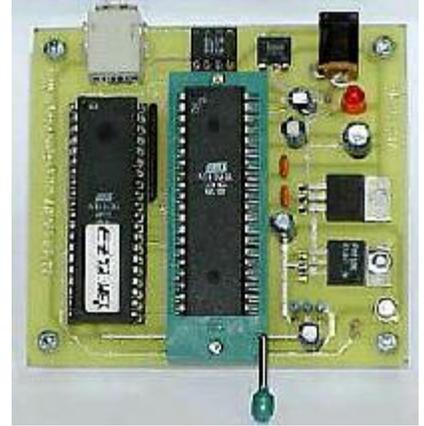


Easy-Downloader V2.0 for ATMEL 89C51/52/55 89S51/52



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Build your own a programmer for writing intel-HEX file to the 89C51, 89C52 and 89C55, PCB file included, Window version UPLOADER EZ3, EZ3.1, **NEW modified source code with sdcc. **NEW** updated firmware for 89S51 and 89S52!**

Introduction

If you need more code space for your application, particularly for developing 89Cxx projects with C language, the Easy-Downloader V2.0 is the answer. It's suitable and cheap which anyone can build easily. This version is capable of writing intel-HEX file to a 89C51(4kB), 89C52(8kB) and 89C55(20kB). After compiling the source file in Assembly or C then download the hex file to the chip directly by using `A:\>ez2 myfirst(.hex)`, say.

Hardware

Figure 1 shows the circuit diagram of Easy-Downloader V2.0. The 89C51 with ez52.hex receives a 9600 baud serial data from PC and generates the appropriate signal applying to the ZIF socket. P0 is for bi-directional data transferring. P1 provides A0-A7, P2.0-P2.6 for A8-A14. Look at A14, our software uses P2.6, while ATMEL uses P3.0 instead. Programming mode selection is done by P3.4 to P3.7. See in ez52.c for details. The programming voltage shown a bit different from version 1.1, Vpp pin needs only +5V and +12V and simply activated by P3.3. The clock input pin X1 of the ZIF socket is derived from X2 without buffering. I have tested, no problem so far.

