Multi Purpose Controller Board with PIC16C57

Assembler?

Use Windows IDE to write blazing fast and compact programs for the RISC processor on board.

Basic Interpreter?

Take advantage of the Basic simplicity to get a fast start, select between Basic Stamp II and FED PIC Basic.

C Interpreter?

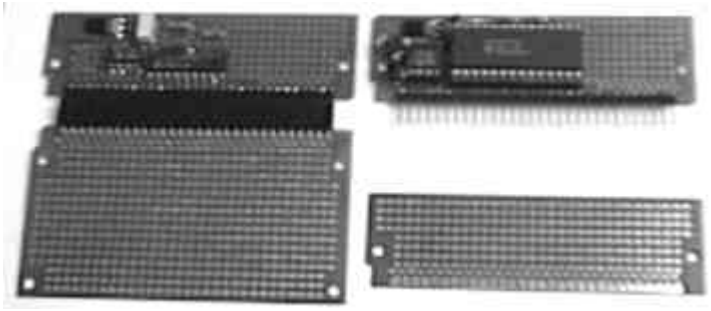
Yes, we have it! Well actually its a specially designed VM (Virtual Machine) simulator optimized for C. Mixed assembly programming also possible.

C Compilers?

Get some! C-compilers are available as well.

!?

What? Want some more?
Select from ready-made applications to get started without programming.



General Features

Mounting Options:

- Basic Stamp II Compatible SBC
- FED Basic SBC Module
- CFLEA (C - Interpreter) SBC
- BS Stretcher I (IO expansion)
- PIC16C57 Based SBC

On-Board Components:

- PIC16C57(55) Microcontroller
- I^2C Serial EEPROM
- Oscillator
- Voltage Regulator
- RS232 Serial I/O Drivers
- Small Prototyping Area

The actual features of the PIC.002 Module depend on the mounting option, selection can be made between easy programming (Basic, C-interpreter), speed (PIC Assembly programming) or large memory for program and data storage.

When PIC.002 has an on-board interpreter chip then programs are stored in the external EEPROM memory and executed slow as all commands are fetched in serial manner. However Programs may be much larger in size as it would be possible when programming the PIC Processor directly.

If speed is required then assembler or C-compiler can be used write programs for direct execution by the on board PIC processor. Execution speed may be as high as 5 MIPS. EEPROM can be used for data storage.

In case of on board Interpreter PIC.002 can be programmed “in-circuit” using a simple download cable or programming adapter. When used as generic PIC16C57 board a “5X capable PIC Programmer must be used.

Small Prototyping area makes it possible to mount small designs completely “on-board”. If the user circuitry is larger a general purpose protoboard or special SimmStick protoboards can be used.

PIC.002 is interchangeable with other SimmStick Processor modules so if you run out of resources using PIC.002 to some other SimmStick Processor Module. It doesn’t even have to be a PIC Module Boards for other processors are available as well - all of course pin-compatible so there is no need to build the user circuitry all over when replacing the processor module.

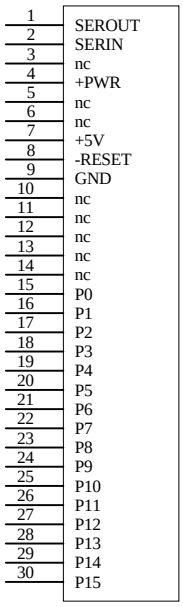
Basic Stamp II Compatible SBC

Features:

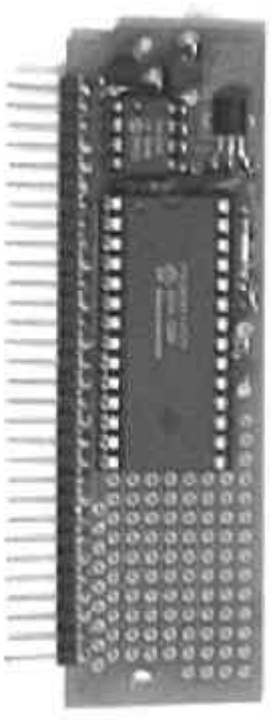
- ♦ PBASIC2 Interpreter
- ♦ 2 KB EEPROM for Program and Data
- ♦ 16 Bidirectional I/O Pins
- ♦ Serial I/O (up to 38.4 kBaud)

