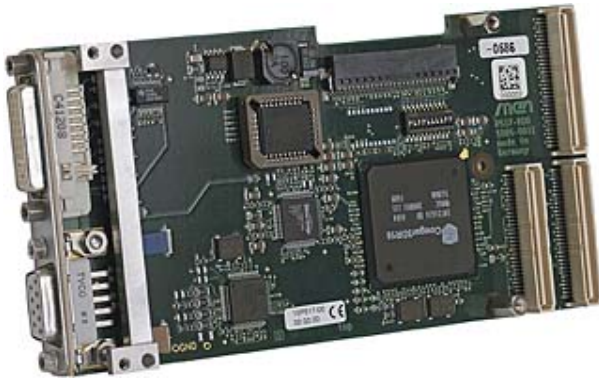# P517 - PMC Graphics Accelerator

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- **Graphics controller SM731**
- **16 MB integrated graphics RAM**
- **4 Mbit video BIOS ROM**
- **Up to 1600 x 1200 pixels**
- **Up to 16.7 M colors**
- **Up to 85Hz refresh rate**
- **LCD (up to UXGA) and CRT via DVI-I (front)**
- **PanelLink via DVI-I (front)**
- **S-Video I/O and Composite Video out via D-Sub (front)**
- **2x LVDS via on-board connector**

The P517 is a high-performance 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 P517 features the Silicon Motion SM731 3D/2D dual display controller which manages graphics processing. The SM731 supports a 235-MHz, 24-bit RAMDAC at a maximum of 1600 x 1200 pixels resolution and delivers enhanced multi-display capabilities. It can drive two independent digital displays (dual digital), either

with identical or with different screen displays. Simultaneously, it can drive LCD, CRT and TV displays (DualMon). The controller also incorporates two 112-MHz max pixel clock LVDS channels that can drive two separate panels or a single high-resolution panel (UXGA).

The P517 provides a Digital Video Interface (DVI-I) for LCD and CRT via a DVI-I front-panel connector. It also provides an S-Video input and output and Composite Video output via a D-Sub front-panel connector. Both LVDS channels are supported via an onboard plug connector (optionally via the P4 rear I/O connector). These connections can be used to control a panel.

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Technical Data

Graphics Control
- SM731 controller
- Video
  - Zoom video port
  - Video filtering
  - Multiple independent hardware video windows
- Memory
  - 16MB embedded SGRAM
  - 64-bit memory interface
  - Various on-chip DRAM memory configurations
- DVI via PanelLink transmitter
  - Integrated Dual Channel LVDS transmitters
  - Single or dual pixel per clock
  - DualMon support
  - Up to 1600 x 1200 resolution
  - Up to 16.7M colors
- RAMDAC
  - 235MHz
  - 24 bits
  - Up to 1600 x 1200 resolution
  - Up to 16.7M colors
- Video BIOS ROM
  - 4 Megabit (512K x 8 bits)

Interfaces
- DVI-I via front-panel connector
- S-Video Output/Input and Composite Video Output via front-panel connector
- LVDS1 and LVDS2 via onboard connectors

PCI Characteristics
- 32-bit PCI, complying with PCI Local Bus Specification, Rev. 2.2
- 33MHz
- Target

Peripheral Connection
- Via front panel on one DVI-I connector and one standard 9-pin D-Sub receptacle connector
- Via optional onboard 50-pin plug connector
- Option: Via P4 rear I/O

Electrical Specifications
- Isolation voltage: tbd.
- Supply voltage/power consumption:
  - +5V (4.85V..5.25V), 900mA max.
  - +3.3V (3.0V..3.6V), 1.4A typ.
- MTBF: tbd. @ 50°C

Mechanical Specifications
- Dimensions: conforming to IEEE 1386.1
- Weight: 84g

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/11ms
- Bump: 10g/16ms
- Vibration (sinusoidal): 2g/10..150Hz

