



# Small, Turnkey 386EX PC/104 Computer SBC1386EX



## Features

- ✓ Small, low cost, ready to run
- ✓ 386EX, 1MB RAM, 512K flash
- ✓ 13 TTL compatible I/O lines
- ✓ Two RS232 serial channels, 422/485 COM1
- ✓ Watchdog timer, PC/104 expansion
- ✓ Real time clock
- ✓ 5V-only operation
- ✓ Download .EXE file to run on card
- ✓ Turbo Debugger™ support
- ✓ Extended temperature range available

The SBC1386EX is a PC/104 format embeddable PC. It offers a range of features making it ideal for embedded control applications, and offers quick development cycles. The standard configuration includes RAM and flash EPROM installed, and the powerful RUN.EXE firmware. This firmware allows an .EXE file to be downloaded into on-board flash EPROM through a serial port using XMODEM protocol, and then run the next time power is applied. Borland/Microsoft C/C++, Turbo Pascal, and QuickBASIC are all supported directly.

With two serial ports, 13 CMOS I/O lines, three counter/timers, and a watchdog timer, the SBC1386EX provides a full set of hardware for many applications. If further functionality is needed, PC/104 expansion cards can be stacked onto the SBC1386EX.

Because the SBC1386EX is completely functional as shipped, there are no memory parts to specify and buy, or other impediments to immediate project development. The SBC1386EX is ready to accept a program to run upon receipt.

### Software Support

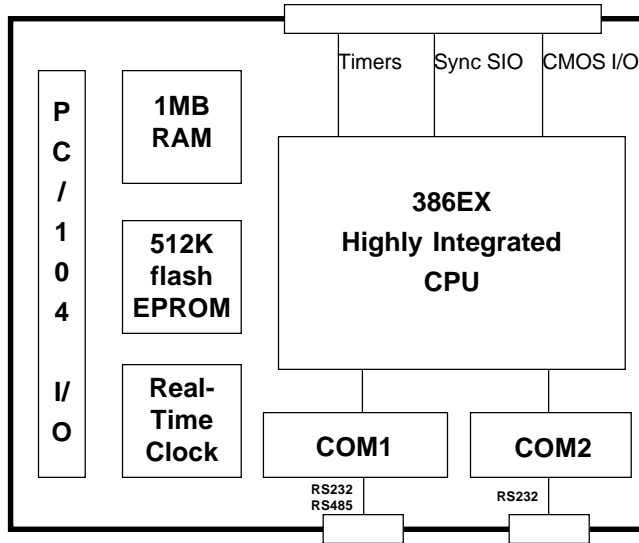
*DOS emulation, RUN.EXE™  
Turbo Debugger™  
Comm library, CommBLOK™  
PID loop library, PidBLOK™,  
C, BASIC, compilers*  
[Items above in Section 6]

### Compatible Hardware

*PC/104 expansion cards  
[Items above in Section 4]  
RS232 devices  
Custom*

### Mounting/Packaging

*Enclosure, ENC104-3  
Standoffs, STDOFF01  
[Items above in Section 5]  
Custom*



## Specifications:

### Mechanical:

- PC/104 standard
- 3.55" (plus I/O region) x 3.775" x .6"

### Power Requirements:

- +5V  $\pm$  5% at 490mA

### Environmental:

- 0° - +70°C operating
- 40° - +85°C storage
- 40° - +85°C operating, -ET version
- 5%-95% relative humidity, non-condensing

### Processor Core Section:

- 386EX CPU
- 25 MHz clock rate
- Includes three 16-bit timers
- Dual 8259A interrupt controllers included

### On-board Memory:

- 1MB of pseudo-static RAM
- On-board RAM based at 0000:0000

- 512K of flash EPROM at top of memory
- Industrial BIOS installed
- Installed firmware for .EXE file download, debug, and execution

### Watchdog Timer:

- Program must refresh watchdog timer periodically, or system will be reset
- Enabled through software

### Serial Ports:

- Two async serial ports, PC compatible
- RTS and CTS modem controls
- RS232 both channels, RS422/485 COM1
- Baud rates to 780K, DMA support

### Real Time Clock:

- RTC with on-board battery
- Driver software supplied in BIOS

### PC/104 Interface:

- 8-bit and 16-bit PC/104 module support
- IRQ5-7,9,10 and IOCHCHK (NMI)
- DMA support for DRQ2

COM1 and COM2 Serial Port Connector/Cable		
Pin	RS232	DB9 Pin
1		1
2		6
3	RX Data In	2
4	RTS Out	7
5	TX Data Out	3
6	CTS In	8
7		4
8		9
9	GND	5
10		

CMOS, I/O, Timer, SSIO Connector	
Pin	Signal
1	P17/CLKCLK
2	P16/CLKIO
3	P15/CLKRST#
4	P14
5	P13
6	P12
7	P11/RTSO#
8	P10
9	P22
10	P21
11	P20
12	P36
13	P32
14	P31/T01
15	RTS/STX
16	SRX
17	STXC
18	SRXC
19	TG2
20	TC2
21	T02
22	TG1/IRQ14
23	TC1/IRQ13
24	IRQ9
25	IRQ10
26	GND

#### CMOS I/O Lines:

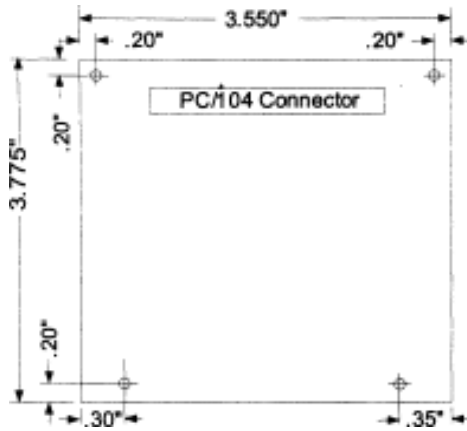
- 13 programmable lines
- Each line programmable input or output
- TTL compatible levels, 8mA drive
- Four lines may be configured for on-board uses ( 3 - clock, 1 - RTS0)

#### DK1386 Development Kit:

- Free with first SBC1386EX purchase
- BIOS and DOS compatible O/S
- "Implied AUTOEXEC.BAT" on reset
- Directly executes programs written in C/ C++, Pascal, BASIC
- No modified libraries or locator utilities
- Executes .EXE file from flash
- Includes Turbo Debugger remote support
- Download program to flash EPROM with XMODEM (using PROCOMM, etc.)
- Includes all cables and documentation

#### External Connections:

- 10-pin headers, both serial ports
- 26-pin header for CMOS I/O, timers, sync SIO, RS485



## Ordering Information:

### Single Board Computer:

SBC1386EX	386EX CPU, 25 MHz, 1MB RAM, 512K flash
SBC1386EX-ET	386EX CPU, 25 MHz, 1MB RAM, 512K flash, extended temp operation
DK1386	No charge development kit, available with first order only
1386OPT25	MSDOS 5.0 in Bootable Flash ROMdisk A:

### Accessories:

MPCxxx	All Micro/sys PC/104 cards
CA4020	RS232/RS485 cable to male 9-pin D connector
ENC104-3	Metal enclosure for SBC1386EX plus 3 PC/104 add-ons

Cables nominally 15", other lengths available

RUN.EXE trademark Micro/sys, Inc.  
 CommBLOK, PidBLOK, NetBLOK, OptoBLOK trademark  
 Drumlin  
 IBM, PC trademark IBM Corp.  
 MSDOS, QuickBASIC, Microsoft trademark Microsoft Corp.  
 Turbo Pascal, Turbo Debugger trademark Borland  
 International