Little Board™/486SLC-II
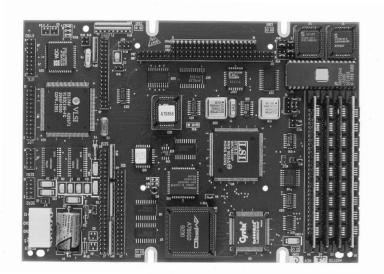## PC/AT-compatible single board system

LITTLE BOARDS

- **PC/AT motherboard functions:**
    - **Powerful 50 MHz 486SLC-2 CPU**
    - **Up to 16M bytes onboard DRAM**
    - **16-bit expansion bus**
    - **Dual-serial and parallel controller**
    - **Floppy drive controller**
    - **IDE hard disk drive interface**
    - **SCSI interface**
- **Optimized for embedded applications**
    - **Wide operating temperature**
    - **Batteryless boot**
    - **Enhanced embedded PC-BIOS**
    - **Socket for bootable "Solid State Disk"**
    - **Watchdog timer**
    - **Advanced Power Management**
- **Stackable PC/104™ expansion**
- **Compact, low power, highly reliable**

The Little Board/486SLC-II provides a complete, low power, 486SLC-based PC/AT compatible system in the space of a 5-1/4 inch disk drive. It includes all standard motherboard functions, plus memory, serial and parallel ports, and disk controllers.

The Little Board/486SLC-II is over five times as fast as a 25 MHz 386SX based system, making it ideal for performance-critical embedded microcomputer applications in which IBM PC/AT software, hardware, and bus compatibility are desired. The Little Board/486SLC-II is also particularly suited to applications in which compactness, low power consumption, +5V-only operation, wide operating temperature range, high quality, and high reliability are crucial.

Modular PC/104 Expansion
An onboard PC/104 module-stack location provides compact, modular expandability. The growing list of PC/104 modules that can be installed directly on the Little Board/486SLC-II includes a wide variety of CRT and flat panel display controllers, LAN and communications interfaces, serial/parallel expansion, and specialized I/O functions. Multiple modules may be stacked.

Solid State Disk Reliability
A unique feature of the Little Board/486SLC-II is a set of three byte-wide memory device sockets. These sockets are typically used as a bootable Solid State Disk (SSD), allowing EPROM, Flash EPROM, or battery-backed SRAM memory devices

to be substituted for conventional disk drives. Using Ampro's SSD Support Software, any DOS-based software—including the operating system, programming languages, drivers, and application programs—can easily be run from SSD without modification.

Enhanced Embedded-PC BIOS
One of the most important features of the Little Board/486SLC-II is the inclusion of enhanced BIOS services and functions which meet the unique requirements of embedded microcomputer system applications. A detailed description of these BIOS enhancements appears in the Ampro Embedded-PC BIOS data sheet.

SPECIFICATIONS

STANDARD MOTHERBOARD FUNCTIONS

- 486SLC-2 microprocessor, 50 MHz internal clock rate
- Socket for 80387SX math coprocessor
- 512K, 1M, 2M, 4M, 8M, or 16M bytes DRAM with parity
- Shadow RAM support for fast system/video BIOS execution
- 7 DMA channels (8237 equivalent)
- 15 interrupt channels (8259 equivalent)
- 3 programmable counter-timers (8254 equivalent)
- Standard PC/AT keyboard port
- Speaker port with 0.1 watt output drive
- Battery-backed real time clock and CMOS RAM:
  - Up to 10-year battery life
  - Battery-free operation option
- Award ROM-BIOS with Ampro extensions (See Ampro Embedded-PC BIOS data sheet)

ADDITIONAL ONBOARD FUNCTIONS

- Serial controller:
  - Two RS232C serial ports with full handshaking (82C50 equivalent)
  - Onboard generation of ±9V for RS232C signal levels
  - Serial ports support RS232 (direct cabling) or RS485 (via the Ampro RS485 Adapter)
- Parallel printer port with bidirectional data lines
- Floppy disk controller:
  - Supports one or two drives
  - BIOS supports all standard PC/AT formats
- IDE hard disk drive interface:
  - Supports one or two drives
  - High speed 16-bit CPU interface
- SCSI interface:
  - ANSI X3.131 compatible (asynchronous only)
  - Based on popular 53C80 SCSI controller
- Three 32-pin byte-wide memory sockets:
  - Two PLCC sockets, usable with 128K-1M byte EPROMs or 32K-256K Flash EPROMs
  - One DIP socket, usable with 32K-1M byte EPROMs, 32K-512K Flash EPROMs, 32K-512K SRAMs, or 32K-512K NOVRAMs
  - Onboard battery converts SRAM in DIP socket to NOVRAM
  - Onboard programming of 5V and 12V Flash EPROMs

- Configurable as 32K-, 64K-, or 128K-byte window, addressed in the range D0000-EFFFFh
- Supports Solid State Disk operation when SSD software is used
- 2K-bit configuration EEPROM, with 512 bits for OEM use
- Watchdog timer:
  - Utilizes real-time clock alarm function
  - Timeout triggers hardware reset or non-maskable interrupt
- Powerfail NMI occurs when 5V power falls below 4.7V

SUPPORT SOFTWARE

- Embedded-PC BIOS extended features:
  - Solid state disk (SSD) support
  - SCSI services
  - Watchdog timer support
  - Fast boot option
  - Fail safe boot support
  - Battery-free boot support
  - Serial console option
  - Serial loader option
  - EEPROM access function
  - OEM customization hooks

- Embedded-PC Utilities:
  - Serial loader program
  - Serial SSD programmer
  - Setup access utility
  - SCSI support
  - Watchdog timer utility

See Ampro Embedded-PC BIOS data sheet for additional details.

MECHANICAL AND ENVIRONMENTAL

- Size: $5.75 \times 8.0 \times 1.2$ in. ($146 \times 203 \times 30$ mm)
- PC/104 bus:
  - 16-bit bus, non-stackthrough male pins, expandable with PC/104 Version 2 double-stackthrough modules
  - Four mounting holes
- Power requirement:
  - 1.4 A at +5V ±5% (typical; includes 2M RAM)
  - +12V required for 12V Flash device programming
- Operating environment:
  - 0° to 70° C temperature, standard; extended temperature screening available by special order
  - 5% to 95% relative humidity, non-condensing
- Storage temperature: -55° to +85° C
- Weight: 7.7 oz. (219 gm)

NOTE: Contact Ampro regarding custom configurations and special order options.