PX-1000 V2.0

Atmel MCS-51 Microcontroller Programmer

Feature

- Program code and data to Atmel Flash MCS-51 microcontroller via RS-232 serial port.
- Device support :
  - **20-pin device :** AT89C1051, AT89C2051, AT89LP2052, AT89LP4052
  - **40-pin device :** AT89C51/S51, AT89C52/S52, AT89S8252/AT89C55WD
- 40-pin ZIF socket for install microcontroller chip
- Read/Program for Flash program memeory and EEPROM data memory
- Code protect support all flash and EEPROM memory
- Software support Windows 98SE/ME/XP
- Operate with external power supply +14V to +25V (no load) 500mA

Packing List

- Programmer
- Documentation
- CX-232 serial port cable
- CD-ROM
- DC adaptor +12V (+18V no load) 500mA

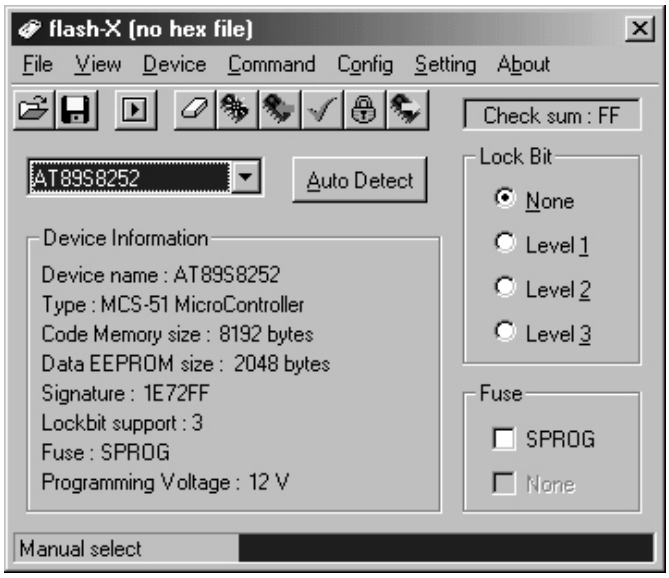
1. System Requirement

- CPU Pentium 120MHz or higher
- 5MB Harddisk free space
- 64MB RAM
- Install Windows98SE/ME/XP
- RS-232 serial port. If not available, need USB to RS-232 serial port converter
- CD-ROM drive

2. Installation software

The main software that use with PX-1000 V2.0 programmer is called Flash-X. Begin installation by enter to Software folder in MCS-51 CD-ROM. Select Flaxh-X V2 folder. Double-click setup file. Installation window will appear and do step by step until installation complete.

Check the installation by enter to Start → Program → flash-X V2. Main window of Flash-X software will open.



3. How to use PX-1000 V2 Programmer with flash-X software

(1) Connect CX-232 serial portm cable (available with PX-1000 V2 Programmer) to Programmer at DB-9 connecto, another end connect to RS-232 serial port of computer.

(2) Apply the supply voltage to PX-1000 V2 Programmer via DC power jack. . A green LED at Ready position turn on.

(3) Open Flash-X software, enter Setting menu to select serial port and baudrate.

(4) Install the target microcontroller chip on ZIF socket. Pin 1 position must attach at top-left of socket. After that select the target microcontroller number at Flash-X software.

(5) Load the target HEX file. Erase the microcontroller program memory.

(6) If need code protection, select Lock bit level at right-hand box on main window

(7) Program HEX file into the target microcontroller's memory.

(8) After program complete, verify programming.

(9) Remove the microcontroller from ZIF socket.

4. Flash-X programmer software

After installation, Flash-X can operate. User must connect PX-1000 V2 Programmer with serial port before. The serail port casble must connect to ISP jack on iX-51 board. After that, apply the supply voltage t PX-1000 V2 Programmer . Open Flash-X. If user not connect the programmer board, Flash-X will show the dialogue box to ask for connection.

Detail of all menu and instruction of Flash-X software can describe as below.

4.1 File menu

This menu used for handle file operation. Separate 2 section as :

(A) <u>Program memory</u>

Load code buffer Read HEX file to buffer

Save code buffer as Store buffer data to HEX file

(B) <u>EEPROM data memory</u> (available selected device)

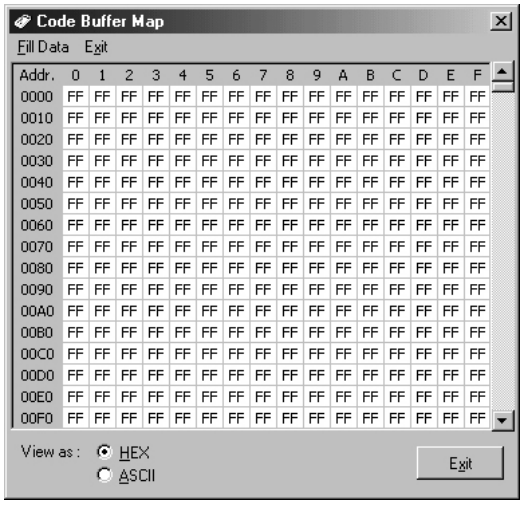
Load EEPROM buffer Read data file store to EEPROM buffer

Save EEPROM buffer as Store EEPROM buffer to file extension .eep.