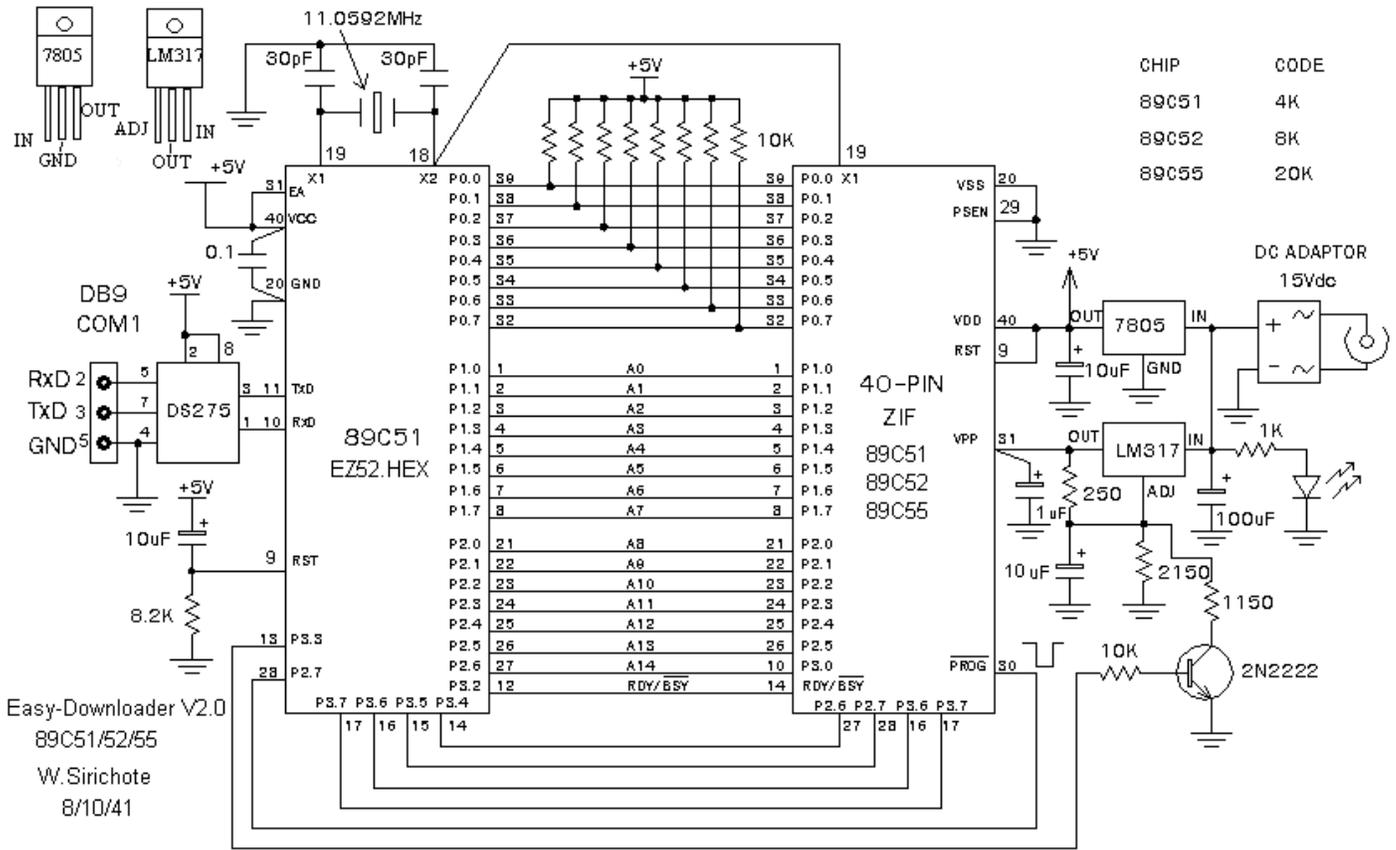


Figure1: Circuit Diagram of Easy-Downloader V2.0

Constructing the Board

The prototype board may be built using universal PCB with point-to-point soldering. If you want to make a PCB, get the [ez2.pcb](#), open with Protel version 2.73. The components placement is shown in Figure2. For those who can make the PCB with PDF file, get this file [ez2pcb.pdf](#)

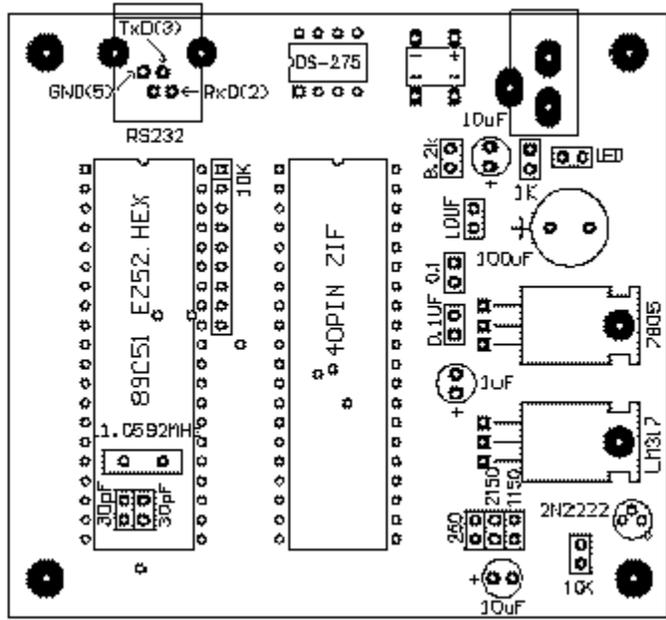


Figure 2: Components Placement Layout

Software

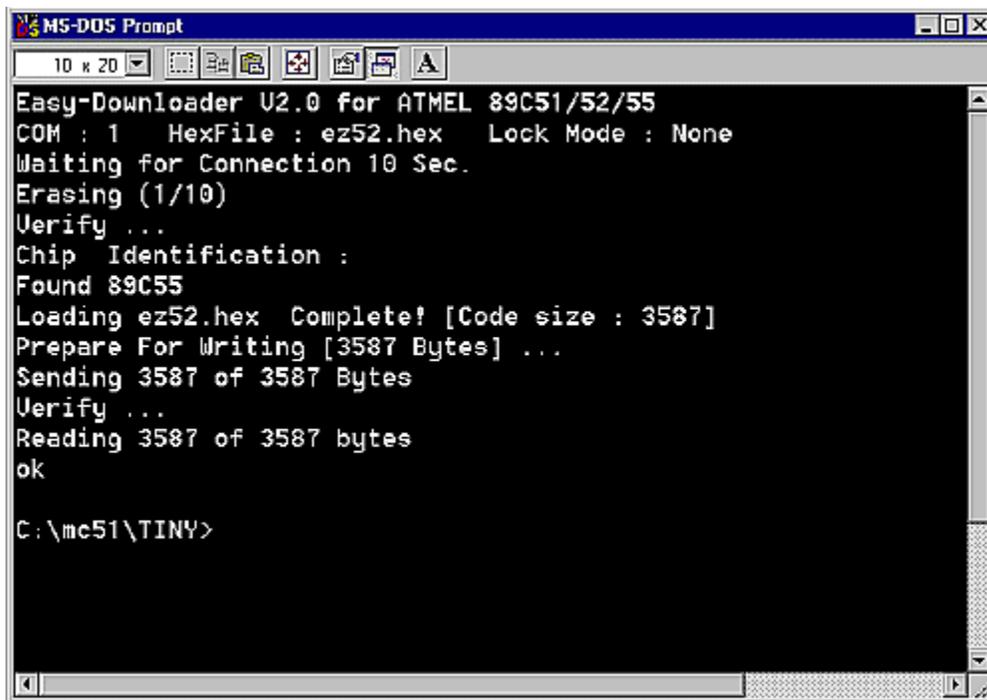
[ez52.hex](#) is the hex file firmware needed for 89C51. Use a given programmer or available Easy-Downloader write the hex file into the 89C51. An alternative is to use 89S8252 chip, build a simple [SPI downloader](#) through LPT port. The preprogrammed 89S8252 with ez52.hex can be used in place of 89C51.