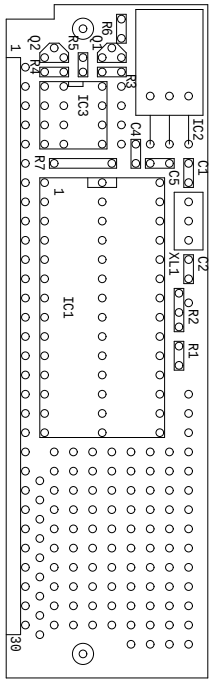
Special Commands:

- ♦ DTMF Output
- ♦ Pulse Generation and Measurement
- ♦ Dual-Tone Sine Wave Output
- ♦ Analog Output (PWM)



Basic Stamp II is a very popular SBC manufactured by Parallax Inc. When mounted as BSII Compatible all of the original features are inherited, except the physical dimensions. Development Software for BSII (as well as for the older Basic Stamp I) is offered free by Parallax and can be downloaded from their ftp site as well as from many other locations. Also available from Parallax www/ftp site is full documentation of Basic Stamps including programming, hints and Application Notes with schematics and source code. More Applications Notes can be found on different www sites. Development Software is available for DOS and a special version works also under SoftPC on Macintosh. Programs are entered in a simple text editor and downloaded in tokenized version to onboard EEPROM using serial port. After download BSII module is ready to run by itself. The Stamp Editor has also debug functionality for program testing.





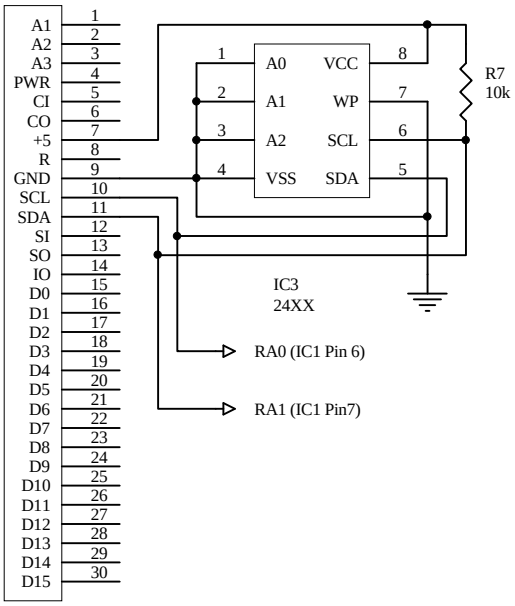
Assembly Instructions (BS2 Compatible SBC)

Parts List:

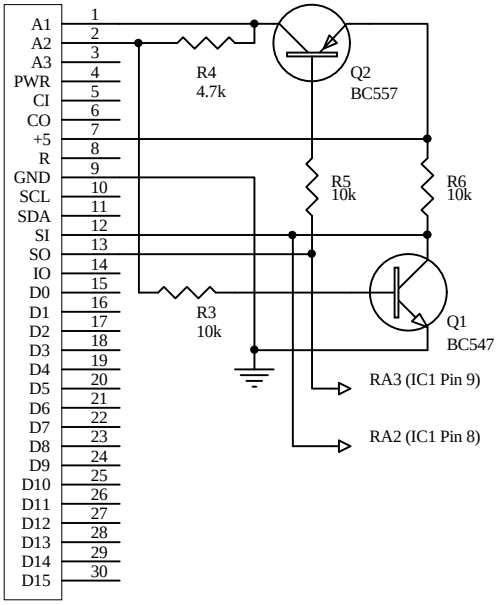
IC1 PIC16C57 with PBASIC2 Firmware
IC2 LM78(L)05 Voltage Regulator
IC3 24LC16 2 kB EEPROM (Microchip)
XL1 20MHz Ceramic Resonator
C1, C2 15pF Capacitors (see note 1)
C4, C5 0.1uF Capacitors (see note 2)
R1..R7 10k Resistors (1/16W)
Q1 BC547 NPN Transistor
Q2 BC557 PNP Transistor