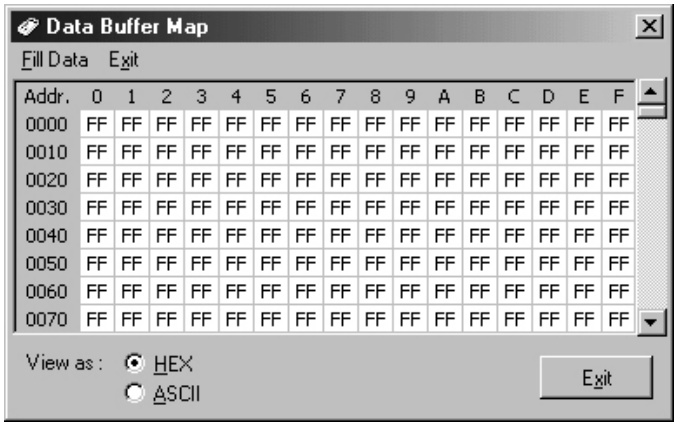
4.2 View menu

This menu used for view data of program memory and EEPROM data memory. After load data from microcontroller or HEX file or EEP file, all data will appear on the buffer window. User can select format in HEX and ASCII.

If would like to see program memory buffer, select to menu View → Code buffer



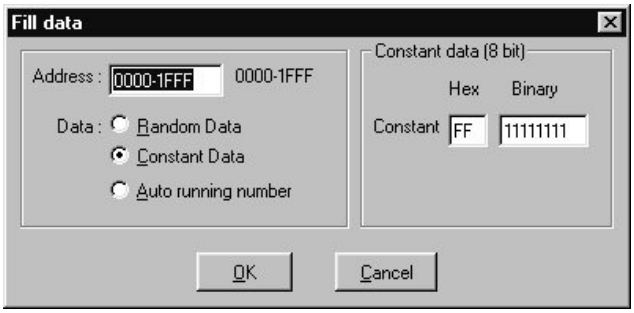
If would like to see EEPROM data memory buffer, select to menu View → EEPROM buffer.



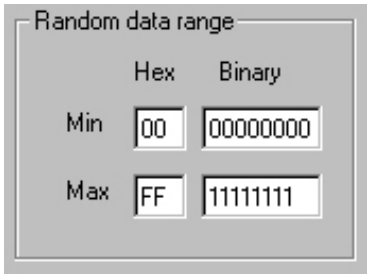
4.3 Edit buffer

Use can edit the buffer data by direct typing or use Fill Data menu. Filling data can support fill in the range. Start with enter to Fill Data menu. The entry data window will appear. User can define address range at Address box.

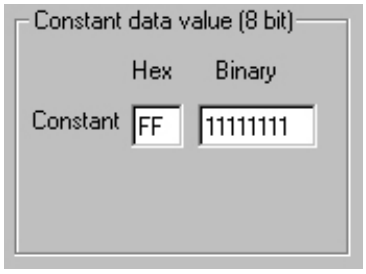
Filling function has 3 format : Random, Constant and Auto running.



In Random : Define the minimum value at Min box and maximum value at Max box.



In Constant data value : Define the constant value at Constant box.



In Auto running data range : Define first value at Start box and last value at Stop box.

After definition, click OK button. Data buffer will change to latest filling function.

4.4 Device menu

Use for select number of MCS-51 microcontroller. In PX-1000 V2 Programmer support all AT89xxx series . Such as : AT89C1051/2051, AT89LP2052/4052, AT89C(S)51, AT89C(S)52, AT89S8252, AT89C55WD

4.5 Command menu

Erase Chip Delete all data in microcontroller

Blank check Check data blank in programmemory and EEPROM data memory.

Program Chip Program all code and EEPROM data to microcontroller's memory.

Read Chip Read data from microcontroller's memory to buffer.

Verify Chip Compare and check data from microcontroller match or equal data buffer.

Program Code Program only microcontroller's program memory.

Read Code Read only microcontroller's program memory to buffer.

Verify Code Compare and check data of microcontroller's program memory with buffer.

Program EEPROM Program only microcontroller's EEPROM data memory.

Read EEPROM Read data of microcontroller's EEPROM data memory only to store in Flash-X buffer.

Verify EEPROM Compare and check data of microcontroller's EEPROM data memory with buffer.