[ez52.c](#) is the source program written in C language for further modification. To recompile, it needs Micro-C for 8051 compiler from [Dunfield Development System](#).

[ez2.exe](#) is the dos version program that runs on PC sending the hex code to the Easy-Downloader board.

Note: EZ2 dos version can use only with old PC, 386 or 486 machine.

Example of using ez2 is shown in Figure 3.



```
MS-DOS Prompt
10 11 20
Easy-Downloader U2.0 for ATMEL 89C51/52/55
COM : 1  HexFile : ez52.hex  Lock Mode : None
Waiting for Connection 10 Sec.
Erasing (1/10)
Verify ...
Chip Identification :
Found 89C55
Loading ez52.hex Complete! [Code size : 3587]
Prepare For Writing [3587 Bytes] ...
Sending 3587 of 3587 Bytes
Verify ...
Reading 3587 of 3587 bytes
ok

C:\mc51\TINY>
```

Figure3: Example of Using ez2, DOS version Uploader

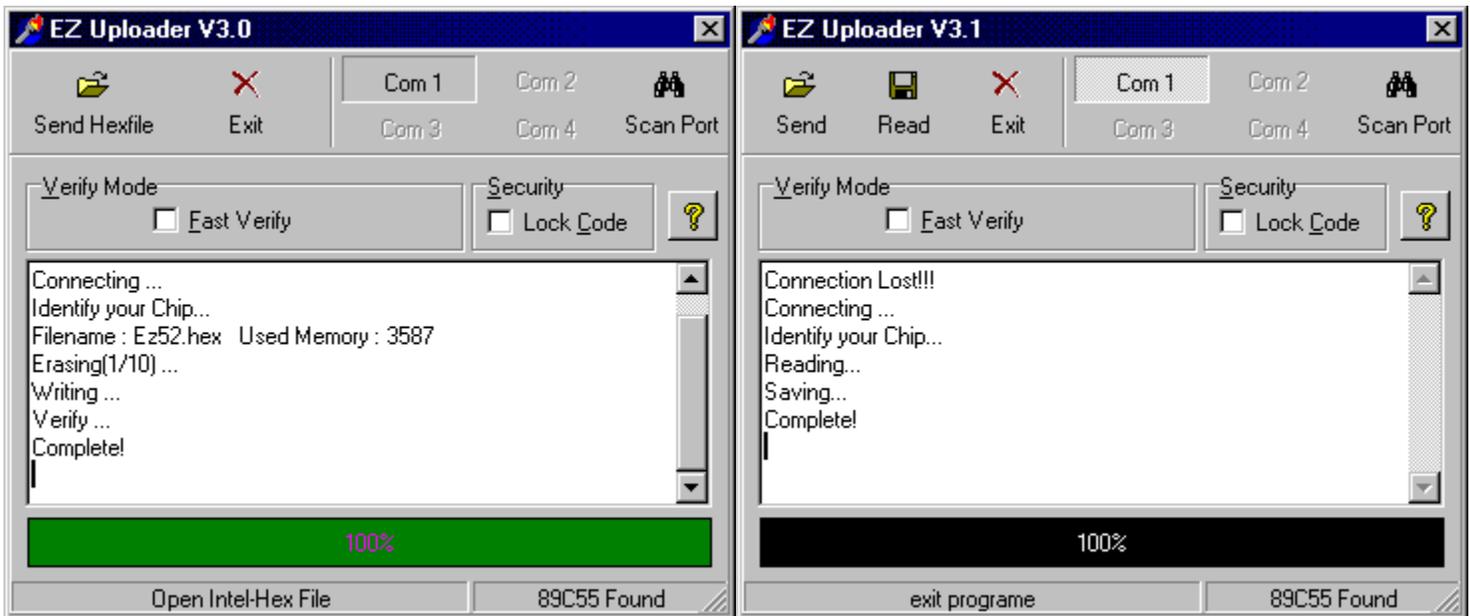


Figure4: Example of Using EZ3 and EZ3.1

DownloadEZUploader V3.0 for Window As seen in the [Easy-DownloaderV1.1](#), the EZ UPLOADER V3.0 can also be used with Easy V2.0. Nowfor the 89C51, 89C52 and 89C55, there is a signature byte, thus no longerneeded to select memory size. The EZ will recognize how big the code memoryis. Just click Send Hexfile, everything will done automatically.