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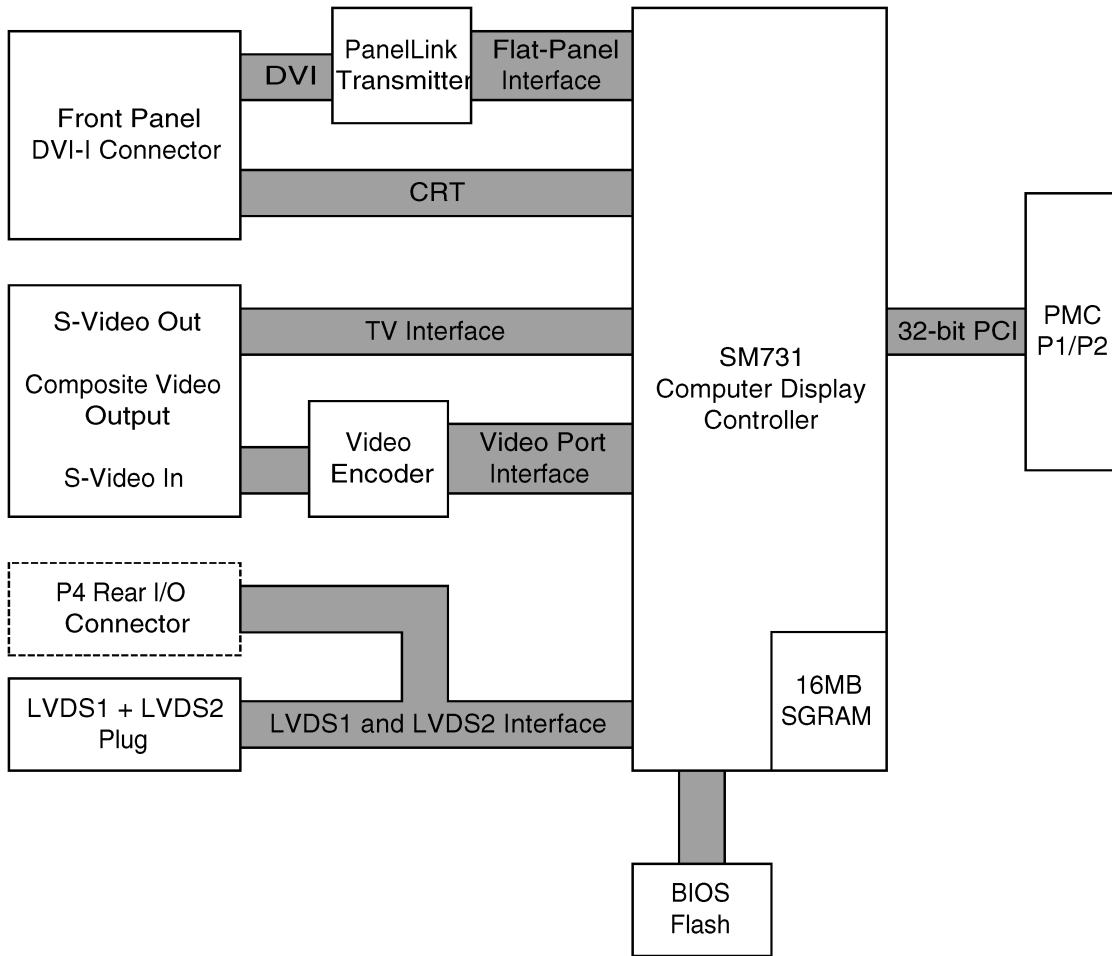- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

EMC
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst) with regard to CE conformity

Software Support
- Driver support for Windows 2000/XP, OS-9 (incl. C library and shared library module for XiBase9)

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Diagram

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┌──────────────────┐      ┌────────────┬────────────┐    ┌─────────────────┐
│                  │      │ PanelLink  │ Flat-Panel │    │                 │
│                  │ DVI  │Transmitter │ Interface  │    │                 │
│   Front Panel    ├──────┤            ├────────────┤    │                 │
│  DVI-I Connector │      └────────────┴────────────┤    │                 │
│                  ├────────────────────────────────┤    │                 │
│                  │             CRT                 │    │                 │
└──────────────────┘                                 │    │                 │
                                                      │    │    PMC          │
┌──────────────────┐                                 │    │   P1/P2         │
│   S-Video Out    ├──────────── TV Interface ───────┤    │                 │
│                  │                                  │    └─────────────────┘
│ Composite Video  │      SM731                  32-bit PCI
│     Output       │   ┌────────────┐ Computer Display
│                  ├───┤   Video    │ Controller
│   S-Video In     │   │  Encoder   │ Video Port
└──────────────────┘   └────────────┘ Interface

┌ ─ ─ ─ ─ ─ ─ ─ ─ ┐
   P4 Rear I/O
│   Connector     │
└ ─ ─ ─ ─ ─ ─ ─ ─ ┘              16MB
                                SGRAM
┌──────────────────┐
│ LVDS1 + LVDS2    │  LVDS1 and LVDS2 Interface
│     Plug         │
└──────────────────┘
                              BIOS
                              Flash
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Related Products

Standard Hardware

15P517-00	P517, PMC graphics accelerator with SM731, 16MB integrated SGRAM, 4 Mbit Flash BIOS, LCD (up to UXGA resolution) and CRT via DVI, 2xLVDS (only via onboard connector), S-Video In/Out and Composite Video Output; operation temperature 0..+60°C

Please refer to our PC-MIP and PMC compare chart for a selection of mezzanine functions.

Accessories

05F007-02	DVI-to-VGA cable, DVI plug to 15-pin HD-Sub plug, 2m, -40..+85°C
05P017-00	Splitter cable D-Sub S-Video In/Out, Composite Video Output to 2 mini DIN 4-pin/RCA jacks
0501-0001	DVI-I to DVI-D and VGA Y-adapter cable (for example for D4, F7/N, F8, F9, P17)

Software

XiBase9, a graphical user interface for Linux and OS-9 from XiSys, is running on the MEN graphics controller PC-MIP and PMC modules P1, P17 and P517 in combination with the PowerPC-based Single-Board Computers A11, A12, D3, F1N, B11 and SC13 (further SBCs on request). For more information, purchase and support please apply to www.xisys.de.

13P017-01	OS-9: C library for P17 and P517 for simple portations of various graphics packages based on a frame buffer interface
13P017-02	OS-9: Shared library module XiGfx.dll. for P17 and P517 for XiBase9
13P017-71	Windows® 2000: Graphics driver for P17 and P517 (SMI, object code)
13P017-72	Windows® XP2000: Graphics driver for P17 and P517 (SMI, object code)

Further driver software for Windows® 98, Windows® 2000, Windows® XP (SMI) and XiBase9 (MEN) on request.

Documentation

20P517-00	P517 user manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the P517 online data sheet under www.men.de. --> Click here!

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