4.6 Config data

Use for define and read Fuse and Lockbit parameter.

Fuse

- Write fuse
- Read fuse

Lockbit

- Write Lockbit
- Read Lockbit

4.7 Setting menu

Use for setting preference of Flash-X interfacing hardware.

Preference Set serial port interface parameter

- Serial Port Select serial port
- Baud rate Select baud rate for interfacing iX-51 board

4.8 Status bar

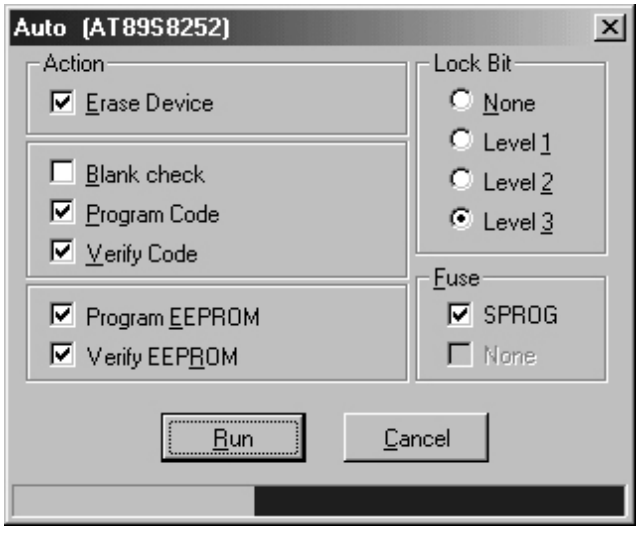
Show error and status message that happend in programming process. This status bar is in the lower portion of the main window.

4.9 Flash-X Main Control Button

Load code buffer Read HEX file to buffer

Save code buffer Store buffer data to HEX file

Auto program Select automaic operation



	**Erase chip**	Erase all data in microcontroller
	**Blank check**	Check data blank in programmemory and EEPROM data memory.
	**Program chip**	Program all code and EEPROM data to microcontroller's memory.
	**Verify chip**	Compare and check data from microcontroller match or equal data buffer.
	**Write lock bit**	Write bit for protection reading code
	**Read chip**	Read data from microcontroller's memory to buffer.

5. Program chip procedure

(5.1)User must connect iX-51 board with serial port before. **The serail port cable must connect to ISP jack on iX-51 board**. After that, apply the supply voltage to iX-51 board

(5.2) Open Flash-X. Select serial port by entry to menu Setting → Preference → Serial Port.

(5.3) Select baudrate by entry to menu Setting → Preference → Baudrate → 9600 or 57600

(5.4) Select number of microcontroller. In iX-51 hadrware support only AT89Sxxxx series only. Such as : AT89S51, AT89S52, AT89S53 or AT89S8252

(5.5) Erase exist data by click **Erase Chip** button.

(5.6) Load HEX file by click **Load code buffer** button.

(5.7) Program all buffer data into microcontroller by select menu Command or click **Program chip** button.

(5.8) Verify programming by click **Verify chip** button.

(5.9) If need to code protection, select protecion level at Lock bit box. After that, write the protection bit by click **Wrtie lock bit** button.

6. Reading data for saving to file

(6.1) iX-51 can read code and data from microcontroller to save to file if that chip do not code protection. User can check easy.

(6.1.1) Insert original microcontroller into socket.

(6.1.2) Select number of chip correctly.

(6.1.3) Click  button. See the buffer window if it shows all value to 0000, it mean this chipis protected.

(6.2) If microcontroller do not protect, after reading user can save data to file in HEX format by select menu File → Save code buffer as. Create filename.hex.

7. More info about programming AT89S8252

Because AT89S8252 contain 2KB EEPROM data memory. In code programming must special. User can select program only program memory, only EEPROM or both. This is more information :

7.1 How to programm all memory of AT89S8252

Select Program chip function. Data from address 2000H will be writen into EEPROM area automatic.

7.2 How to program EEPROM data memory of AT89S8252 directly

Use Fill Data function. Select number of microcontroller to AT89S8252. Enter to menu View → EEPROM buffer. Buffer window will appear. Select Fill Data command for define data by any format at address 2000H and more. Edit data complete and exit Fill data to main window. Next, select Program EEPROM command.

7.3 How to program EEPROM data memory of AT89S8252 directly by .eep file

Use can program EEPROM data and not effect to program memory by using .eep file. EEP file can make from any text editor software. Must write the data following Intel HEX format and save to .eep file. After that load this file by Load EEPROM buffer command in Flash-X software. All data will load to buffer. Do the programming by click Program EEPROM button.

However this method is vey complex. User must have more experience about Intel HEX format data. The easier method is Fill data into EEPROM directly (see topic above).