PC/104 Controller with A/D,D/A,Serial, Built-in O/S,Network Software SBC1190

Features

- ✓ Ready-to-run embedded PC
- ✓ Small PC/104 format and expansion
- ✓ Two RS232/RS485 COM ports
- ✓ 24 TTL-compatible I/O lines
- ✓ 8 Analog in, 4 analog out (optional)
- ✓ UDP/IP Network Version available
- ✓ Onboard Flash downloader and operating systems
- ✓ 5V-only operation

The SBC1190 is a small embeddable PC that includes a large mix of I/O and firmware on a single PC/104-sized module. Based on a cost-effective Intel 188 processor, the SBC1190 core includes system RAM, flash EPROM, serial ports, battery-backed real-time clock, watchdog timer, and PC/104 expansion. Many applications can be completely implemented with the SBC1190 by itself. A set of 24 TTL I/O lines, and optional 12-bit analog input and analog output provide the designer with a wealth of control and monitoring possibilities.

The SBC is full turnkey. Factory-installed in flash memory are an application download utility, Flash Setup™ configuration utility, and the free RUN.EXE operating system. Apply 5V, and the SBC1190 prints a sign-on message and awaits further instructions.

For Networking SBC1190s on Ethernet UDP/IP networks, a special version of the SBC1190 is available. This product, Netsock/100™, adds a 10BASE-T Ethernet port, and a free, preloaded UDP/IP stack to the SBC1190

Software Support

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

Compatible Hardware

PC/104 expansion cards
[Items above in Section 4]
RS232 devices
Ethernet Networks
Analog sensors
Analog controls
Custom

Mounting/Packaging

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

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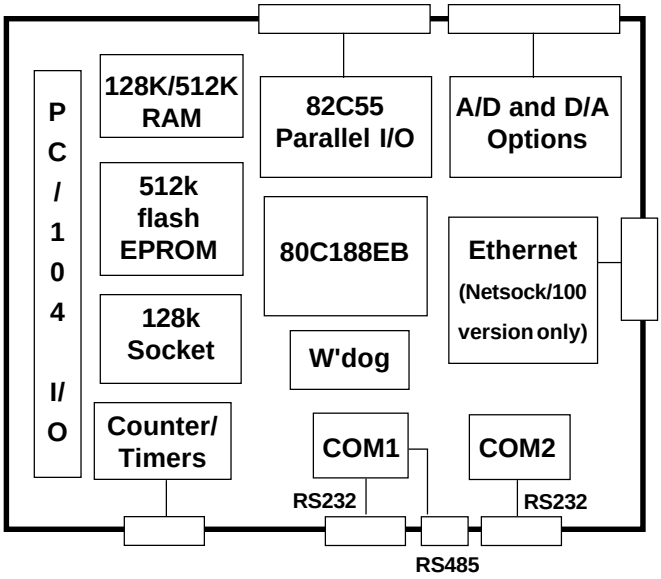

Specifications:

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

Power Requirements:
- ❑ +5V ± 5% at 200mA, no options
- ❑ +5V ± 5% at 380mA, all options

Environmental:
- ❑ 0° - +70°C operating
- ❑ -40° - +85°C storage
- ❑ 5%-95% relative humidity, non-condensing

Processor Core Section:
- ❑ 80C188EB CPU
- ❑ 12, 20, and 25MHz clock rate
- ❑ Includes three 16-bit timers
- ❑ Integrated interrupt controller

Watchdog Timer:
- ❑ Program must refresh watchdog timer periodically, or system will be reset
- ❑ Enabled by jumper

On-board Memory:
- ❑ 128K RAM, expandable to 512k
- ❑ 512K Flash
- ❑ JEDEC socket for battery-backed RAM or EPROM

Serial Ports:
- ❑ Two async ports in 80C188EB device
- ❑ RTS and CTS modem controls
- ❑ Separate RS232 connectors, COM-A RS485 connector
- ❑ 7, 8, or 9-bit operation
- ❑ Separate programmable baud rate generators
- ❑ Not PC-software-compatible at register level
- ❑ BIOS includes INT 14 polled support
- ❑ CommBLOK library available for interrupt-driven support

Digital I/O:
- ❑ 24-programmable lines
- ❑ 8-bit programmable input or output
- ❑ TTL-compatible levels, 2.5mA drive
- ❑ Implemented with 82C55

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J4 COM-A and J3 COM-B 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	--	

