



MESA ELECTRONICS

FPXX FLAT PANEL PC

FEATURES:

- Low cost tiny user interface PC
- 128 x 64 pixel backlit LCD display
- 14.7 MHz 386SX compatible CPU
- Built-in ROM-DOS
- 2M bytes of RAM
- 2M or 4M bytes flash disk
- RS-232 / RS-485 serial port
- 16 bits of parallel I/O
- 16 display-labeled soft-keys
- Watchdog timer



The FPXX is a tiny PC compatible CPU with integrated LCD graphic display and a thin, flat form factor (2.6"H x 4.5"W x 1.0"D). The FPXX is a complete OEM embedded system user interface CPU with display, keyboard, serial and parallel I/O, flash disk, and LCD power supply.

Since the FPXX is PC compatible, most standard PC development tools and languages can be used for application programming.

The FPXX has ROM-DOS pre-installed in its BIOS EPROM, and needs only your application program to make a complete user interface.

The FPXX display is a 128 by 64 resolution monochrome, graphic, backlit or reflective LCD. Display dot pitch is .52 mm.

Text display modes include a 16 character by 8 line mode (8X8 font) and a 21 character by 8 line mode (5X7 font).

Graphics are handled directly by the FPXX BIOS (drawdot, drawline, and bitblt.) A BGI graphics driver is supplied to support Borland compilers. Blinking graphics and 3 level gray scale are possible by using multiple frame buffers.

FPXX display contrast can be adjusted via built-in software commands. The optional EL backlight can be turned on and off under software control.

The keyswitch array surrounds the display area so that the keys can be labeled in the display. Each key can return a user selectable scan code. The FPXX BIOS provides support for soft-key graphic labels.

The FPXX requires only +5V power for operation, since display and RS-232 interface power are generated on card. The low operating power and small size of the FPXX make it well suited to portable applications. Maximum operating current is 160 mA. with backlight off. FPXX Power can be reduced to approximately 50 mA. by halting the CPU.

The FPXX CPU is a 14.7 MHz 386SX compatible processor with 2M of system RAM, a 128K or 256K BIOS EPROM, and 2 or 4M byte high performance nand flash disk.

The on card flash disk is supported by the FPXX BIOS, and appears to the system as a standard hard disk. All utilities for using the flash disk are provided with the FPXX.

On card I/O includes a RS-232 / RS-485 serial port capable of up to 115K baud, 16 bits of parallel I/O (2/3 82C55), an eight input, 12 bit A-D converter, and an optional battery backed clock/calendar.

A 64 pin header is provided for user expansion. A PC/104 adaptor is available.

The FPXX is an upgrade to the MESA FPWX.

PROCESSOR: The FPXX uses a 14.7 MHz ALI M6117 processor. This processor/chipset provides nearly complete PC/AT compatibility.

MEMORY: The system RAM is 2M bytes. Normally, the BIOS and ROM-DOS are shadowed, leaving 640K of low memory plus 1M byte of extended memory.

Stock BIOS is 128K EPROM. Up to 256K EPROMS or flash are supported.

DISPLAY: 128H by 64V pixel transfective LCD display with optional EL backlight. Display is always used in graphics mode, but BIOS has various text output formats. Multi-plane screen buffer allows blinking graphics and overlays without redrawing the display. BIOS support for drawing graphic objects at arbitrary pixel boundaries (bitblt, drawdot, and line drawing.) Tools are supplied for embedding custom graphics in user programs. Graphic objects can be created with standard PC paint type programs that output .PCX files.

KEYBOARD: 16 key membrane switch surrounds display area, allowing display labeled keys. BIOS scans keyboard and allows dynamic reassignment of keyboard generated characters. BIOS supports labeled key graphics. On card speaker provides audible feedback (key click). Can use external PC/AT keyboard for development use.

DISK EMULATOR: one 2M or 4M byte nand flash chip for high performance and long life. Emulated drive appears exactly as normal hard drive. All tools for using flash EEPROM disk provided.

WATCHDOG TIMER: Resets CPU in event of software malfunction. Can be disabled if needed.

POWER SUPPLY: the FPXX requires 4.5 to 5.5 VDC for operation. LCD and RS-232 power is generated on card. Maximum current is 250 mA with backlight on. Maximum current is 150 mA with backlight off. Current can be reduced to approximately 75 mA by halting CPU. Display and keyboard scan remain active in halt state.

SERIAL PORT: RS-232 or optional RS-485 serial port uses 16C550 type FIFOed UART. RS-485 mode has driver disable capability for muti-drop applications. In RS-232 mode, serial port has all standard handshake signals. Serial port is located at COM4 location, and can use IRQ10 or IRQ3. Connector is 10 pin dual row 2 mm header, FPXX power is supplied on same header.

BUS EXPANSION CONNECTOR: 64 pin 2 mm header with provision for mounting daughter cards. Connector matches PC/104 XT bus pin-out.

PARALLEL PORT: 16 bits of parallel I/O. Uses port A and B of 82C55 (port C is used for membrane switch scanning but is also available on connector). Can be configured as 16 in, 16 out, or 8 in 8 out. Pull-up resistors provided on port B. Connector is 26 pin dual row 2 mm header.

REMOTE LOAD: Application program can be loaded over serial port for quick application development. Host for remote load is any PC with serial port and hard disk.

ANALOG IN: 8 input A-D converter with 12 bits of resolution. 2.5V full scale input. Connector is 10 pin dual row 2 mm header.

CLOCK CALENDAR: Lithium cell backed clock calendar. Minimum 5 year power off Lithium cell life.

ORDERING INFORMATION:

FPXX-F2M	2M flash disk
FPXX-F4M	4M flash disk

ADD -EB for EL Backlight -FB for flash BIOS