

Introduction

BS/4 (1/4th of a Stamp) is a very simple Basic Programmable Microcontroller. Command set and syntax is compatible with PBASIC used by Basic Stamp I from Parallax Inc.

Features

Very low cost, minimal hardware required. Tokenized Basic program is held in internal 64 byte EEPROM of PIC16C84. 20 to 30 Basic tokens may fit into the 64 bytes, those long and complex programs are not possible.

Host Development Tools

BS/4 Editor and Downloader is an IDE for writing the programs and for download to the BS/4 Chip.

Hardware

The minimal hardware required to make an BS/4 is very simple a PIC16C84 with 4MHz Crystal or Resonator and 3 Resistors. PIC.001 SimmStick board is very suitable to make an BS/4. Actually a PIC.001 fitted with PIC16C84 or (F84) and 4MHz Crystal is all that is needed. Any PIC programmer (DT.001 from DonTronics as example) can be used to transfer the BS/4 firmware into the PIC and then the board is ready to be used as BS/4 Controller. When used in DT.001 Development system the serial communication components on PIC.001 can be left non-fitted. A inverted host port version of BS/4 firmware must be used. If the PIC.001 board is going to be used standalone then either inverting (NPN/PNP transistor) or non-inverting implementation may be buildt. Make sure to use correct firmware version.

Firmware

For most flexibility several firmware versions are provided. By choosing correct firmware either inverting (MAX-232 like) or non-inverting host serial port option can be used. A special description of the firmware is supplied with the BS/4 Software package.

Compatibility

As BS/4 software is in early beta-test status not all PBASIC commands are fully functional or implemented. Please check the text supplied with BS/4 Software package to see the list of commands that are implemented and verified to work. Most commands implemented should work very much like in the BS1 Interpreter. Due to the faster access from internal EEPROM the execution speed is a little be higher than the BS1 at same clock speed.

License agreement

BS/4 Firmware and Host Software is licensed free of charge to SiClub members for non-commercial use. For detailed information read LICENSE.TXT supplied within the BS/4 Software Package.

BS/4 Hardware (non-inverting serial port)

Parts List

IC1 PIC16C84-04 or PIC16F84

IC2 78L05

R1,R2 10k

R3 100k

C1,C2 16..30p

C3 .1uF

XL1 4MHz Crystal or Resonator

note 1

78L05 is not required if 5V regulated power supply is used

note 2

C1 and C2 are not required if XL1 is a Ceramic Resonator with built-in capacitors.



