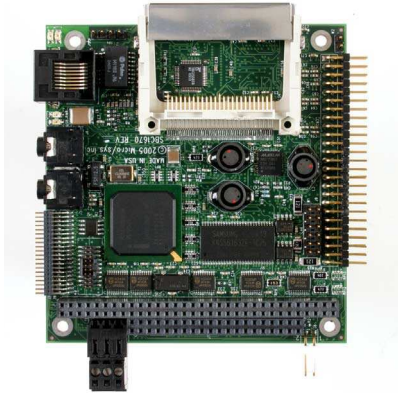




XScale PC/104 Computer with LCD Panel Support SBC1670

Features



- ✓ 520MHz Low-power ARM processor
- ✓ 800 x 600 Color LCD interface
- ✓ 10/100BASE-T Ethernet
- ✓ Five serial ports
- ✓ Debounced keypad interface
- ✓ Extended temperature available

The SBC1670 packs a fast Intel XScale RISC processor with lots of memory into a PC/104-sized board. The efficient, industry-standard ARM architecture allows the SBC1670 to draw little power at its full 520MHz clock speed. This reduces power supply and cooling requirements. Onboard I/O includes LCD support, a debounced keypad interface, five serial ports, 10/100BASE-T Ethernet, USB, and CompactFlash.

In its stackthrough version, the SBC1670 is an ideal computer to plug into a custom OEM I/O

card. Immediately and easily, an advanced engine is available for software development.

With up to 64MB of onboard linear flash, and 128MB of SDRAM, many complex operating systems, such as Linux and Windows CE can be run. However, if additional storage capacity is required, the CompactFlash connector allows hundreds of megabytes of removable storage.

And, if additional capabilities are needed, PC/104 expansion allows a wide variety of I/O cards to be stacked on the SBC1670.

Software Support

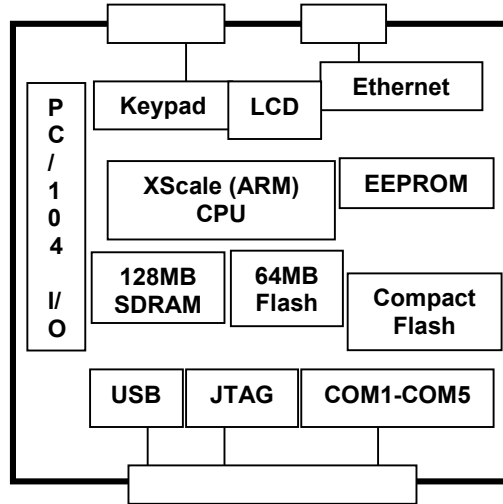
Linux
Windows CE
VxWorks®
RTOS
C, compilers
[Items above in Section 6]

Compatible Hardware

PC/104 expansion cards
[Items above in Section 4]
RS232/RS485 devices
Custom

Mounting/Packaging

Standoffs, STDOFF01
[Items above in Section 5]
ENC104-4
FPKIT-6.4T
FPKIT-10.4T
Custom



Technical Details:

The SBC1670 core is an Intel PXA270 XScale processor running at up to 520 MHz. This variation of the industry-standard ARM architecture is a RISC processor that is designed for low-power operation and still supports many user-interface options.

The PXA270 allows compatibility with 32-bit operating systems. The PXA270 also integrates many peripherals. A host USB port, an interrupt controller, three 16C550 UARTs, a watchdog timer, and an SDRAM controller are all present.

Complex user interface needs can be met with the built-in LCD interface, keypad inputs, and audio I/O. The LCD interface supports STN, DSTN, and TFT panels up to 800 x 600 pixels. The six keypad inputs are debounced and can be used for digital I/O if not needed for switches. The audio interface has line-level inputs and outputs and uses a standard AC97 CODEC.

The memory subsystem on the SBC1670 allows many programs to be run without any external storage. 128 Mbytes of synchronous DRAM

(SDRAM) is more than sufficient for many complex programs and operating systems.

The 64-Mbyte Flash memory contains the bootloader, operating system, and user application code space. A portion of the flash can be allocated as a read/write flash drive.

If a larger program or data storage space is required, or if removability is needed, the CompactFlash interface can provide hundreds of megabytes of storage.

Five serial ports allow communication with many different devices. COM1 through COM5 are 16C550-compatible UARTs (with transmit and receive FIFOs). Of these serial ports, COM1-COM4 have RS-232 transceivers, and have RTS and CTS modem control lines. COM5 is set up for half-duplex RS-485 communication with jumperable termination resistors.