Real Time Clock:
- ❑ Date and time, battery-backed
- ❑ 31 bytes of battery-backed RAM
- ❑ BIOS support

PC/104 Interface:
- ❑ 8-bit PC/104 module support
- ❑ IRQ2-IRQ7 and IOCHCK (NMI)
- ❑ No DMA Support

Analog Input Option:
- ❑ Eight 12-bit channels
- ❑ ±1/2 LSB linearity
- ❑ 6usec conversion time
- ❑ 0 to +5V, 0 to +10V ±5V, ±10V input ranges
- ❑ software-programmable input range

Analog Output Option:
- ❑ Four 12-bit outputs
- ❑ 0 to +5V output range, all channels
- ❑ ±1 LSB linearity
- ❑ 12usec DAC settling time
- ❑ Software-based update rate, approx. 5k per second

Ethernet Option:
UDP/IP Network Version Ordered as Netsock/100 (refer to separate data sheet)
- ❑ 10BASE-T twisted-pair interface
- ❑ RJ45 connector on-board
- ❑ Flash Setup configuration utility, including IRQ, IP address, and DHCP options
- ❑ UDP/IP driver stack preloaded into flash
- ❑ Implements subset of Winsock functions
- ❑ SOCK_DGRAM (UDP datagram) and SOCK_RAW (low level) sockets supported
- ❑ IP, UDP, ARP, DHCP, ICMP protocols supported
- ❑ Dynamically linked with application program

External Connections:
- ❑ 5-pin pluggable terminal strip
- ❑ 50-pin header for digital and analog I/O
- ❑ 10-pin header, RS232 signals, each serial port
- ❑ 14-pin header, COM-A RS485 serial port signals
- ❑ RJ45 modular connector, 10BASE-T Ethernet

J5 RS485 Misc. Connector			
Signal	Pin	Pin	Signal
GND	1	2	RS485TX+
RS485TX-	3	4	RS485RX+
RS485RX-	5	6	P2.5
--	7	8	+5V
Timer 0 In	9	10	Timer 0 Out
Timer 1 In	11	12	Timer 1 Out
GND	13	14	BOOTSWAP

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I/O Connector			
Signal	Pin	Pin	Signal
PA0	1	2	PA1
PA2	3	4	PA3
PA4	5	6	PA5
PA6	7	8	PA7
PB0	9	10	PB1
PB2	11	12	PB3
PB4	13	14	PB5
PB6	15	16	PB7
PC0	17	18	PC1
PC2	19	20	PC3
PC4	21	22	PC5
PC6	23	24	PC7
GND	25	26	GND
AOUT0	27	28	GND
AOUT1	29	30	GND
AOUT2	31	32	GND
AOUT3	33	34	GND
AIN7	35	36	GND
AIN6	37	38	GND
AIN5	39	40	GND
AIN4	41	42	GND
AIN3	43	44	GND
AIN2	45	46	GND
AIN1	47	48	GND
AIN0	49	50	GND

DK1190 Development Kit:

- ❑ Free with first SBC1190 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, drivers, and sample programs

Ordering Information:

Single Board Computer:

SBC1190	80C188EB CPU, 12MHz, 128K RAM, 512K Flash
SBC1190-20	80C188EB CPU, 20MHz, 128K RAM, 512K Flash
SBC1190-25	80C188EB CPU, 25MHz, 128K RAM, 512K Flash
DK1190	No charge development kit, available with first order only
Netsock/100	SBC1190-25 with built-in UDP/IP networking (refer to separate data sheet)
1190OPT3	512K static RAM Upgrade
1190OPT11	A/D Converter, 8-Channel
1190OPT12	D/A Converter, 4-Channel

Accessories:

MPCxxx	All Micro/sys PC/104 cards
CA4020	RS232 cable to male 9-pin D connector
CA5049	50-pin header to 50-pin header
TB5001	Breakout panel, 50-pin header to terminal strips
ENC104-3	Metal enclosure for SBC1190 plus 3 PC/104 add-ons

Cables nominally 15", other lengths available

RUN.EXE, BIOS Boss, Flash Setup, Embedded Netsock trademark Micro/sys, Inc.
CommBLOK, PidBLOK, OptoBLOK trademark Drumlin
IBM, PC trademark IBM Corp.
MSDOS, QuickBASIC, Microsoft trademark Microsoft Corp.
Turbo Pascal, Turbo Debugger trademark Borland International

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