me, if you need a technical support.

I2C

- Typical -

24C01
24C02
24C04
24C08
24C16
24C32
24C64
24C128
24C256
24C512
24C1024

- Security -

24RF08
24S08

* I2C device does not support H/W ERASE function.

Legacy Flashrom

(Caution : Rquired external adapter)

- Alliance -
AS29F040

- AMD -
AM29F010

AM29F002
AM29F002
AM29F040
AM29F040A
AM29LV040B

- AMIC -
A29001x
A29001x
A29010
A290021T
A29040
AA29L004B

- ATMEL -
AT29C257
AT29C512
AT29C010
AT29C020
AT29C020
AT29C040A
AT29C040
AT29LV010
AT29LV020
AT29LV040A
AT49F512
AT49BV512
AT49LV512
AT49F001
AT49F002
AT49F002T
AT49F/HF010
AT49F020
AT49F040
AT49LV/BV040
AT49LV040T
AT49LV080
AT49LV080T
AT49BV040T
AT49BV080
AT49BV080T

- BRIGHT -
BM29F040

- EON -
EN29F002
EN29F002
EN29F040
EN29LV040
EN29LV040A

- Fujitsu -
MBM29F002B
MBM29F002T
MBM29F040

- HYNIX -
HY29F002T

- LinkSmart -
L29004CP

- Megawin -
MM29LF040P

- MXIC -
MX28F1000P
MX29F001T
MX29F001B
MX29F002T
MX29F002B
MX29LV002T
MX29LV002B
MX29F040
MX29LV008T

MX29LV008B
MX29LV004T
MX29LV004B

- PMC -

Pm39F010
Pm29F002T
Pm29F002B
Pm39F020
Pm39F040
Pm39LV512
Pm39LV010
Pm39LV020
Pm39LV040

- SyncMOS -

F29C51001T
F29C51002T

- SST -

SST39SF010
SST39SF020
SST39SF040
SST39VF512
SST39VF010
SST39VF020
SST39VF040
SST39VF080
SST39VF016
SST39LF512
SST39LF010
SST39LF020
SST39LF040
SST39LF080
SST39LF016
SST29EE010
SST29LE010
SST29VE010
SST29EE020
SST29LE020
SST29VE020

- WINBOND -

W49F002U
W29C020
W29C040
W29EE512
W29EE011

* Default package of Legacy adapter is

PLCC32 and DIP32.

TSOP package needs a matched TSOP adapter and Legacy adapter.

Next is TSOP package flashrom

- EON -

EN29LV400(TSOP48-8bit)
EN29LV800(TSOP48-8bit)
EN29LV160A/J/E(TSOP48-8bit)
EN29LV320(TSOP48-8bit)
EN29LV640T/B(TSOP48-8bit)
EN29LV640D/L(TSOP48-16bit)

- AMD -

AM29lv200(TSOP48-8bit)
AM29LV400(TSOP48-8bit)
AM29LV800(TSOP48-8bit)
AM29LV160(TSOP48-8bit)
AM29LV320(TSOP48-8bit)

- Alliance -

AS29LV400(TSOP48-8bit)
AS29LV800(TSOP48-8bit)
AS29LV160(TSOP48-8bit)

- Excel -

ES29LV400(TSOP48-8bit)
ES29LV800(TSOP48-8bit)
ES29LV160(TSOP48-8bit)
ES29DL320(TSOP48-8bit)

- Excel -

EX29LV320(TSOP48-8bit)

- Hyundai -

HY29LV400(TSOP48-8bit)
HY29LV800(TSOP48-8bit)
HY29LV160(TSOP48-8bit)
HY29LV320(TSOP48-8bit)

- FUJITSU -

MBM29LV400(TSOP48-8bit)
MBM29LV800(TSOP48-8bit)
MBM29LV160(TSOP48-8bit)
MBM29LV320(TSOP48-8bit)

- MXIC -

MX29LV400(TSOP48-8bit)
MX29LV800(TSOP48-8bit)
MX29LV160(TSOP48-8bit)
MX29LV320(TSOP48-8bit)

SST 39VF/LF008(TSOP40A)
SST 39VF/LF016(TSOP40A)
SST 39VF/LF200A(TSOP48-16bit)
SST 39VF/LF400A(TSOP48-16bit)
SST 39VF/LF800A(TSOP48-16bit)
SST 39VF1601(TSOP48-16bit)
SST 39VF1602(TSOP48-16bit)
SST 39VF3201(TSOP48-16bit)
SST 39VF3202(TSOP48-16bit)
SST 39VF6401(TSOP48-16bit)
SST 39VF6402(TSOP48-16bit)

AMD AM29LV200 Series(TSOP48-8bit)
AMD AM29LV400 Series(TSOP48-8bit)
AMD AM29LV800 Series(TSOP48-8bit)
AMD AM29LV160 Series(TSOP48-8bit)
AMD AM29LV320 Series(TSOP48-8bit)
AMD AM29LV640 Series(TSOP48-8bit)

AMIC A29L008A(TSOP40A)

Alliance AS29LV400 Series(TSOP48-8bit)
Alliance AS29LV800 Series(TSOP48-8bit)
Alliance AS29LV160 Series(TSOP48-8bit)

ESI ES29LV400 Series(TSOP48-8bit)
ESI ES29LV800 Series(TSOP48-8bit)
ESI ES29LV160 Series(TSOP48-8bit)
ESI ES29LV320 Series(TSOP48-8bit)

HY29LV400 Series(TSOP48-8bit)
HY29LV800 Series(TSOP48-8bit)
HY29LV160 Series(TSOP48-8bit)
HY29LV320B/T Series(TSOP48-16bit)

MBM29LV400 Series(TSOP48-8bit)
MBM29LV800 Series(TSOP48-8bit)
MBM29LV160 Series(TSOP48-8bit)
MBM29LV320 Series(TSOP48-8bit)

MX29LV008 Series(TSOP40A)
MX29LV017A Series(TSOP40A)
MX29LV400 Series(TSOP48-8bit)
MX29LV800 Series(TSOP48-8bit)
MX29LV160 Series(TSOP48-8bit)
MX29LV161 Series(TSOP48-16bit)
MX29LV320 Series(TSOP48-8bit)
MX29LV640 Series(TSOP48-8bit)
MX29LV128 Series(TSOP48-8bit)

ST M29W008 Series(TSOP40A)

INTEL TE28F004(T) Series (TSOP40A)
INTEL TE28F004(B) Series (TSOP40A)
INTEL TE28F008(T) Series (TSOP40A)
INTEL TE28F008(B) Series (TSOP40A)
INTEL TE28F016(T) Series (TSOP40A)
INTEL TE28F016(B) Series (TSOP40A)
INTEL TE28F032(T) Series (TSOP40A)
INTEL TE28F032(B) Series (TSOP40A)
INTEL TE28F400(T) Series (TSOP48-16bit)
INTEL TE28F400(B) Series (TSOP48-16bit)
INTEL TE28F800(T) Series (TSOP48-16bit)
INTEL TE28F800(B) Series (TSOP48-16bit)
INTEL TE28F160(T) Series (TSOP48-16bit)
INTEL TE28F160(B) Series (TSOP48-16bit)
INTEL TE28F320(T) Series (TSOP48-16bit)
INTEL TE28F320(B) Series (TSOP48-16bit)
INTEL TE28F640(T) Series (TSOP48-16bit)
INTEL TE28F640(B) Series (TSOP48-16bit)

Contact

- Ebay ID : user8012
- Revision History
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