note 1
C1 and C2 are not required if XL1 is 3-Pin Ceramic Resonator with buildt-in caps
note 2
IC2 and C4 can be left out if the board is going to be used with external 5V supply only

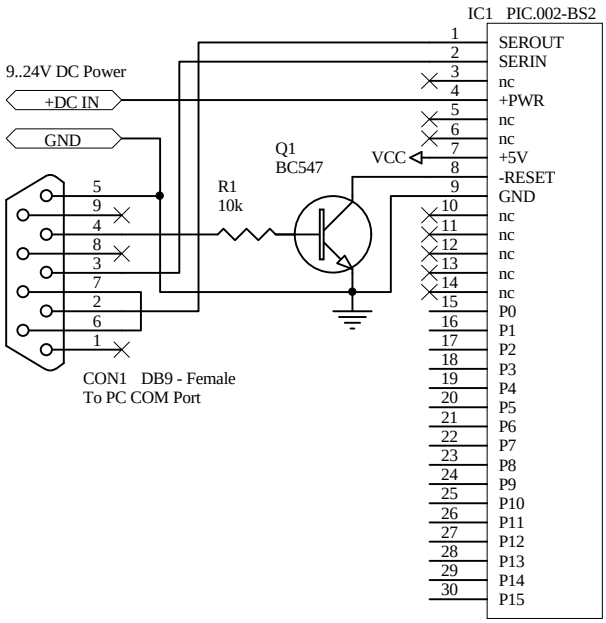
EEPROM Memory



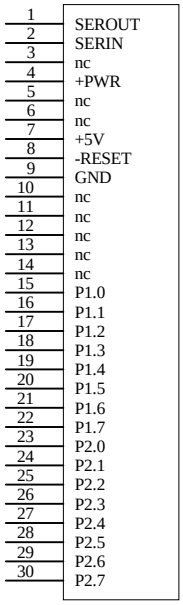
Serial Port Drivers



Download Cable (BS2 Mode)



FED Basic Compatible SBC



Features:

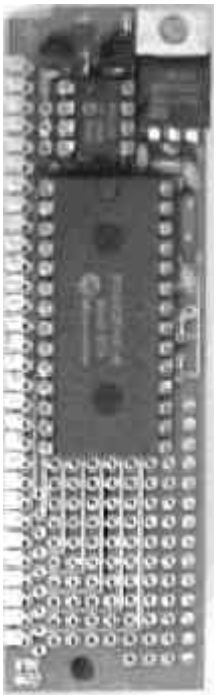
- ♦ FED BASIC Interpreter (16C57)
- ♦ 2..8 KB EEPROM for Program and Data
- ♦ 16 Bidirectional I/O Pins
- ♦ Serial I/O Port

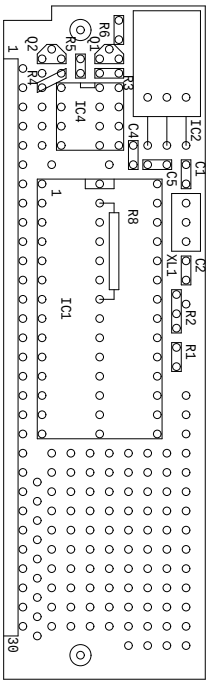
Special Commands:

- ♦ Character LCD
- ♦ IR Communication

```
;
;This simple program will work with ALL ver-
sions
;of PIC BASIC, and needs no external hardware.
;
seroutstring("Enter a digit >",defserout);
key=0
while((key<'1') or (key>'9'))
 key=serin(defserin,0)
wend
serout('\n',defserout)
for i='1' to key
 serout(i,defserout)
 serout('\n',defserout)
next
```

