SBX/386™   Development

Includes all PC/ AT motherboard function

- 40 MHZ 80386SX CPU
- Supports up to 32Mb
- Full PC/AT core logic, DMA, interrupts, timer/counter, AT keyboard, RTC
- Full 8- or 16-bit ISA bus and PC/104 bus
- SVGA display controller
- 2 RS232C Serial ports (16550 compatible)
- Enhanced bi-directional parallel port (ECP/EPP)
- Floppy interface
- IDE hard disk interface
- Socket for 2-15Mb SanDisk™ CompactFlash™
- Bootable solid state disk
- Watchdog timer
- PC-compatible BIOS
- DOS operating system
- 5V only operation
- "Green" power management support
- Power supply threshold detector
- Support standard ISA bus cards and PC/104 add-on modules
- Use as a stand-alone motherboard or in a passive backplane
- JEDEC byte-wide memory expansion socket accommodates M-Systems Disk-On-Chip

GENERAL DESCRIPTION

OEModules combine system hardware, software, and solid state mass storage in a single compact device. The SBX/386 represents the fastest way to incorporate a ZF MicroSystems Single Device PC™ (SDPC), the SMX/386 OEModule into a fully operational AT-compatible system for hardware and software development. It provides you with a complete PC/AT-compatible motherboard that can be plugged into a passive backplane, or mounted as a stand-alone motherboard. The board's ISA bus is available at standard edge connectors, or via a standard PC/104 bus header. You can develop software on a PC/AT and transfer your code directly to an SMX/386-equipped embedded system with little or no modification, or you can develop your software directly on the SBX/386 system.

Complete Feature Set

The SBX/386 includes all standard motherboard functions: serial and parallel I/O, floppy and IDE disk controllers, 256Kb of Resident Flash Disk for user program storage, a socket for a 2-15Mb SanDisk CompactFlash, an external JEDEC byte-wide socket for additional storage, ISA and PC/104 expansion buses, a standard AT BIOS, and embedded Mini-DOS.

Industry Standard PC/AT Compatibility

The SBX/386's full compatibility with the two popular PC expansion busses, the PC/AT ISA (Industry Standard Architecture) bus and the PC/104 expansion bus, allows you to easily integrate the widest selection of low-cost hardware peripherals. Install the board in a standard passive backplane for interfacing standard peripherals, or attach standard PC/104 expansion modules directly to the board. Standard I/O interfaces, serial ports, parallel port, floppy and hard disk interfaces, allow you to use standard hardware, cables, and software libraries in your development program. A standard PC ROM-BIOS and embedded DOS let you develop your application software directly on the SMX/386-based hardware it will run on when your project is finished.

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SBX/386-A 05/97

SPECIFICATIONS: **SBX/386-40 DEVELOPMENT BOARD**

386SX-40 CPU
- 386SX-40 CPU
- Full 32-bit internal architecture, cost-effective 16-bit external bus
- Virtual memory, paging, and hardware-enforced protection
- Sophisticated Power Control Circuit including multiple powerdown modes for reduced power operation

DRAM Controller
- High performance MUXed DRAM interleave, CPU pipelined operation
- Compatible with standard PC SIMMs and page-mode DRAMs (70 Ns)

PC Core Logic
- AT-compatible DMA controllers, interrupt controllers, timer/counters, AT keyboard controller, Real-time clock

SVGA Controller
- Fully Compatible with IBM VGA standard
- 512KB video memory
- Supports high resolution 800x600 in 256 colors or 1024x768 in 16 colors (interlaced or non-interlaced
- Supports extended text modes

Serial Ports
- Two independent 16550-compatible RS232C serial ports with send/receive 16 Byte FIFO
- Standard Modem handshake lines
- Baud rates up to 460K Baud
- Infrared - IrDA (HPSIR) and Amplitude Shift Keyed IR (ASKIR)

Parallel Port
- Fully-compatible PC/AT parallel port
- Bi-directional operation (ECP/EPP)

Floppy Disk Controller
- Supports all standard PC floppy disk formats up to 2.88MB
- Software compatible with 765B controller and PC BIOS
- 16 Byte Data FIFO

IDE Hard Drive Interface
- Full 40-pin interface to standard EIDE hard disk drive
- Supports up to two IDE drives (master/slave)
- Supports SanDisk CompactFlash

Solid State Flash Storage
- 256KB internal Resident Flash Disk available for OEM software
- Can be configured to be the boot drive
- Socket support for M-Systems Disk-On-Chip (2-12MB)
- Expandable by adding 2MB to 15MB of SanDisk CompactFlash

Expansion Busses
- Fully compliant with standard PC/AT (ISA) and PC/104 expansion bus

PC BIOS
- Standard AT BIOS functionality
- Support for OEM add-ons and special customization
- SETUP information stored in non-volatile flash EPROM allows battery-free operation
- Shadowed in DRAM for optimum performance

Embedded Disk Operating System
- General Software's Mini-DOS ROM included in SMX/386 module
- Supports most PC/AT-compatible operating systems, including MS-DOS
- Support for standard desktop software, including Windows 3.1, Norton Utilities, etc.
- Supports General Software's Embedded DOS 6-XL, fully multi-threaded version of standard PC DOS. Real-time designs benefit from true multi-threading from the kernel up. Embedded DOS features APIs for non-DOS file systems, and other optional features.

Watchdog Timer
- Programmable tickle sources
- Automatic reset or NMI (jumper selectable) if program goes out of control

Power Monitor
- Brownout protection - settable voltage threshold
- Provides reliable reset signal if power fluctuates

Electrical Specifications
- 5 volt only operation - requires 5VDC @ 1.3 A ±5% (0 MB Socketed DRAM)
- Support for low-power modes

Mechanical/Environmental
- Standard AT/ISA bus card form factor, 10.0 in. by 4.5 in.

NOTE: As shipped, SBX/386 occupies two slots to accomodate dual connector bracket.
- PC/104 bus header for PC/104-compliant modules
- Standard ribbon cable connectors for floppy and IDE
- Standard VGA connector
- Standard parallel port, keyboard, and serial COM1 and COM2 connectors
- Operating temperature: 14°F to 158°F (-10°C to 70°C)
- Storage temperature: -67°F to 185°F (-55°C to 85°C)
- Weight: 8.5 oz (241 gm)

Ordering Information
- **SBX-386-K-03 Development Kit** - Includes SMX/386-40 OEModule, technical manual, utility software, cable set, BIOS, Embedded DOS ROM
- **SBX-386-K-04 Development Kit** - same as SBX-386-K-03 with 2MB SanDisk CompactFlash
- **SBX-386-K-05 Development Kit** - same as SBX-386-K-03 with 2MB M-Systems Disk-On-Chip
- **SBX-386-Q-02 OEM Board** - Includes SMX/386-40 OEModule, BIOS and Embedded DOS ROM (no cables or documentation)