

P501 - PMC CRT/LCD Graphics Accelerator



- **Simultaneous CRT and LCD**
- **LCD up to 1280 x 1024 (via carrier board)**
- **CRT with 1024 x 768 (on front)**
- **135MHz video frequency**
- **4MB video DRAM**
- **VGA-compatible BIOS**

The P501 is a graphics controller suitable for any PMC compliant host carrier board in any type of bus system, i.e. CPCI, PXI, VME or on any type of stand-alone SBC. A similar functionality is also available on PC-MIP, a PCI-based mezzanine card in a smaller form factor. Appropriate PMC and PC-MIP carrier cards in 3U, 6U and other formats are available from MEN or other manufacturers.

The P501 features the SM910 graphics accelerator and supports many features of this component, e.g. CRT and simultaneous LCD, dual view for full and partial

display on LCD. It also supports dual applications, i.e. one window application can be displayed on LCD, and another on CRT.

The P501 comes with 2MB video DRAM, with the CRT signals at the front panel and the LCD signals via PMC connector P3. The LCD pinning on P501 is compatible with MEN's LCD adapter AD11 (color, 640x480 TFT). The P501 supports a VGA compatible BIOS with options for CRT-only, LCD-only and simultaneous CRT/LCD display.

Technical Data

CRT Interface

- 15-pin HD-Sub receptacle at front
- VESA DPMS, DDC-2 support
- 1280 x 1024 resolution (under WindowsNT)

LCD Interface

- Via PMC P4
- Supports STN, DSTN and TFT display types
- Dithering engines to increase color depths
- Auto centering for all graphics modes on high-resolution panels
- Full screen expansion for VGA modes on high-resolution panels
- 16/24-bit interface for color DSTN panels and LCD monitors
- Up to 1280 x 1024 resolution
- 9/12/18/24-bit (single pixel per clock) and 24-bit (two pixels per clock) for color TFT panels
- Up to 1280 x 1024 resolution

Enhanced Features

- Simultaneous display function for CRT and LCD
- Dual view function: full display on LCD and partial display on LCD
- Dual application function: display one window application on LCD and another on CRT
- Virtual Refresh (TM) architecture:
- Simultaneous display on CRT and LCD with different resolutions, different refresh rates and different images

2D/3D Graphics Drawing Engine

- 64-bit drawing engine
- DirectDraw H/W acceleration
- Direct3D H/W rendering acceleration

Video Memory

- 2MB DRAM

RAMDAC

- 135MHz clock, 24-bit RAMDAC
- Supports 16M colors
- Supports hardware cursor, hardware pop-up icon

VGA BIOS

- VGA-compatible BIOS
- Options for CRT-only, LCD-only and simultaneous CRT/LCD display

Peripheral Connections

- Via front panel on a shielded 15-pin HD-Sub receptacle connector (CRT interface)
- Via P4/carrier board (LCD interface)

PCI Characteristics

- 32-bit PCI, complying with PCI Local Bus Specification, Rev. 2.1

- Target and initiator
- Intelligent host FIFO
- Big and Little endian support

Electrical Specifications

- Supply voltage/power consumption:
 - +5V (4.85V..5.25V), 50mA typ.
 - +3.3V (3.15V..3.6V), 250mA typ.
- MTBF: 70,000h @ 50°C

Mechanical Specifications

- Dimensions: conforming to IEEE 1386.1
- Weight: 70g

Environmental Specifications

- Temperature range (operation):
 - 0..+60°C
 - Industrial temperature range on request
 - Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/0.33ms, 6g/6ms
- Vibration: 1g/5..2,000Hz

Safety

- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

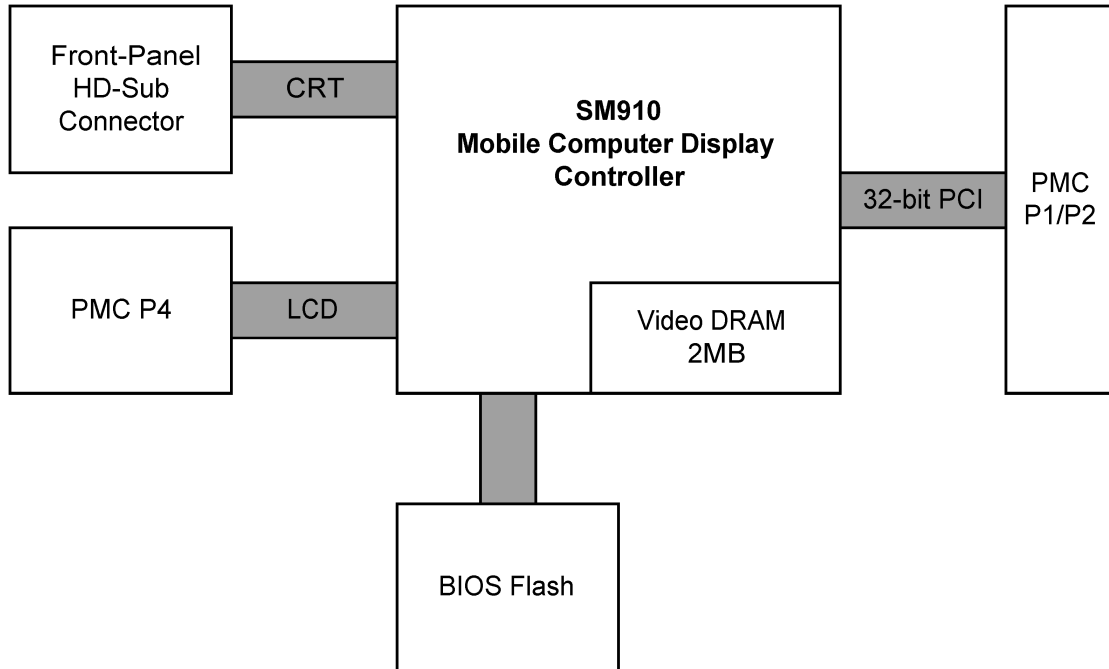
EMC

- CE conformity

Software Support

- SM910 Video BIOS including VBE 2.0 support, VESA DDC-2 support
- Windows 95 / Windows NT / Windows 2000 including driver, Virtual display driver, DirectDraw HAL, Direct3D HAL
- VxWorks
- Linux (on request)

Diagram



Related Products

Standard Hardware

15P501-01	P501, PMC, SM910 graphics controller, LCD (1280x1024) and CRT (135MHz), 2MB DRAM
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Please refer to our PC-MIP and PMC compare chart for a selection of mezzanine functions.

Software

13P001-60	VxWorks®: graphics driver for P1 (MEN, source code for 68k, x86, PPC)
13P001-70	Windows® NT: Graphics driver for P1 (SMI, object code)

Documentation

20P501-00	P501 User Manual
21APPN003	Application Note: Using P1/P501 Graphics on MEN 824x/ALI boards under ELinOS

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the P501 online data sheet under www.men.de. --> [Click here!](#)

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