FED Basic was designed by Robin Abbott and is currently marketed by Forrest Electronic Developments (FED). Development Software for FED Basic is offered free by FED and can be downloaded from their www site as well as from many other locations. Development Software is available for Windows only. Programs are entered in a text editor and downloaded in tokenized version to onboard EEPROM using serial port. After download FED Basic module is ready to run by itself. The Development Software is a full-featured IDE environment with debug capabilities.





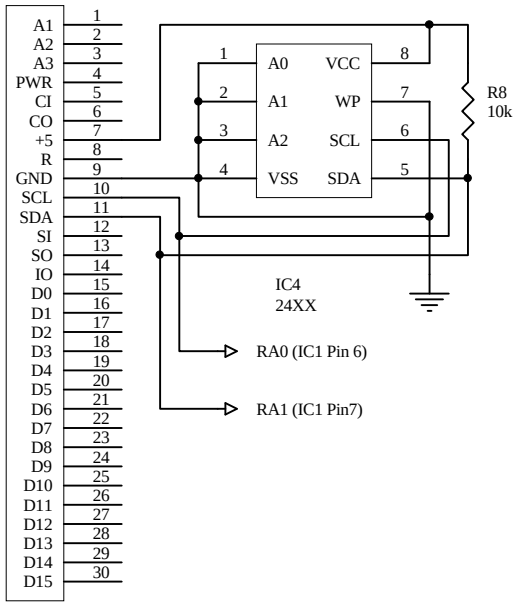
Assembly Instructions (FED PIC Basic)

Parts List:

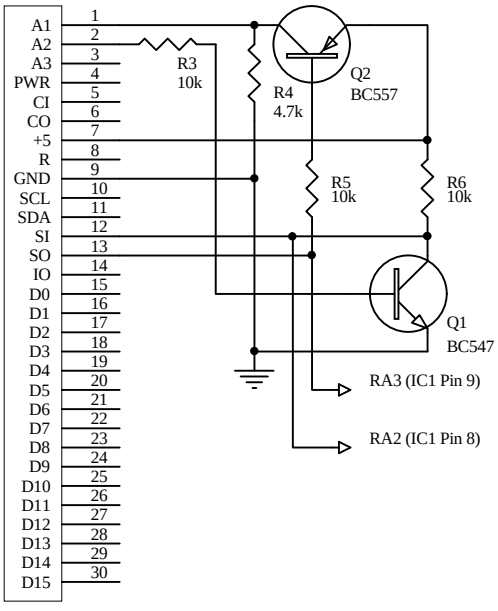
IC1 PIC16C57 with Basic Firmware (FED)
IC2 LM78(L)05 Voltage Regulator
IC4 24LC65 8 kB EEPROM (Microchip)
XL1 4MHz Ceramic Resonator
C1, C2 20..30pF Capacitors (see note 1)
C4, C5 0.1uF Capacitors (see note 2)
R1..R6,
R8 10k Resistors (1/16W)
Q1 BC547 NPN Transistor
Q2 BC557 PNP Transistor

note 1
C1 and C2 are not required if XL1 is 3-Pin Ceramic Resonator with buildt-in caps
note 2
IC2 and C4 can be left out if the board is going to be used with external 5V supply only