DownloadEZUploader V3.1 for Window This is beta test EZ3.1 Uploader,with additional READ and SAVE AS features. The HEX code resided in thechips can be read and save as an Intel HEX file.

Easy II Links

- [Download Now ezdl4 !!](#) New PC software for Easy-Downloader V1.1 and V2.0. No problem with unsorted hex file. Automatically detect COM Port and programmer board.
- [Using Easy-Downloader V1.1&V2.0 with Unsorted HEX Files](#) Kurnia Wijaya from Jakarta Indonesia helps me writing the program that sorts the intel hex file generated by some compilers.
- [EasyPROG](#) : Modified version of Easy-Downloader made by Francisco Barbosa
- [Simple RS232C Level Converter using Transistors](#) Replace DS275 with this cheap circuit.

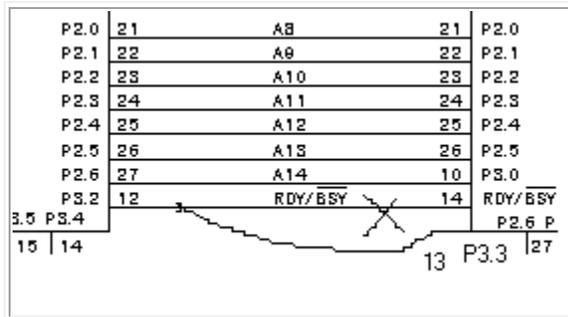
NEW Source code for sdcc

Download the source code, [ez52s.c](#) , hex file, [ez52s.hex](#) and the compiler, [SDCC.zip](#)
New firmware is designed for using with EZDL4.



NEW Updated Firmware

- Jan 7, 2004 beta version firmware for [Integrated Circuit Solution](#) IS89C51A, IS89C52A source code, [ez52ics.c](#) , hex file, [ez52ics.hex](#) (not recommended for new design)
- Nov 1, 2004 beta version firmware for 89S51, 89S52 new series flash MCU. The new firmware enables Easy downloader V2.0 to program both 89Cxx and 89Sxx. The signature checking was removed, user must know the size of code for a given chip, e.g. 89x51 has 4096 bytes and 89x52 8192 bytes!

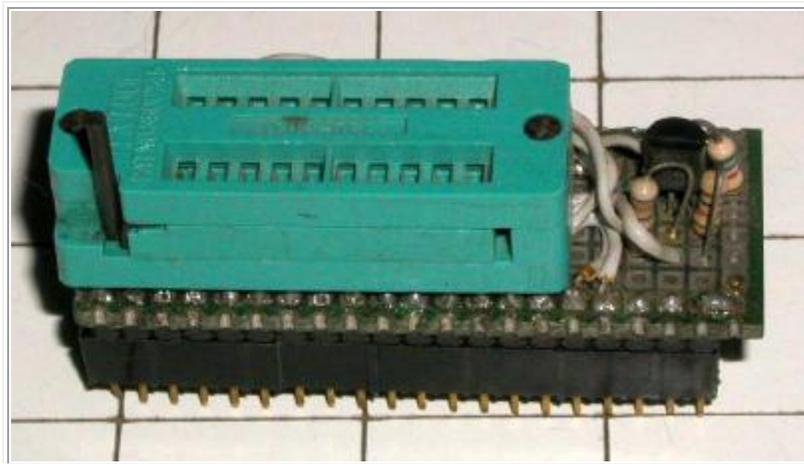


- Since the new S series needs more bit for mode setting. So you have to move signal from pin 14 to pin 13 as shown above.

Download source code and intel hex file: [EZ52ss.c](#) [ez52.hex](#) (both files were updated Sep 13, 2004, extend the erasing pulse length and may need power cycling if verify failed) Please report your testing.

- Contribution to Easy-Downloader V2.0

- [Runner51](#) The programmer board based on Easy 2, Orcad V7 DSN and PCB files made by Fernando Ballesteros from Argentina.
- [ISP51](#) In System Programmer for flash microcontroller made by Taufik IR.
- [Adapter board](#) for 89Cxx51 and modified firmware using sdcc made by Nguyen Hoai Nam from Vietnam.



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Nov 1, 2004