



Low Cost, Turnkey PC/104 Computer SBC1188



Features

- ✓ Small, low cost, ready to run
- ✓ 80C188EB, 128K RAM, 512K flash
- ✓ 24 TTL compatible I/O lines
- ✓ Two RS232 serial channels
- ✓ Watchdog timer, PC/104 expansion
- ✓ Real time clock, RS485 option
- ✓ 5V-only CMOS, on-board flash prog
- ✓ Download .EXE file to run on card
- ✓ Turbo Debugger™ support
- ✓ Extended temperature range available

The SBC1188 is a small, low cost 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, 24 CMOS I/O lines, three counter/timers, and a watchdog timer, the SBC1188 provides a full set of hardware for many applications. If further functionality is needed, PC/104 expansion cards can be stacked onto the SBC1188.

Because the SBC1188 is completely functional as shipped, there are no memory parts to specify and buy, or other impediments to immediate project development. The SBC1188 is ready to accept a program to run upon receipt.

Software Support

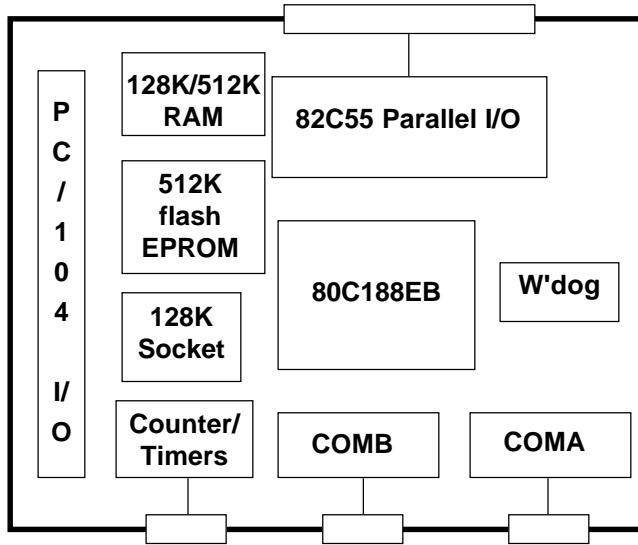
DOS emulation, RUN.EXE™
Turbo Debugger™
Comm Library, CommBLOK™
PID loop library, PidBLOK™
C, BASIC, compilers
[Items above in Section 6]

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 ± 5% at 200mA max (12MHz)
- +5V ± 5% at 250mA max (20MHz)

Environmental:

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

Processor Core Section:

- 80C188EB CPU
- 12 or 20 MHz clock rate
- Includes three 16-bit timers
- Interrupt controller included

Watchdog Timer:

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

On-board Memory:

- 128K of static RAM, expandable to 512K
- On-board RAM based at 0000:0000
- 512K of flash
- Socket for battery-backed RAM or EPROM

Serial Ports:

- Two async serial ports (contact factory about sync mode)
- RTS and CTS modem controls
- 7, 8, or 9-bit operation
- Separate programmable baud generators
- Not PC software compatible. CommBLOK library available for drivers

Real Time Clock:

- Optional RTC with on-board battery
- RTC support included in BIOS

| J3 COM-A and J2 COM-B Serial Port Connector/Cable | | |
|--|-------------|---------|
| J2/J3 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 | | |

| J4 Parallel I/O Connector | |
|------------------------------|--------|
| J4 Pin | Signal |
| 1 | PA0 |
| 2 | PA1 |
| 3 | PA2 |
| 4 | PA3 |
| 5 | PA4 |
| 6 | PA5 |
| 7 | PA6 |
| 8 | PA7 |
| 9 | PB0 |
| 10 | PB1 |
| 11 | PB2 |
| 12 | PB3 |
| 13 | PB4 |
| 14 | PB5 |
| 15 | PB6 |
| 16 | PB7 |
| 17 | PC0 |
| 18 | PC1 |
| 19 | PC2 |
| 20 | PC3 |
| 21 | PC4 |
| 22 | PC5 |
| 23 | PC6 |
| 24 | PC7 |
| 25 | GND |
| 26 | GND |

PC/104 Interface:

- 8-bit PC/104 module support
- IRQ2-IRQ6 and IOCHCHK (NMI)
- No DMA support

Parallel Ports:

- 82C55 device with 24 I/O lines
- Ports programmable input or output
- TTL compatible levels, 2.5mA drive

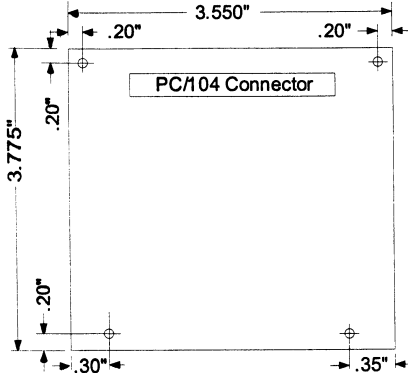
| J5 Timer/Misc Connector | |
|----------------------------|----------------------------|
| Pin | Signal |
| 1 | Timer 0 In |
| 2 | Timer 0 Out |
| 3 | Timer 1 In |
| 4 | Timer 1 Out |
| 5 | P2.2 Line |
| 6 | P2.7 Line |
| 7 | GND |
| 8 | P1.6 Line (red LED on/off) |

External Connections:

- 10-pin headers, both serial ports
- 10-pin header for counter/timers
- 26-pin header for parallel I/O ports

DK1188 Development Kit:

- Free with first SBC1188 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.)



Ordering Information:

Single Board Computer:

| | |
|---------------|---|
| SBC1188 | 80C188 CPU, 12 MHz, 128K RAM, 512K flash |
| SBC1188-20 | Complete CPU, 20MHz |
| SBC1188-ET | 80C188 CPU, 12 MHz, 128K RAM, 512K flash, extended temp operation |
| SBC1188-20-ET | Complete CPU, 20MHz, extended temp operation |
| DK1188 | Development kit, no charge with first order only |

| | |
|----------|------------------------------------|
| 1188OPT1 | Battery-back Clock |
| 1188OPT3 | 512K static RAM upgrade |
| 1188OPT6 | Clock and 32K RAM, Battery-backed |
| 1188OPT7 | Clock and 128K RAM, Battery-backed |
| 1188OPT8 | RS485/RS232 COM A |

Add -ET to option for extended temp operation

Accessories:

| | |
|----------|---|
| MPCxxx | All Micro/sys PC/104 cards |
| CA4020 | RS232/RS485 cable to male 9-pin D connector |
| ENC104-3 | Metal enclosure for SBC1188 plus 3 PC/104 add-ons |

Cables nominally 15", other lengths available

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