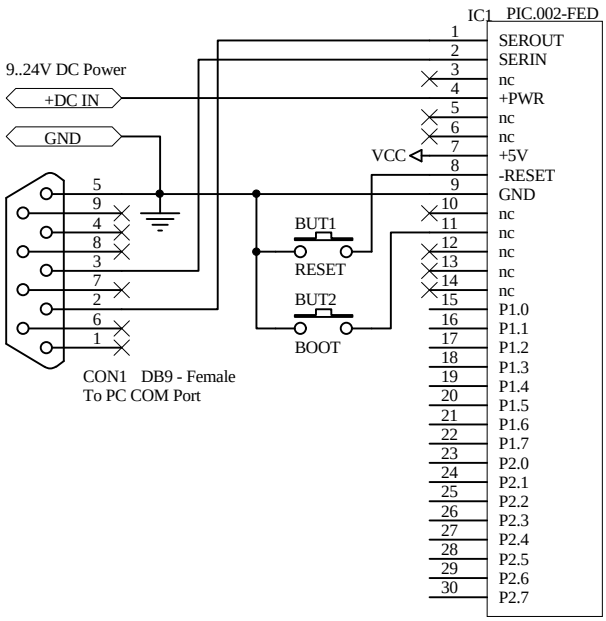
EEPROM Memory



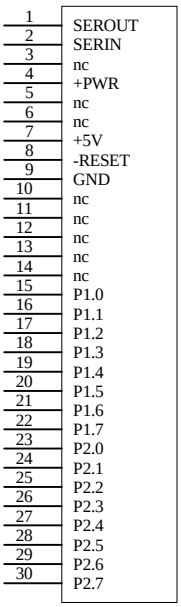
Serial Port Drivers

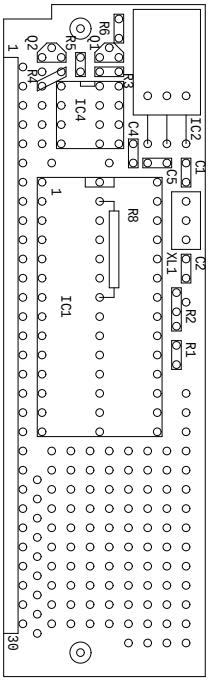


Download Cable (FED Mode)



CFLEA SBC Module





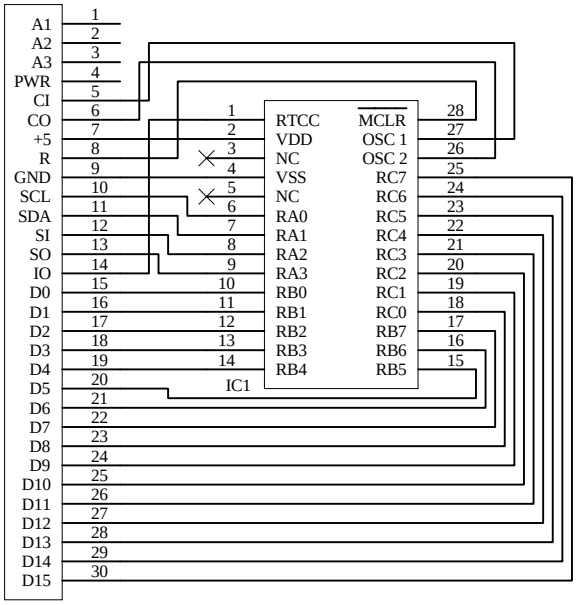
Features:

- ♦ CFLEA Interpreter (16C57)
- ♦ 8 KB EEPROM for Program and Data
- ♦ 16 Bidirectional I/O Pins
- ♦ Serial I/O Port

CFLEA is a VM (Virtual Machine) specially designed for Micro-C Compilers by Dunfield Development Systems (DDS). CFLEA Developers Kit is available from DDS. A demo version of CFLEA is available free from DDS www site. Demo version is limited for executing code only in CFLEA PC Simulator. DDS CFLEA Kit contains: C-Compiler, CFLEA Assembler, Macro Preprocessor, Linker and Software Simulator. Tokenized Code generated by DDS tools can be downloaded to onboard EEPROM using serial port. Programs can be written in C and mixed with CFLEA assembly language. Programs written in Micro-C can also be compiled for native execution for many processors using DDS C Cross Compilers available separately.