The PC/104 connector provides support for both 8-bit and 16-bit I/O expansion boards. The default configuration is non-stackthrough connectors,

allowing the SBC1670 to be the bottom card in a stack. The stackthrough option (SBCOPT16ST) allows the SBC1670 to be plugged into a custom-designed OEM I/O board as a programmable controller.

For application development, the SBC1670 supports a number of alternatives. 32-bit operating systems such as Linux and Windows CE can be booted on the SBC1670. All have full tool suites available, including compilers and debuggers. Other operating systems may also be available.

For pre-configured sets of options, Micro/sys can provide OEMs with a single part number for ordering. In addition, custom versions of the SBC1670 are available. Please call Micro/sys Technical Sales for details.

Specifications:

Mechanical:

- PC/104 standard
- 3.55" (plus I/O region) x 3.775" x 0.6"
- Installed CompactFlash card extends past edge of board opposite the PC/104 connector
- If installed, Ethernet connector on top side has height of 0.453". Components on the bottom side have a maximum height of 0.134".

Power Requirements:

- +5v \pm 5% at 720mA max
- Off-board 3.6v battery can supply power if sleep mode is enabled

Environmental:

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

Processor Core Section:

- Intel PXA270
- 312 or 520 MHz clock rate
- StrongARM v5TE instruction set

On-board Memory:

- 64-128MB Synchronous DRAM
- 32-64MB of linear flash for bootloader, operating system, and application

Watchdog Timer:

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

COM1-COM5 Serial Ports:

- Five async serial ports
- 16C550-compatible
- RTS and CTS modem controls on COM1-COM4
- RS232 on COM1-COM4
- Half-duplex RS485 on COM5 with jumperable termination

10/100BASE-T Ethernet Port:

- 10/100 Ethernet port
- Standard RJ45 connector

LCD Graphics Port:

- Interfaces to STN, DSTN, or TFT panels
- Resolutions up to 800 x 600

Keypad I/O:

- Six input signals with pull-up resistors
- Programmable debounce period
- Interrupt generated on key press

JTAG Interface:

- Debug unit has hardware break points and 256-entry trace history buffer
- IEEE 1149.1 JTAG compatible

USB Interface:

- USB v1.1
- USB host controller

PC/104 Interface:

- ❑ Non-stackthrough PC/104 connectors
- ❑ Standard mounting holes
- ❑ 8-bit and 16-bit PC/104 module support
- ❑ I/O accesses supported, memory accesses not supported
- ❑ Stackthrough option available (SBCOPT16ST)

CompactFlash Interface:

- ❑ Supports Type I or II CompactFlash
- ❑ Not hot-swappable

DK1670 Development Kit:

- ❑ Free with first SBC1670 purchase
- ❑ Breakout cable to COM1-COM4
- ❑ Download cable and utilities
- ❑ Documentation, schematics, sample software

External Connections:

- ❑ 40-pin header for COM1-COM4, USB, JTAG
- ❑ 40-pin high-density header for LCD
- ❑ 8-pin modular RJ45 jack for Ethernet
- ❑ 1/8" phono jacks for audio I/O
- ❑ 2-pin locking header for reset
- ❑ 3-pin removable terminal strip for power input

Ordering Information:

Single Board Computer:

SBC1670	PXA270 CPU, 312MHz, 64MB RAM, 32MB Flash, Ethernet
SBC1670-520	PXA270 CPU, 520MHz, 64MB RAM, 32MB Flash, Ethernet
SBC1670-ET	PXA270 CPU, 312MHz, 64MB RAM, 32MB Flash, Ethernet, -40° to +85°C operating temperature

SBC1670-520-ET	PXA270 CPU, 520MHz, 64MB RAM, 32MB Flash, Ethernet, -40° to +85°C operating temperature
DK1670	No charge development kit, available with first order only
SDK-Linux-1670	Linux Development kit (must also purchase 1670OPT50)
SDK-WinCE-1670	WinCE Development kit (must also purchase 1670OPT55)
1670OPT3	128MB SDRAM
1670OPT6	64MB Flash
1670OPT45	AC97 Audio Interface
1670OPT50	Bootloader and Linux in flash
1670OPT55	Bootloader and sample WinCE image in flash

Related Products:

CA4124	Breakout cable to four DB9 COM port connectors
BA4124	Breakout assembly to four DB9 COM port connectors, RS485, USB, JTAG
SBCOPT16ST	Stackthrough PC/104
CF-FL128	128MB CompactFlash Card
CF-FL256	256MB CompactFlash Card
CF-FL512	512MB CompactFlash Card

Cables nominally 15", other lengths available

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