Assembly Instructions (Generic)

Processor

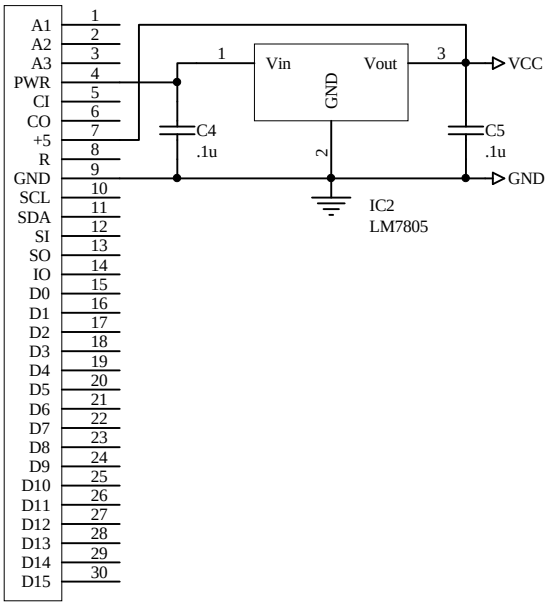


Processor can be PIC16C57 or C55, both 600mil and 300mil wide packages are accepted.

Minimum required components except processor are Reset/Brownout circuit and Oscillator circuitry. In most cases simple resistor pull-up is enough for Reset.

For oscillator either 2 pin or 3 pin ceramic resonator can be used. Required frequency depends on the Application.

Voltage Regulator



On-board voltage regulator should be mounted only if the board is going to be powered from unregulated DC power supply (connected to pin 4). If board is going to be used with external +5V regulated supply (connected to pin 7) then IC2 and C4 can be left out. C5 should always be mounted as its the only block capacitor on the +5V. Both TO220 and TO92 cased voltage regulators can be used, the amount of current available on +5V to the user circuitry depends on the type of regulator used and the DC input voltage.

EEPROM Memory

Any 24XX series Serial EEPROM Memory can be used. Type required depends on Application. There are two different mounting places on-board to be compatible with both Parallax and FED connection. If writing a custom program any of the can be used, and any type of EEPROM.

Serial Port

Simple transistor drivers are available on-board. Refer to BS2 or FED assembly.
Off board RS232 drivers can be used also, connection to pins 12 (logic level serial out) and 13 (logic level serial in).

User Circuitry

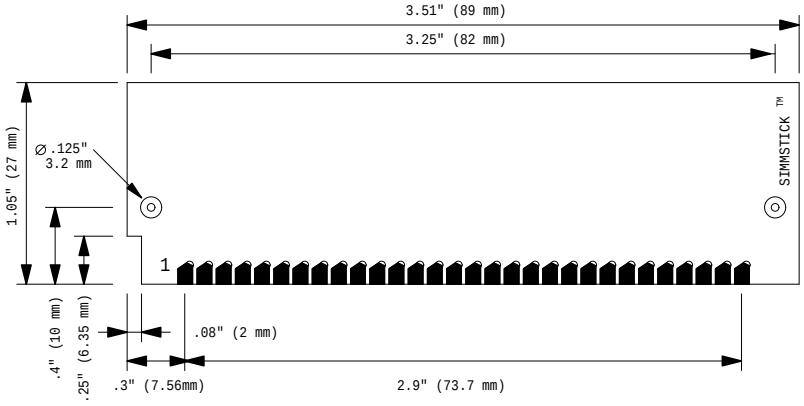
Small prototyping are is provide to mount small application circuitry on board. General purpose protoboards or solderless breadboards or SimmStick protoboards can be used also.

Mechanical:

- Size: 1 x 3.5” (26 x 89 mm)
- Thickness: 50mil (1.26 mm)
- Two Mounting Holes

Connector is Compatible with:

- SIMMSTICK™ Interconnect
- 30-pin SIMM Sockets
- SIP style Pins
- Solderless Breadboards
- 100 mil (2.54 mm) Pin Headers



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